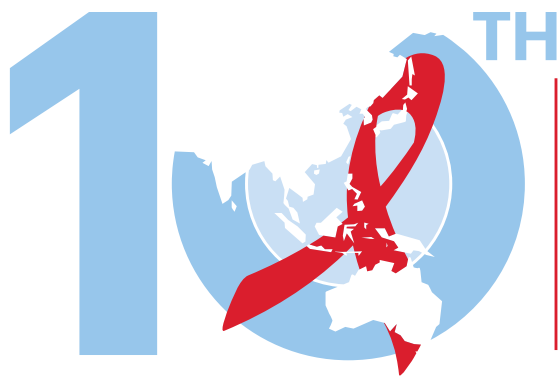




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2025

ASIA-PACIFIC AIDS
& CO-INFECTIONS
CONFERENCE



ABSTRACT BOOK

Asia-Pacific AIDS & Co-infections Conference 2025

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ORAL ABSTRACT PRESENTATIONS

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1

Where Are They?: Lessons Learned from Community-Led Interventions and Monitoring Targeting Heterosexual Men in Singapore

Lim T, Alkhatib F¹

¹Action For AIDS Singapore, Singapore, Singapore

Background: Heterosexual transmission accounted for 52.7% of reported HIV infections in Singapore from 1985 to 2023. While heterosexual transmission has been declining since 2009, heterosexual men are significantly less likely to have their infections detected via voluntary testing (1.5% of heterosexual men vs 22.9% of MSM in 2023) and consequently more likely to present at a late stage of infection.

Intervention: Outside of government-led interventions targeted at the general population, heterosexual men have historically been underserved by efforts to promote HIV prevention and testing. Since 2009, we have run a community-based outreach programme targeting at-risk heterosexual men involving peer education and condom distribution in red light districts, entertainment establishments, transit points, and coffee shops; safer sex-themed shows at clubs, getai shows, and parties; and online edutainment. The effectiveness of these outreach efforts is evaluated by monitoring uptake of voluntary testing at our anonymous testing services and conducting regular knowledge, attitudes and practices surveys of at-risk heterosexual men.

Lessons Learned: • Knowledge of where to get a HIV test (23.2% in 2019 vs 57.0% in 2024), PrEP (5.6% in 2019 vs 32.9% in 2024), and PEP (9.6% in 2019 vs 26.5% in 2024) have increased significantly. Behavioural changes have also been seen, with improvements in history of HIV testing (30.4% in 2019 vs 39.6% in 2024) and PrEP use (5.2% in 2022 vs 11.6% in 2024).

• Heterosexual men who frequent entertainment establishments and coffee shops have lower levels of HIV knowledge, lower levels of HIV/STI testing, and higher levels of sexual risk behaviours than those encountered at anonymous testing sites and

online. They are more likely to turn to friends and social media than authoritative sources for sexual health information. Peer-led in-person engagement remains the best way to reach these men. However, this work tends to be resource-intensive and challenging to fund.

• Online strategies have mixed results in reaching out to heterosexual men. When COVID necessitated online-only outreach, voluntary anonymous testing declined disproportionately more among heterosexual men than MSM. At-risk heterosexual men still prefer to find casual partners and sex workers at physical venues rather than online, a trend further spurred by the fear of online scams. However, online outreach can encourage testing among younger heterosexual men, who are growing less likely to frequent nightlife establishments due to cost concerns and changing preferences.

• HIV self-testing is an important modality for heterosexual men. Majority (62%) agreed that making self-test kits easily accessible would promote voluntary testing. During a national pilot of HIV self-testing, 45% of our male clients who purchased self-test kits were heterosexual, compared to 37% of those who opted for onsite tests. Self-test clients were also more likely to be married (17% vs 11% of onsite testers) and older.

• Engaging at-risk heterosexual men is challenging as they are strongly incentivised to hide their behaviours. Community-led monitoring taps on informal networks to reach these men and gives us direct feedback to adjust our outreach programmes accordingly. There is potential to use this data to influence national programmes.

2

Premium Discreet, Community-Led HIV Services as a Strategy for Differentiated Care: Evaluating the Luxecare Model by LoveYourself

Cebrano F, Pagtakhan R¹, Rosadiño D¹, Ruanto J¹, Lomarda L¹, Rivera A¹

¹LoveYourself Inc., Mandaluyong, Philippines

The Philippines continues to experience a rapid increase in HIV incidence, with daily reported cases rising from 9 in 2012 to 46 in 2023. Young individuals under 35 years old account for more than 75% of new infections, with 47% occurring among those aged 15 to 24. Despite advancements in HIV treatment and prevention, stigma and discrimination remain substantial barriers to accessing services, particularly among men who have sex with men (MSM) and transgender individuals. Concerns over confidentiality, fear of judgment, and societal discrimination deter individuals from seeking HIV testing and treatment, leading to late diagnoses and increased transmission risk. To address these challenges, LoveYourself developed Luxecare, a community-led, discreet, and private service delivery model that integrates HIV services within a broader spectrum of health and wellness care. This study evaluates the effectiveness of the Luxecare model in providing differentiated HIV services, improving healthcare engagement, and reducing stigma-related barriers.

Luxecare, an initiative by LoveYourself, employs an appointment-based, client-centered approach to HIV care, prioritizing discretion and confidentiality. Services include HIV testing, treatment initiation, maintenance therapy, and virtual counseling facilitated by trained community health workers. Additionally, Luxecare integrates sexual health services, such as sexually transmitted infection (STI) testing and treatment, alongside aesthetic and gender-affirming services tailored for transgender individuals. A retrospective review of service utilization data was conducted to assess the uptake and effectiveness of the program, including the number of individuals accessing

services, HIV testing rates, reactivity rates, and linkage to treatment outcomes.

Since the model started operating in 2020, 15,473 individuals utilized Luxecare services, demonstrating a demand for private and confidential healthcare options. Providing services in a confidential and private setting reduces stigma-related hesitations and encourages testing and treatment uptake, which enhances accessibility. 9,728 individuals tested for HIV, with a reactivity rate of 7.14% (695). 94.96% of reactive cases were successfully linked to treatment. Personalized and peer-led engagement strengthened client relationships, resulting in higher adherence to treatment. Virtual counseling and digital appointment scheduling facilitated ongoing engagement, particularly among high-profile and privacy-conscious clients. Offering sexual health and aesthetic services alongside HIV care normalized service use and enhanced accessibility for transgender individuals seeking gender-affirming interventions. Clients expressed a preference for integrated services, reinforcing the demand for a differentiated, all-inclusive healthcare approach.

The Luxecare model demonstrates that discreet, client-centered service delivery can effectively overcome stigma-related barriers to HIV care. By integrating HIV services within a broader package of sexual health and aesthetic care, the initiative fosters a more inclusive and normalized approach to healthcare. Findings suggest that scaling up similar differentiated service delivery models could significantly improve HIV testing uptake, treatment retention, and overall health outcomes for key populations. Further research is recommended to evaluate long-term impact and replicability in other high-stigma settings.

3

‘Many Heterosexual Women Like Me Feel Mpox is Not Our Business’: Exploring facilitators and barriers to mpox vaccine initiation and full vaccination in Taiwan’s syndemic of mpox and HIV

Chu I¹, Huang P², Li C³, Ku S⁴, Wu H⁵, Ko N⁶, Strong C⁷

¹Department of Health Services Research and Policy, Faculty of Public Health and Policy, London School of Hygiene and Tropical Medicine, London, United Kingdom, ²Institute of Health Behaviors and Community Sciences and Master of Public Health Program, National Taiwan University, Taipei, Taiwan, ³Department of Internal Medicine, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan, ⁴Division of Infectious Diseases, Department of Medicine, Taipei City Hospital Renai Branch, Taipei, Taiwan, Taipei, Taiwan, ⁵Kirby Institute, University of New South Wales, Sydney, Australia, ⁶Department of Nursing, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan, ⁷Department of Public Health, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan

Background: Since the World Health Organization declared mpox as a public health emergency of international concern (PHEIC) in July 2022, Taiwanese governments have delivered free two-dose JYNNEOS® vaccines to mpox vaccination priority populations (MVPs). MVPs include individuals with multiple sexual partners, PrEP users and people living with HIV irrespective of gender identity or sexual orientation. To mitigate negative impacts of mpox on populations affected by the ongoing mpox pandemic, this study explores individual perceived barriers and facilitators to initiating and completing two-dose mpox vaccination.

Methods: From February 2024 to September 2024, twelve semi-structured interviews were conducted to explore MVPs’ lived experiences in the mpox pandemic. Purposive sampling was applied to enhance interviewee diversity in gender identity, HIV status and geography. Interviews were audio-recorded, transcribed and thematically analysed using an analytical framework informed by the capability-opportunity-motivation behaviour

model (Michie et al., 2011) and the Socio-Ecological model (Bronfenbrenner, 1979).

Results: Six facilitators and six barriers to initiating mpox vaccination for mpox vaccination priority populations were:

Six facilitators: Literacy in verified information on mpox (capability); the ability to make online appointments for vaccination (capability); having accessible healthcare facilities with available timeslots (opportunity); profiles on geospatial apps exhibiting mpox vaccination status (opportunity); being anxious about negative impacts of mpox on facial appearance (motivation); and ‘Protect my own health’ to avoid being associated or infected with mpox (motivation).

Six barriers: Confusion between mpox and chickenpox (capability); limited health literacy of vaccine efficacy (capability); a lack of encouraging norms for mpox vaccination among social networks and platforms (opportunity); negative experiences of mpox vaccination spread in social media (opportunity); perceived no or minimal risks for mpox acquisition (motivation); and anticipated social stigma against vaccination scars that intersect with stigmas of sexual minorities or sex workers (motivation).

Furthermore, four key barriers to full vaccination against mpox were identified across interviews at personal, interpersonal, communal and policy levels:

1. Perceived low necessity and urgency in completing two-dose vaccination: “If the first dose gives me 70% protective power [against mpox] and the second gives me 80%, I don’t see why such differences matter.” (HIV-positive man)
2. Contested norms of mpox vaccination within social networks: “Compared to 2022, this time none of my friends is talking about mpox. People don’t care due to no new [Clade I mpox] cases in Taiwan.” (HIV-negative man)
3. Communal distrust of public health authorities: “When governments tirelessly promote full [mpox] vaccination, we wonder whether those vaccines expire soon.” (HIV-negative man)
4. Gendered vaccine inequality as women’s needs for mpox vaccination were under-addressed in men-focused public health messaging: “The way our governments promote mpox vaccine makes

many heterosexual women like me feel mpox is not our business, as they rarely hook up.” (HIV-negative women)

Conclusions: People self-identifying as women should be considered key populations in the syndemic of HIV and mpox. Equitable vaccination programmes require normalising mpox acquisition and prevention, tackling vaccine misinformation and coproducing whole-person-centred communication strategies with people of all genders.

4

Forecasting Burden of Selected NCDs in Thai People Living with HIV

Trachunthong D¹, Tipayamongkhogul M², Chumseng S³, Darasawang W⁴, Bundhamcharoen K⁵

¹Princess Srisavangavadhana College of Medicine, Chulabhorn Royal Academy, Bangkok, Thailand, ²ASEAN Institute for Health Development, Mahidol University, Bangkok, Thailand, ³ICON plc Clinical Research Organization, Bangkok, Thailand, ⁴Department of Social Medicine, Buriram Hospital, Buriram, Thailand, ⁵The International Health Policy Program (IHPP), Ministry of Public Health, Nonthaburi, Thailand

Background: Thailand is a middle-income country with a high burden of noncommunicable diseases (NCDs) and HIV. Several studies have found substantial NCDs burden among Thai people living with HIV; diabetes (DM), cardiovascular diseases (CVD), and chronic kidney disease (CKD) are major public health concerns. Insight NCDs burden attributable to HIV could assist policymakers to foresee public health problem and formulate the best policy. Disability-adjusted life years (DALYs) is a summary measure of total health loss. The DALYs can be predicted to occur due to a particular risk factor that is known as risk-attributable DALYs. This study aimed to get insight the burden of NCDs linked to HIV in Thailand by estimating HIV attributable DALYs of NCDs and its monetary value.

Methods: DALYs of DM, CVD, and CKD attributable to HIV infection in Thai adults aged ≥ 15 years were estimated from 1996 to 2019. Autoregressive Integrated Moving Average (ARIMA) was applied to forecast the DALYs of DM, CVD, and CKD attributable to HIV in Thailand from 2020 to 2040 using the datasets from 1996 to 2019. The DALYs attributable to HIV were converted to Thailand's total monetary value of DALYs related to HIV according to the formula adapted from the WHO statement.

Results: The study forecasting the burden of NCDs attributable to HIV in the Thai population aged 15 years and older from 2020 to 2040 revealed that the burden of CVD will be the greatest, followed by CKD and DM. The average DALYs attributable to HIV for CVD, CKD, and DM will be 6,237.45,

3,356.45, and 3,228.24, respectively. Considering the trend of disease burden, the DALYs attributable to HIV for DM will increase continuously from 2020 to 2040, with a rise of 3–25%. The DALYs attributable to HIV for CKD are expected to be slightly higher, with an increase of approximately 5–10%. In contrast, the DALYs attributable to HIV for CVD will decrease from 2020 to 2040 by approximately 3.5–52%.

Regarding the monetary value of DALYs attributable to HIV for NCDs in Thailand between 2020 and 2040, the monetary value of CVD will be the highest, followed by CKD and DM. The average monetary values for CVD, CKD, and DM will be 44.84, 24.36, and 23.83 million USD, respectively. Since 2019, the monetary value of DM is likely to increase by approximately 0.3% to 33.3%. The monetary value of CKD will increase by 0.2% to 11%, while the monetary value of CVD will steadily decline, with a decrease of approximately 12–48.8%.

Conclusions: HIV infection contributes to an increased burden of NCDs. To address the significant burden of multimorbidity among HIV patients, integrated care for HIV and NCDs is essential for preventing NCDs among PLWHV.

5

Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD) Among People with HIV in the Asia-Pacific

Rupasinghe D¹, Kiertiburanakul S², Choi J³, Lee M⁴, Ross J⁵, Khol V⁶, Khusuwan S⁷, Uemura H⁸, Chen H⁹, Pujari S¹⁰, Chaiwarith R¹¹, Azwa I¹², Kumarasamy N¹³, Somia K¹⁴, Do C¹⁵, Borse R¹⁶, Yuniastuti E¹⁷, Gani Y¹⁸, Choy C¹⁹, Ditangco R²⁰, Avihingsanon A²¹

¹The Kirby Institute, University of New South Wales, Sydney, Australia, ²Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand, ³Division of Infectious Diseases, Department of Internal Medicine, Yonsei University College of Medicine, Seoul, South Korea, ⁴Queen Elizabeth Hospital, Hong Kong SAR, ⁵TREAT Asia, amfAR - The Foundation for AIDS Research, Bangkok, Thailand, ⁶National Center for HIV/AIDS, Dermatology & STDs, Phnom Penh, Cambodia, ⁷Chiangrai Prachanukroh Hospital, Chiang Rai, Thailand, ⁸National Center for Global Health and Medicine, Tokyo, Japan, ⁹Taipei Veterans General Hospital, Taipei, Taiwan, ¹⁰Institute of Infectious Diseases, Pune, India, ¹¹Faculty of Medicine and Research Institute for Health Sciences, Chiang Mai University, Chiang Mai, Thailand, ¹²University Malaya Medical Centre, Kuala Lumpur, Malaysia, ¹³VHS-Infectious Diseases Medical Centre, Chennai Antiviral Research and Treatment Clinical Research Site (CART CRS), Voluntary Health Services, Chennai, India, ¹⁴Faculty of Medicine Udayana University - Ngoerah Hospital, Bali, Indonesia, ¹⁵Bach Mai Hospital, Hanoi, Vietnam, ¹⁶BJ Government Medical College and Sassoon General Hospital, Pune, India, ¹⁷Faculty of Medicine Universitas Indonesia - Dr. Cipto Mangunkusumo General Hospital, Jakarta, Indonesia, ¹⁸Hospital Sungai Buloh, Sungai Buloh, Malaysia, ¹⁹Tan Tock Seng Hospital, National Centre for Infectious Diseases, Singapore, ²⁰Research Institute for Tropical Medicine, Muntinlupa City, Philippines, ²¹HIV-NAT/Thai Red Cross AIDS and Infectious Diseases Research Centre and Center of Excellence in Tuberculosis, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: Metabolic dysfunction-associated steatotic liver disease (MASLD) is prevalent among people with HIV and has become one of the most common chronic liver diseases in this population. This study aims to assess MASLD among people with HIV in the Asia-Pacific between 2010 to 2023.

Methods: Participants were included from a regional Asia-Pacific cohort of adults with HIV who had started antiretroviral therapy (ART) and had ALT, AST, height, weight, and glucose measurements for analysis. Participants ever having heavy alcohol consumption were excluded

from the study, as concurrent alcohol consumption is known to worsen MASLD prognosis. MASLD was defined as a Hepatic Steatosis Index (HSI) score >36. Descriptive statistics were used to assess and compare temporal trends and the proportion and characteristics at ART start of those with MASLD.

Results: A total of 9052 adults with HIV were included in the study, the majority of whom were male (70%). Median age was 36 years (IQR 29–43), median BMI was 19 kg/m² (IQR 9–22), and hepatitis B (HBV) and hepatitis C (HCV) co-infection were reported among 13% and 12% of the participants, respectively. Most participants (43%) were from upper-middle income countries. Half (50%) of the study participants had MASLD. At start of ART, participants with MASLD had similar characteristics to the total study population. The proportion with MASLD increased from 28% (95%CI 25–33) in 2010 to 35% (95%CI 34–36) in 2023. This increase was observed in both lower-middle income (2010: 24% [95%CI 20–28], 2023: 33% [95%CI 31–35]) and high-income settings (2010: 30% [95%CI 22–38], 2023: 37% [95%CI 35–39]). The proportion remained stable in upper-middle income settings (2010: 35% [95%CI 29–41], 2023: 34% [95%CI 32–35]). A higher proportion of MASLD was seen among participants with BMI ≥23 kg/m² compared to <23 kg/m² (77% vs 42%, p<0.001), those with HBV co-infection compared to those without (53% vs 49%, p=0.012), and those with HCV co-infection compared to those without (58% vs 49%, p<0.001). A higher proportion of MASLD was seen among those with cholesterol ≥200 mg/dL compared to <200 mg/dL (58% vs 47%, p<0.001) and those who ever smoked compared to those who never smoked (63% vs 53%, p=0.007).

Conclusions: The proportion of MASLD increased from 2010 to 2023 among our cohort of adults with HIV in the Asia-Pacific. The higher proportion among those with higher BMI, elevated cholesterol levels, viral hepatitis co-infections, and a history of smoking highlight the need for ongoing screening and monitoring of MASLD.

6

Lipoprotein(a) and De Novo Coronary Artery Calcification in Aging Thai PLWH: A Six-Year Study

Hiranburana N^{1,2}, Ubolyam S^{1,2}, Apornpong T¹, Kerr S^{1,3,4}, Jarusyindumrong Y¹, Chattranukulchai P⁵, Siwamogsatham S⁵, Tumkosit M⁶, Avihingsanon A^{1,2}

¹HIV Netherlands Australia Thailand Research Collaboration (HIV-NAT), Bangkok, Thailand, ²Center of Excellence in Tuberculosis, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ³Biostatistics Excellence Centre, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ⁴The Kirby Institute, University of New South Wales, , Australia, ⁵Division of Cardiovascular Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ⁶Department of Radiology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: Elevated lipoprotein(a) [Lp(a)] is a strong genetically determined independent risk factor for atherosclerotic cardiovascular disease (ASCVD). Levels ≥ 30 mg/dL have shown an association with an increased risk of cardiovascular events, and this cutoff value has been incorporated into guideline recommendations from several international societies, including the European Atherosclerosis Society (EAS), the Canadian Cardiovascular Society (CCS), and the Beijing Heart Society. However, its role in predicting de novo coronary artery calcification (CAC > 0), a marker of subclinical atherosclerosis, in aging people living with HIV (PLWH) on long-term antiretroviral therapy (ART) remains unclear.

Method: This cohort study enrolled Thai PLWH aged 50–60 years from HIV-NAT in Bangkok, excluding those with prior ASCVD events. Baseline assessments included 10-year ASCVD risk, smoking and alcohol status, metabolic profiles, HIV virologic control, CD4 count, inflammatory markers, and statin use. CAC scans were performed at baseline (2015–2018) and repeated during follow-up (2023–2024). Participants with a baseline CAC score of 0 were evaluated for progression in repeated CAC scan and tested for Lp(a). Logistic regression was used to assess the association between elevated Lp(a) (> 30 mg/dL) and CAC progression, along with other potential determinants.

Results: Among 135 participants with a baseline CAC score of 0, 68 (50%) developed new coronary calcification over a median follow-up of 5.9 years (IQR 5.5–6.8). At baseline, progressors were more likely to be male (65% vs. 33%, $p < 0.001$), current smokers (14.7% vs. 7.5%, $p = 0.002$), alcohol consumers (31% vs. 8%, $p = 0.001$), hypertension (34% vs. 18%, $p = 0.05$), had a higher prevalence of intermediate-to-high 10-year ASCVD risk (44% vs. 20%, $p = 0.003$). Median Lp(a) levels were significantly lower in progressors compared to non-progressors (17.2 mg/dL, IQR 9.1–35.3 vs. 12.2 mg/dL, IQR 5.5–24.3, $p = 0.03$). In multivariable analysis, BMI ≥ 25 kg/m² (OR 3.8 95% CI 1.4–10.3 $p = 0.009$), and smoking (OR 2.96, 95% CI 1.04–8.44, $p = 0.042$) were independently associated with CAC progression. Elevated Lp(a) (> 30 mg/dL), inflammatory markers (hsCRP, IL-6), and triglyceride-glucose (TyG) index and were not significantly associated with increased risk.

Conclusions: Half of the participants developed new coronary artery calcification over the follow-up period. Elevated Lp(a) was not an independent risk factor for CAC progression. Prioritizing smoking cessation, weight management, and lipid-lowering strategies is essential for reducing cardiovascular risk in high-risk PLWH populations.

7

Profiling the HIV Pre-Exposure Prophylaxis (PrEP) Cascade in Japan: A Latent Class Analysis of a Nationwide Cross-Sectional Study

Miwa T^{1,2}, Strong C¹, Ku S³, Li C⁴, Huang P^{5,6}, Wu H⁷, Yamaguchi M⁸, Ikushima Y², Mizushima D⁹

¹Department of Public Health, College of Medicine, National Cheng Kung University, Tainan, Taiwan, ²Positive Living and Community Empowerment Tokyo (PLACE TOKYO), Tokyo, Japan, ³Division of Infectious Diseases, Department of Medicine, Taipei City Hospital Renai Branch, Taipei, Taiwan, ⁴Division of Infectious Diseases, Department of Internal Medicine, National Cheng Kung University Hospital, Tainan, Taiwan, ⁵Institute of Health Behaviors and Community Sciences, College of Public Health, National Taiwan University, Taipei, Taiwan, ⁶Master of Public Health Degree Program, College of Public Health, National Taiwan University, Taipei, Taiwan, ⁷The Kirby Institute, University of New South Wales Sydney, , Australia, ⁸Hakujikai Choju Rehabilitation Hospital, Tokyo, Japan, ⁹AIDS Clinical Center, National Center for Global Health and Medicine, Tokyo, Japan

Background: Despite its proven efficacy in HIV prevention, pre-exposure prophylaxis (PrEP) uptake remains low in Japan. To understand existing barriers and potential opportunities to improve PrEP uptake, this study aimed to construct a PrEP cascade for gay, bisexual, and other men who have sex with men (gbMSM) in Japan and examine group profile patterns associated with transitions along the cascade.

Material and Methods: An online cross-sectional survey of gbMSM in Japan was conducted between February and March 2021, with participants recruited through a geosocial dating application. Participants were excluded from analysis if they were under 18 years old, assigned female at birth, lived outside Japan, were living with HIV, or did not respond to HIV testing questions. A four-step PrEP cascade was developed, encompassing awareness, willingness, initiation, and regimen of PrEP. Latent class analysis (LCA) was used to identify participant subgroups based on sociodemographic factors, sexual behaviours, whether they had a friend living with HIV, and their comfort level discussing sexuality and sexual behaviours with healthcare providers. Logistic regression analysis examined

the association between the latent classes and the most significant drop-off in the cascade.

Results: A total of 5,923 gbMSM were included in the analysis (mean age: 38.6 years, SD: 10.9). The majority identified as cisgender (98.4%), with 77.6% identifying as gay and 20.3% as bisexual. Among them, 52.4% (3,103/5,923) were aware of PrEP, and of those, 76.4% (2,371/3,103) expressed willingness to use it. The most substantial decline in the cascade occurred between willingness and actual initiation, with only 20.5% (487/2,371) of those aware and willing to use PrEP having ever initiated it. Among those who have ever initiated PrEP, 43.3% (211/487) adhered to a daily regimen, while 54.0% (263/487) opted for an on-demand regimen. LCA identified four distinct subgroups among 2,371 gbMSM who were aware and willing to use PrEP: (i) Sexual Adventurers (31.9%), characterised by high sexual activity and moderate connections with the HIV community; (ii) Reserved Bystanders (26.8%), who had limited engagement with the HIV community and sexual health services; (iii) Positive Allies (24.6%), who were less sexually active but had stronger ties to the HIV community and openness about discussing sexual behaviours with healthcare providers; and (iv) Young Explorers (16.7%), a younger group with moderate sexual activity and weaker connections to the HIV community. Compared to Reserved Bystanders, who had the lowest PrEP initiation rate (10.4%), Sexual Adventurers (37.6%; OR 5.19, 95% CI 3.87–6.97) and Positive Allies (15.4%; OR 1.57, 95% CI 1.12–2.21) had significantly higher odds of having initiated PrEP. In contrast, Young Explorers, like Reserved Bystanders, had low PrEP uptake, with only 11.8% reporting ever using it.

Conclusions: Despite increasing acceptability, barriers to PrEP uptake persist among gbMSM in Japan, with the greatest drop-off occurring at the initiation stage. Targeted interventions addressing specific barriers faced by different subgroups—particularly those with limited access to HIV community networks and sexual healthcare services—are crucial to improving PrEP uptake.

8

HIV Prevention in China: 20-Year Projections for CAB-LA and Oral PrEP Among MSM – LAPS model

Guo P¹, Zhang B¹, Lin H², Holohan V³, Jacob I⁴, Zhao Y⁵, Wang Y⁶, Cao W², Li J¹

¹School of Public Health, Sun Yat-Sen University, Guangzhou, China, ²School of Public Health, Peking University, Beijing, China, ³ViiV Healthcare Asia, , Singapore, ⁴ViiV Healthcare, Brentford, Middlesex, , United Kingdom, ⁵GSK, Shanghai, , China, ⁶Shenzhen Center for disease control and prevention, , China

Background: The HIV epidemic among men who have sex with men (MSM) in China remains a significant public health issue. Long-acting injectable cabotegravir (CAB-LA) presents a promising new preventive strategy, though its impact in China is not well understood. This study evaluates the long-term effects of CAB-LA alone and combined with oral PrEP among MSM in China over a 20-year period, comparing them to status quo of no PrEP use.

Methods: We developed a compartmental mathematical model to simulate the HIV epidemic among Chinese MSM, incorporating data from a national survey. The effectiveness of oral PrEP, CAB-LA, and combination strategies with varying PrEP coverage was assessed over 20 years. HIV Incidence and prevalence were measured, along with elimination timelines to estimate the years required to achieve zero HIV transmission. Sensitivity analysis was conducted to assess the robustness of the results.

Results: The model projected substantial reductions in HIV incidence with increased PrEP coverage, demonstrating that CAB-LA is more effective than daily oral PrEP. Oral PrEP shows a prevention range from 4.66% to 15.64% at coverage levels of 9.2% to 100%, while CAB-LA consistently offers superior protection, ranging from 7.09% to 21.73%. The combination strategy showed intermediate effectiveness; specifically, at 100% coverage among high-risk MSM using a combination of half oral PrEP and half CAB-LA, this approach could avert 18.87% (95% UI: 10.30% - 24.61%) of new infections. Although achieving HIV elimination remains challenging under current

conditions, higher PrEP coverage could accelerate the timeline by 13-20 years. Sensitivity analyses confirmed the robustness of CAB-LA against adherence challenges and risk compensation behaviors.

Conclusions: Although both PrEP types reduce HIV incidence, CAB-LA offers superior protection among Chinese MSM, particularly in the face of adherence and risk compensation issues. Achieving the 2030 HIV elimination goal will require integrated efforts combining testing, treatment, and behavioral interventions with PrEP.

9

Awareness, Usage, Beliefs and Concerns of Doxycycline Prophylaxis for STI Prevention Among Gay and Bisexual Men, Transgender and Non-Binary People in Australia

Chow E^{1,2,3}, Aung E^{1,2}, Maddaford K^{1,2}, Jonas K⁴, Fairley C^{1,2}, Martin S^{5,6}, Khaw C^{7,8}, Varma R^{9,10}, Thng C^{11,12}, Gunathilake M^{10,13}, Cornelisse V^{2,10,14}, Ludwick T³, Cardwell E³, Traeger M^{15,16}, Bradshaw C^{1,2,3}, Heath-Paynter D^{10,17}, Grace D¹⁸, Kong F³, on behalf of the DoxyAWARE Study Group

¹Monash University, Melbourne, Australia, ²School of Translational Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia, ³Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia, ⁴Department of Work and Social Psychology, Maastricht University, Maastricht, The Netherlands, ⁵Canberra Sexual Health Centre, Canberra Health Services, Canberra, Australia, ⁶School of Medicine and Psychology, Australian National University, Canberra, Australia, ⁷Adelaide Sexual Health Centre, Infectious Diseases Unit, Royal Adelaide Hospital, Melbourne, Australia, ⁸School of Medicine, Faculty of Health Sciences, The University of Adelaide, Adelaide, Australia, ⁹Sydney Sexual Health Centre, South Eastern Sydney Local Health District, Sydney, Australia, ¹⁰The Kirby Institute, UNSW Sydney, Sydney, Australia, ¹¹Gold Coast Sexual Health, Gold Coast Hospital and Health Service, Melbourne, Australia, ¹²Institute for Biomedicine and Glycomics, Griffith University, Melbourne, Australia, ¹³Sexual Health and Blood Borne Virus Unit, Centre for Disease Control, Northern Territory Department of Health, Darwin, Australia, ¹⁴HIV and Sexual Health Services, Mid North Coast & Northern NSW Local Health Districts, Australia, ¹⁵Burnet Institute, Melbourne, Australia, ¹⁶School of Public Health and Preventive Medicine, Monash University, Melbourne, Australia, ¹⁷Health Equity Matters, Melbourne, Australia, ¹⁸Dalla Lana School of Public Health, The University of Toronto, Toronto, Canada

Background: The Australian Consensus Statement on doxycycline prophylaxis (doxyPEP) for STI prevention was published in September 2023. However, there have been no studies examining the awareness and uptake of doxyPEP in Australia. This study aimed to examine the awareness, usage, and concerns of doxyPEP in Australia.

Methods: A cross-sectional national survey was conducted between July and November 2024. The survey was co-designed with users and community members. Participants were recruited from clinics (e.g. sexual health clinics, general practice) and

communities (e.g. social media, dating apps) in Australia. Eligible participants were ≥18 years, living in Australia, with at least Year 10 English proficiency, and who self-identified as a man, transgender or non-binary person who had sex with men.

Results: We included 2095 participants who completed the survey. The median age was 39 (IQR 31-50) years and most (94.7%, 1984/2095) were cis man. Half (51.6%, 1080/2095) were aware of doxyPEP; while HIV pre-exposure prophylaxis (PrEP) users had the highest doxyPEP awareness (58.9%, 806/1368), followed by people living with HIV (PLHIV) (50.8%, 97/191) and HIV-negative non-PrEP users (33.0%, 177/536) ($p < 0.0001$). Of those who were aware of doxyPEP, 29.9% (323/1080) had ever used doxyPEP, and 28.5% (306/1080) used it in the past 12 months (recent users). However, ever doxyPEP use was more common among PLHIV (37.1%, 36/97), followed by PrEP users (33.1%, 267/806) and non-PrEP users (11.3%, 20/177). Most users took the recommended 200mg within 72 hours after sex (63.6%, 206/322); however, 14.4% (46/322) took 100mg daily, and 21.7% (70/322) followed other regimens that were not currently recommended. Among recent doxyPEP users, 33.6% (94/280) reported recent syphilis or ≥2 chlamydia/gonorrhoea diagnosis. Of the ever doxyPEP users, 41.8% (135/323) obtained prescriptions from doctors in Australia, 5.3% (17/323) obtained it online without prescriptions, 8.7% obtained it overseas (in-person) without prescriptions, 15.2% (49/323) from friends or partners; and 32.5% (105/323) had ever given or received doxyPEP with someone else. Of the participants who were aware of doxyPEP, 6.1% (66/1080) also used antibiotics other than doxycycline to prevent getting an STI. Furthermore, 45.6% (490/1080) planned to use doxyPEP in the next 12 months; they intended primarily to prevent chlamydia (93.9%, 460/490), gonorrhoea (86.1%, 422/490) or syphilis (78.8%, 386/490) but some intended to prevent Mycoplasma genitalium (18.8%, 92/490) or mpox (7.4%, 36/490). Of those who had never used doxyPEP, 40.5% (306/756) worried about antibiotic resistance.

Conclusion: Only half the participants in this survey were aware of doxyPEP and one-fifth of those used a regimen not currently recommended. Some used it to prevent certain infections with no evidence supporting its effectiveness. More educational resources are needed to ensure individuals use doxyPEP accurately and effectively.

10

Distribution and Treatment Response of Sexually Transmitted Coinfections Among People with HIV Presenting with Early Syphilis

Lin K¹, Chen C², Tsai M³, Tsai C⁴, Lu P⁵, Chen K⁶, Chen P⁷, Weng Y⁸, Tang H⁹, Hung C¹⁰

¹National Taiwan University Hospital, Taipei, Taiwan, ²Taoyuan General Hospital, Taoyuan, Taiwan, ³Far Eastern Memorial Hospital, New Taipei, Taiwan, ⁴National Cheng Kung University Hospital, Tainan, Taiwan, ⁵Kaohsiung Medical University Hospital, Kaohsiung, Taiwan, ⁶National Taiwan University Hospital Hsin-Chu Branch, Hsin-Chu, Taiwan, ⁷Taipei Veterans General Hospital, Taipei, Taiwan, ⁸Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan, ⁹Chi Mei Medical Center, Tainan, Taiwan, ¹⁰National Taiwan University Hospital Yunlin Branch, Yunlin, Taiwan

Background: Sexually transmitted infections (STIs) have been increasing, and concurrent STIs are prevalent among sexually active individuals. This study aimed to assess the distribution and treatment response of sexually transmitted coinfections in a clinical trial evaluating combination therapy for early syphilis among people with HIV (PWH).

Methods: The study was a substudy of a multicenter, 1:1 randomized controlled trial designed to compare the efficacy of a single dose of benzathine penicillin G (BPG) combined with a 7-day course of doxycycline (BPG/doxy group) versus BPG alone (BPG group) for treating early syphilis in PWH. Eligible adult participants had early syphilis (primary, secondary, or early latent) confirmed by a positive rapid plasma reagin (RPR) titer and a reactive *Treponema pallidum* particle agglutination (TPPA) assay. At baseline and week 4, self-collected specimens from oral rinse, urethral, and rectal sites underwent multiplex real-time PCR to detect bacterial STIs, including *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, and *Mycoplasma genitalium*. Participants with chlamydia and gonorrhea received treatment and underwent a test-of-cure as per guidelines.

Results: Between January 2024 and February 2025, 184 participants diagnosed with early syphilis were enrolled in the study. All participants were male, with a median age of 46 years and a

median CD4 count of 696 cells/mm³. The baseline median RPR titer was 1:64, with 24 participants (13.0%) presenting with primary syphilis, 58 (31.5%) with secondary syphilis, and 102 (55.4%) with early latent syphilis. Of these, 95 participants were assigned to the BPG/doxy group, and 89 to the BPG group. At baseline, 75 participants (40.8%) had co-existing bacterial STIs: 32 had chlamydial infection, 50 had gonorrheal infection, and 16 had mycoplasmal infection. At week 4, 90% of participants assigned in the BPG/doxy group (27/30) achieved a microbiological clearance of bacterial STIs, whereas 48% of participants assigned in the BPG group (36/45) achieved a microbiological clearance. By week 4, 13 participants (7.0%) developed incident chlamydial, gonorrheal, or mycoplasmal infections.

Conclusions: Bacterial sexually transmitted coinfections were frequently observed among male PWH presenting with early syphilis. Screening for bacterial coinfections is essential in PWH diagnosed with early syphilis, and the preemptive use of doxycycline as part of combination therapy may enhance treatment outcomes.

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Effectiveness of an Opt-Out Strategy Antenatal Testing of HIV and Syphilis in Testing Uptake in Luzon, Philippines

Palmares M¹, Sta. Maria M², Valenzuela M², Beronilla A³, Emia T⁴, Puthanakit T⁵

¹Clinical Sciences, Faculty of Medicine, Chulalongkorn University, Pathum Wan, Thailand, ²Jose B. Lingad Memorial General Hospital, San Fernando City, Philippines, ³Dr. Jose Fabella Memorial Hospital, Tayuman, Manila, Philippines, ⁴National University - MOA, Pasay City, Philippines, ⁵Center of Excellence for Pediatric Infectious Diseases and Vaccines, Faculty of Medicine, Chulalongkorn University, Pathum Wan, Thailand

Background: HIV and syphilis testing in pregnant women is the first step for the elimination of vertical transmission. World Health Organization recommended integrated prenatal services using rapid point-of-care test kits to improve coverage. In the Philippines, HIV and STI testing in antenatal clinics (ANC) is only 21% and 27% respectively. This study is aimed to assess the feasibility of an opt-out strategy for HIV and Syphilis testing in Luzon, Philippines.

Methods: A cross-sectional study was conducted at two referral hospitals in NCR and Region 3, the regions with the highest HIV prevalence in the Philippines.

Inclusion criteria; (1) pregnant women aged 18 years old (2) no previous HIV testing in current pregnancy. The participants were offered testing either at ANC or in the labor room.

HIV and Syphilis tests were Bioline™ HIV/Syphilis Duo rapid test kit (Abbott). Participants answered a 15-item questionnaire about PMTCT, received pretest and posttest counseling, onsite testing unless opted out, and referral for treatment if necessary.

Results: From July 2024 to February 2025, we enrolled 1,365 pregnant women with a median age of 27 (IQR 22-32) years old, and a gestational age of 28 (IQR 20-34) weeks. The enrollment rate was 99% at ANC, of which 54% of the participants were on their first antenatal care visit. All except one did not opt-out from testing. The only participant who refused testing wanted to seek

her husband's approval before getting tested for HIV and syphilis.

The prevalences are 0.07% (95% CI 0.00%-0.14) for HIV and 0.37%(95% CI 0.28%-0.46%) for syphilis.

From the 15-item questionnaire, more mothers have heard about HIV than syphilis (91% vs 52%).

Most women (97%) are willing to accept the rapid test result but only 43% are willing to disclose their results. However, the majority of pregnant women (95%) are amenable to having their partner tested too.

Conclusion: Universal testing for HIV and syphilis using rapid POC tests is feasible and acceptable in the Philippine context. Implementing this strategy increases coverage and can increase the detection of cases. Efforts to increase syphilis awareness are necessary and the feasibility of partner testing in ANC programs should be explored to reduce both neonatal HIV and congenital syphilis cases.

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Sexually Transmitted Infections Among Key Populations Using HIV Pre-Exposure Prophylaxis in Indonesia: Prevalence, Incidence, and Associated Factors

Hanum N^{1,2}, Handayani M³, Pohan M³, Putri T³, Rakhmat F³, Tri Yuniar C¹, Anggiani D⁴, Afriana N⁴, Lukitosari E⁴, Prabowo B⁵, Wisaksana R³

¹Pharmacology and Clinical Pharmacy – School of Pharmacy, Bandung Institute of Technology, Bandung, Indonesia, ²Biosciences and Biotechnology Research Center, Bandung Institute of Technology, Bandung, Indonesia, ³Research Center for Care and Control of Infectious Disease, Padjadjaran University, Bandung, Indonesia, ⁴HIV and STI Working Group of the Directorate of Disease Prevention and Control, Ministry of Health of Indonesia, Jakarta, Indonesia, ⁵The Joint United Nations Programme on HIV/AIDS (UNAIDS), Jakarta, Indonesia

Background: The global burden of sexually transmitted infections (STIs) presents a challenge in the context of HIV preexposure prophylaxis (PrEP) programs. As part of a national PrEP implementation project, we determine the prevalence and incidence of STI diagnoses, and factors associated with STI incidence among key populations (KPs) initiating PrEP in Indonesia.

Methods: Indonesia PrEP Pilot program (Dec 2021-Dec 2023), rolled out in 21 districts in 10 provinces with high HIV prevalence, was a prospective, real-world implementation study providing oral daily (D) or event-driven (ED) PrEP to KPs (men who have sex with men [MSM], female sex workers [FSW], transgender women [TGW], people who inject drugs [PWID], and serodiscordant partners of people living with HIV). Participants at 60 healthcare facilities completed baseline and subsequent three-monthly follow-up visits (Month 3, Month 6, Month 9, Month 12 and so on). At each clinic visit, participants provided data on HIV and STI test results, side-effects and adherence, and past three months sexual behaviour measures. Incidence rate ratios (IRRs) were calculated using mixed-effects negative binomial regression.

Results: 4,220 individuals with at least one follow-up visit were included in the analyses (median age 29 [IQR 25-34]; 91% men; 81% MSM; 63% chose daily PrEP); 433 (10.3%) tested positive for STI at baseline.

The overall prevalence of positive STI was 12.8%; which increased from month-3 (16.2%) until month-12 (27.16%) ($p < 0.001$). Among participants with negative STI at baseline ($n = 3,787$), 715 new STI diagnoses occurred over 2,475 person-years (PYs); overall incidence rate (IR) 28.89/100 PYs (27.11–30.72), syphilis IR (125 new cases) was 5.05/100 PYs (4.22–5.99). IR increased from baseline to month-3 (44.71/100 PYs; 41.53-47.93) and then decreased over time. STI incidence was significantly higher among MSM (IRR 2.31; 1.40-3.79 versus FSW), men (IRR 1.63; 1.10-2.42), inconsistent condom users (IRR 1.67; 1.35-2.06) and those with more frequent weekly sex (IRR 1.93; 1.47-2.55). There were no significant associations between follow-up visits and STI incidence (IRR at Month 6 0.88; 0.74-1.06, at Month 9 1.03; 0.82-1.29, at Month 12 0.91; 0.64-1.30 versus Month 3, global $p = 0.502$). We also did not observe associations between the chosen PrEP regimen (IR ED-PrEP 0.98; 0.81-1.19 versus D-PrEP) and sufficient adherence (IR 1.01; 0.86 - 1.19) with STI incidence.

Conclusion: Although the overall STI incidence rate was high among KPs using PrEP, it did not increase over follow-up, with the rate highest in the early months of PrEP implementation in Indonesia. The increase in prevalence was likely among a small proportion of individuals, who could benefit most from biomedical interventions, such as doxycycline as post-exposure prophylaxis. Tailored interventions such as thorough sexual behaviour counselling and self- or home-based testing might be effective in reducing STI transmission.

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The Association Between Adverse Childhood Experiences and Sexually Transmitted Infections Among Sexual Minorities in China: Evidence from the TREASURE Cohort

Yang J¹, Wang J¹, WANG X², Song H¹, WU D³

¹West China Hospital, Sichuan university, Sichuan, 中国,

²Chengdu Tongle health counseling service center, Sichuan,

中国, ³School of Public Health, Nanjing Medical University, Nanjing, 中国

Background: Adverse childhood experiences (ACEs) and sexually transmitted infections (STIs) have been recognized as major public health crises. Few studies have attempted to assess the association between ACEs and STIs in sexual minorities. We aimed to investigate the prevalence, co-occurrence of different types, and potential patterns of ACEs among sexual minorities, evaluate the associations between different types and potential patterns of ACEs and STIs risks, and explore the potential mediating variables.

Methods: Based on the TREASURE cohort, we recruited 5537 sexual minorities between August 2023 and July 2024 in Chengdu, China. ACEs were assessed using a validated 10-item ACE scale developed by the CDC-Kaiser study. Descriptive statistics were employed to describe the frequency (percentages) of ACEs grouped by sexual minorities. Cluster analysis was subsequently applied to discern underlying patterns among participants who reported experiencing ACEs. Unconditional logistic regression models were used to explore the associations between ACEs and STIs risk. Parallel multiple mediation model was used to further explore the potential mediating effects of social and mental support, life attitudes, and immune-related diseases.

Results: In this study, 2746 individuals identified as cisgender gay, 825 as cisgender others, and 1829 as TGNC. The prevalence of different types of ACEs ranged from 0.06% to 0.42%. 66% experienced at

least one ACE, among which 23% had a single ACE, and 77% had two or more. The presence of any item of ACEs was significantly associated with increased STIs risk compared with individuals who had no ACEs. Specifically, individuals with 1-2 ACEs (adjusted odds ratio [aOR] {95% confidence interval [CI]}: 1.77 [1.20, 2.62]), 3-4 ACEs (aOR [95% CI]: 2.79 [1.90, 4.08]), and 5 or more ACEs (aOR [95% CI]: 6.16 [4.33, 8.78]) exhibited a positive and dose-response relationship with STI risk (aOR [95% CI]: 1.31 [1.25, 1.37]). The study identified five predominant patterns of ACEs. When compared with the group experiencing minor ACEs, those whose ACEs were primarily characterized by emotional neglect and household violence (aOR [95% CI]: 1.95 [1.27, 2.99]), abuse and household violence (aOR [95% CI]: 2.42 [1.71, 3.42]), abuse and neglect (aOR [95% CI]: 3.05 [2.16, 4.30]), and multiple ACEs (aOR [95% CI]: 4.88 [3.55, 6.70]) were significantly associated with an increased risk of STIs. However, no significant association was observed between ACEs and the risk of HIV infection. The association between ACEs and STI risk was consistent across different sexual minority groups. The relationship between each item of ACEs and STIs risk was mediated by various factors, including friends support, psychological issues, PTSD, and immune-related diseases. The proportion of the mediating effect varied from 1.3% to 20.8% in the overall population, 1.3% to 16.4% among cisgender gay, 7.8% to 8.1% among cisgender others, and 2.9% to 20.8% among TGNC.

Conclusions: Each type, any number of co-occurrence and various patterns of ACEs were associated with an increased risk of STIs. Social support from friends, psychological issues, PTSD, and immune-related diseases were the mediating factors. These findings underscore the complex interplay between early-life adversities and subsequent health outcomes within the sexual minorities.

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Comparison of Clinical Features, Strain Genotypes and Prognosis of Patients with HIV-Positive and HIV-Negative Cryptococcal Meningitis

Tao X^{1,2}, Lin W^{1,2}, Zhang Y^{1,2}, Tang X^{2,3}, Li L^{1,2}

¹Infectious Disease Center, Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China, ²Guangzhou Medical Research Institute of Infectious Diseases, Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China, ³Institute of Infectious Diseases, Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China

Objective: To compare the differences in clinical characteristics, genotype distribution and prognosis between HIV-positive and HIV-negative cryptococcal meningitis (CM) patients, and to provide a scientific basis for clinical diagnosis and treatment of CM.

Methods: This retrospective cohort study included HIV-positive and negative CM patients hospitalized in the Infectious Disease Center of the Eighth Affiliated Hospital of Guangzhou Medical University between March 2015 and October 2020, and clinical and laboratory data were collected through the hospital's electronic medical record system. Antifungal susceptibility testing was performed using the Mériex ATB FUNGUS3 method, and genotyping was performed using mass spectrometry and MLST methods.

Results: A total of 121 CM patients were included in this study, with 102 HIV-positive and 19 HIV-negative patients. Compared with the HIV-negative group, the HIV-positive group had a higher percentage of males (80.4% vs. 47.4%, $P=0.006$), younger age (40 vs. 49 years, $P=0.01$), shorter time from the onset of clinical symptoms to the diagnosis of CM (17 vs. 45 days, $P<0.001$), and significantly higher CD4⁺ T-cell counts and CD4⁺/CD8⁺ ratio lower (12 vs. 187 cells/ μ L, $P<0.001$; 0.04 vs. 1.07, $P<0.001$). In cerebrospinal fluid analysis, patients in the HIV-positive group had lower leukocyte counts (28 vs. 54×10^6 /L, $P=0.040$), lower protein levels (489 vs. 986 mg/L, $P<0.001$), and lower rates of PAN globulin positivity (46.1% vs. 78.9%, $P=0.008$), and higher

glucose levels (2.3 vs. 1.2 mmol/L, $P=0.001$). The rate of abnormal cranial imaging findings was lower in the HIV-positive group (25.6% vs. 69.2%, $P<0.05$). In drug susceptibility testing, the HIV-positive group had a higher susceptibility rate to amphotericin B than the HIV-negative group (72.4% vs. 42.1%, $P=0.010$). Cryptococci in the HIV-positive group were predominantly 100 strains of *Cryptococcus neoformans* (VN) (ST5 accounted for 81.4% of the total, and three new sequence type ST685 were detected), and two strains of *Cryptococcus gatteoformans* (VG); in the HIV-negative group all were *Cryptococcus neoformans* type VNI (100%), with ST5 (94.7%) predominating. The survival rate analysis shows that at 24 weeks post-discharge, the mortality rate for the HIV-positive group is 36.25% (30% in-hospital, 6.25% post-discharge), while the mortality rate for the HIV-negative group is 15.79% (post-discharge), with no in-hospital deaths. The survival curves for both groups exhibit similar trends, with no significant differences.

Conclusion: The overall clinical characteristics of patients with HIV-positive and negative cryptococcal meningitis in South China were similar, but there were differences in basal immune status, cerebrospinal fluid inflammatory response and amphotericin B sensitivity. The pathogenic strains in both groups were mainly VNI/ST5, and the prognosis was similar. ST685 was detected for the first time in the HIV-positive group, suggesting that the prevalence of novel cryptococcal variants in immunosuppressed populations and their clinical significance need to be emphasized.

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Behavioral, Environmental, and Geographic Risk Factors for Talaromycosis – A Multi-Center Case-Control Study

Brown L¹, Jonat B², Trieu Ly V^{3,4}, Le Nhu Tung N⁴, Si Lam P⁵, Tat Thanh N⁵, Thi Ngoc Bich D⁶, Thao V⁷, Thi Mai Thu N⁸, Thi Hoa N^{3,5}, Le T^{3,8}

¹City St George's University Of London, London, United Kingdom, ²Department of Pediatrics, Columbia University, , USA, ³Tropical Medicine Research Center for Talaromycosis, Pham Ngoc Thach University of Medicine, Ho Chi Minh City, Vietnam, ⁴Hospital for Tropical Diseases, Ho Chi Minh City, Vietnam, ⁵Oxford University Clinical Research Unit, Ho Chi Minh City, Vietnam, ⁶National Hospital for Tropical Diseases, Hanoi, Vietnam, ⁷Epidemiology, Analytics, and Surveillance Saskatchewan Cancer Agency, Saskatchewan, Canada, ⁸Division of Infectious Diseases and International Health, Duke University Medical Center, Durham, USA

Background: Talaromycosis is a life-threatening fungal disease affecting patients with advanced HIV disease living in and traveling to Southeast Asia. A lack of understanding of disease reservoirs and exposure risk factors for talaromycosis has hampered disease prevention. This study aims to evaluate the behavioral, environmental, and geographical risk factors for talaromycosis in the diverse climatic and geographical setting of the hyperendemic country of Vietnam.

Methods: We conducted a case-control study recruiting 610 participants with advanced HIV disease (CD4 count <100) from two major hospitals in Vietnam. The study includes 205 cases with culture-confirmed talaromycosis matched to 405 non-talaromycosis controls by age, sex, and CD4 count. Trained study nurses conducted face-to-face interviews using a standardized questionnaire of pre-specified exposure variables (n = 13). Univariate and multivariable conditional logistic regressions were used to evaluate risk factors for talaromycosis using a complete case analysis.

Results: Participants were mostly male (75%, n = 456) consistent with the HIV demographic in Vietnam, middle-aged (median age 34 years, IQR 31 – 38 years), and with low CD4 count (median 17 cells/μL, IQR 7 – 36). Cases and controls were similar in age, sex, and CD4 and absolute lymphocyte counts. All controls were diagnosed with another opportunistic infection, most

commonly due to tuberculosis, pneumonia (caused by bacteria or *Pneumocystis*), oral/esophageal candidiasis, or cryptococcosis. Among 13 pre-defined risk variables, occupational exposure to tropical plants (odds ratio [OR] = 1.73, 95% CI: 1.10–2.73, P = 0.017) and to farmed animals (OR = 2.07, 95% CI: 1.20–3.55, P = 0.009) were independent risk factors for talaromycosis. Talaromycosis risk was significantly higher in participants from highland regions compared to lowland regions (P < 0.05). Participants from lowland regions who had ever lived or traveled to highland regions, for as short as 3 days, had a significantly higher risk of talaromycosis (OR = 3.15, 95% CI: 1.49–6.64, P = 0.003).

Discussion: This study provides the first epidemiological link between human talaromycosis and geospatial proximity or travel to highland regions in a hyperendemic country, thus being useful in informing disease education and prevention strategies. Results from this large case-control study validate the previous findings that disturbance of soil associated with tropical plants and farmed animals, for example through agricultural or construction activity, increases the risk of talaromycosis.

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Hidden Burden of Histoplasmosis in Vietnam – Prospective Clinical Validation of the IMMY Histoplasma GM Antigen Test

Vo T

¹Hospital of Tropical Diseases, Ho Chi Minh City, Viet Nam

Background: Histoplasmosis, caused by *Histoplasma capsulatum*, is an opportunistic fungal infection that remains underdiagnosed in patients with advanced HIV disease (AHD), particularly in low-and middle-income countries. The disease is endemic in the Americas, with rising reports in Asia and Africa, but its burden in Southeast Asia, including Vietnam, remains unclear. Diagnosis is challenging due to non-specific symptoms and limitations of culture and serology. The WHO-recommended HAG test is highly sensitive and specific in Latin America and the U.S., but its performance in talaromycosis-endemic regions is unclear. This study aims to determine the prevalence of histoplasmosis among hospitalized AHD patients in Vietnam and validate the diagnostic accuracy of the IMMY Histoplasma GM antigen enzyme immunoassay (EIA).

Methods: A prospective observational study was conducted between February 2021 and August 2023 at three major hospitals in Vietnam. A total of 901 hospitalized AHD patients (CD4 $\leq$ 100 cells/ μ L or WHO stage III/IV disease) were screened for histoplasmosis using the IMMY Histoplasma GM EIA on urine samples and Myco/F Lytic blood culture. Conventional microscopy, culture, and histopathology were performed as clinically indicated. Histoplasmosis was classified as proven (culture-positive), probable (clinical syndrome with positive HAG and antigen resolution following antifungal therapy), or possible (positive HAG with antigen resolution due to treatment of other fungal infections). Patients were followed up for six months, with serial HAG testing and monitoring for incident histoplasmosis. Diagnostic performance metrics were calculated using both manufacturer-recommended and newly derived HAG cut-off values. Receiver operating characteristic (ROC) curves were generated, and

the optimal cut-off was determined using the Youden index. Sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) were calculated with 95% confidence intervals (CIs). Statistical significance was set at $p < 0.05$.

Results: Histoplasmosis was diagnosed in 27 of 901 (3.0%) AHD patients, corresponding to an incidence rate of 12 cases per 1000 patient-years. Among these, 15 (56%) were classified as proven, 4 (15%) as probable, and 8 (30%) as possible histoplasmosis. Co-infection with other opportunistic pathogens was common, particularly with *Pneumocystis jirovecii* (37%), *Talaromyces marneffeii* (30%) and tuberculosis (30%). The IMMY Histoplasma GM EIA demonstrated excellent analytical performance, with 100% sensitivity, 98.7% specificity, 71.1% PPV, and 100% NPV using the manufacturer's recommended cut-off (1.0 EIA unit). Adjusting the cut-off to 1.5 and 4.5 EIA units improved specificity (99.3% and 99.9%, respectively) and PPV (81.8% and 95.0%, respectively). The median time to positive culture was 12 days for bone marrow and 17.5 days for blood. Despite antifungal therapy, the six-month mortality among histoplasmosis cases was high (29.6%), underscoring the need for earlier detection and treatment.

Conclusions: This study highlights a significant and previously underrecognized burden of histoplasmosis among AHD patients in Vietnam, with high mortality despite antifungal treatment. The IMMY Histoplasma GM EIA is a sensitive and specific diagnostic tool, especially with region-specific cut-off adjustments. Routine HAG screening in HIV care programs in Southeast Asia could enable early diagnosis and improve outcomes.

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The Incidence of Tuberculosis and Associated Risk Factors in Children Living with HIV: Insights from the TREAT Asia Pediatric HIV Observational Database (TAPHOD)

Ounchanum P¹, Sudjaritruk T^{2,3}, Kinikar A⁴, Kamath P⁴, Nguyen Q⁵, Nguyen L⁶, Muktiarti D⁷, Wati D⁸, Du Q⁹, Khol V¹⁰, Alam A¹¹, Puthanakit T¹², Nagalingeswaran K¹³, Chokeyphaibulkit K¹⁴, Jamal Mohamed T¹⁵, Kosalaraksa P¹⁶, Fong M¹⁷, Nik Yusof N¹⁸, A. Nallusamy R¹⁹, Sohn A²⁰, Kariminia A²¹

¹Department of Pediatrics, Chiang Rai Prachanukroh Hospital, Meuang, Thailand, ²Department of Pediatrics, Faculty of Medicine, Chiang Mai University, Meuang, Thailand, ³Clinical and Molecular Epidemiology of Emerging and Re-emerging Infectious Diseases Research Cluster, Faculty of Medicine, Chiang Mai University, Meuang, Thailand, ⁴Department of Pediatrics, B J Govt Medical College, Pune, Pune, India, ⁵Infectious Diseases Department, Children's Hospital 2, Bến Nghé, Quận 1, Vietnam, ⁶Infectious Diseases Department, Vietnam National Children's Hospital, Dong Da, Vietnam, ⁷Faculty of Medicine Universitas Indonesia- Cipto Mangunkusumo General Hospital, Jakarta Pusat, Indonesia, ⁸Department of Pediatrics, Prof. dr. I.G.N.G. Ngoerah General Hospital, Udayana University, Denpasar, Indonesia, ⁹Infectious Diseases Department, Children's Hospital 1, District 10, Vietnam, ¹⁰National Centre for HIV/AIDS, Dermatology and STDs, Khan Chroy Changvar, Cambodia, ¹¹Infection & Tropical Diseases Division, Department of Child Health, Faculty of Medicine, Universitas Padjadjaran-Hasan Sadikin General Hospital, , Indonesia, ¹²Department of Pediatrics, Faculty of Medicine, Chulalongkorn University, King Chulalongkorn Memorial Hospital, , Thailand, ¹³Chennai Antiviral Research and Treatment Clinical Research Site (CART CRS), VHS-Infectious Diseases Medical Centre, VHS, , India, ¹⁴Department of Pediatrics, Faculty of Medicine Siriraj Hospital, Mahidol University, , Thailand, ¹⁵Department of Pediatrics, Women and Children Hospital Kuala Lumpur, , Malaysia, ¹⁶Department of Pediatrics, Faculty of Medicine, Khon Kaen University, , Thailand, ¹⁷Department of Pediatrics, Hospital Likas, , Malaysia, ¹⁸Department of Pediatrics, Hospital Raja Perempuan Zainab II, , Malaysia, ¹⁹Department of Pediatrics, Penang Hospital, , Malaysia, ²⁰TREAT Asia/amfAR - The Foundation for AIDS Research, , Thailand, ²¹The Kirby Institute, Australia.

Background: In children living with HIV (CLHIV), the tuberculosis (TB) incidence rate is highest during the initial three months of antiretroviral therapy (ART).

Material and Methods: We conducted an analysis of TB incidence and associated risk factors in children receiving ART within the TREAT Asia

pediatric HIV Observational Database (TAPHOD), a regional cohort study including 18 sites in 6 countries. We included treatment-naïve CLHIV initiating first-line ART at a TAPHOD site between January 1, 2012 and September 30, 2023. We analyzed the incidence of clinically or laboratory-confirmed TB after ART initiation, excluding those diagnosed with TB within six months prior to or 30 days after ART initiation. Cox proportional hazards models were used to identify predictors of TB. We analyzed data up to 31 December 2023.

Results: A total of 2,486 ART-naïve CLHIV initiated first-line ART during the study period. We excluded 326 with prevalent TB, leaving 2,160 (54% male) CLHIV in the TB incidence analysis. At ART initiation, median age was 6.0 years [IQR: 2.2, 10.4], 45% of children were aged <5 years, and 75% received a regimen using non-nucleoside reverse transcriptase inhibitors. The median CD4 percentage was 18 (IQR: 10-25%; for children <5 years, the median CD4 cell count was 278 cells/mm³ (IQR: 86-475); for children ≥5 years, 45% were severely immunodeficient (CD4 cell count <200 cells/mm³); 27% were severely stunted (weight-for-age z-score <-3). Over a median follow-up period of 4.35 years (totaling 10,066 person-years), 87 (4.0%) children were diagnosed with TB: 5 (5.7%) with lymph node TB, 49 (56%) with pulmonary TB, 30 (34%) with extrapulmonary TB, and 3 (3.4%) with both pulmonary and extrapulmonary TB. Overall TB incidence was 8.64 (95% CI 0.70–1.01) per 1,000 person-years. The risk of TB was higher among children with current age <1 year (vs ≥3 years; adjusted hazard ratio [aHR] 3.83, 95% CI 1.37–10.75), current severe immunodeficiency (<15% for those <5 years and <200 cells/mm³ for those ≥5 years; aHR 4.25, 95% CI 2.14–8.44), current viral load ≥10,000 copies/mL (vs <10,000 copies/mL; aHR 3.90, 95% CI 1.63–9.32), those currently underweight (highest aHR for weight-for-age z-score <-3; aHR 3.60, 95% CI 2.08–6.21), and those receiving care at university-based facilities (vs primary health care center; aHR 2.42, 95% CI 1.44–4.06).

Conclusions: In this multisite analysis, we found very young children living with HIV, severely underweight children, and those unresponsive to HIV treatment were at high risk of TB infection, especially in the first few weeks after starting ART.

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Factors Associated with Unsuccessful Tuberculosis Treatment Among Hill Tribes and Stateless People in Thailand: A Five-Year Retrospective

Apidechkul T¹, Kampun M², Upla P¹, Yeemard F²

¹Mae Fah Luang University, Chiang Rai, Thailand, ²Center of Excellence for the Hill tribe Health Research, Mae Fah Luang University, Chiang Rai, Thailand

Introduction: Tuberculosis (TB) remains a significant public health issue globally, especially in developing countries. Socioeconomic, demographic, and health factors play crucial roles in determining TB treatment outcomes. The study aimed to determine the factors associated with unsuccessful TB treatment among hill tribes and stateless populations in Chiang Rai province, Thailand.

Methods: A five-year retrospective data detection and face-to-face interview using a validated questionnaire from the 19 TB clinics in Chiang Rai Province, Thailand. The target population was the hill tribe and stateless, who were Akha, Lahu, Hmong, Yao, Karen, and Lisu, with TB diagnosed with both successful and unsuccessful treatment. A simple random method was used to select the samples from 19 lists of TB patients registered between 2020-2024. Logistic regression was utilized to identify factors associated with TB treatment outcomes.

Results: A total of 400 TB patients belonging to the hill tribe and stateless were recruited into the study: 56.6% were males, 77.0% held Thai citizenship cards, 77.0% were aged 51 years and above, 31.5% were Akha, 23.8% were Lahu, and 87.5% had annual family income less than \$1,470. One-third (33.2%) were found to have unsuccessful treatment outcomes. After controlling for potential confounders factor, eight variables were found to be associated with unsuccessful TB treatment. Males had a 3.00 time (95%CI=1.54-5.84) greater chance of unsuccessful treatment than females. Males had a 3.00 time (95%CI=1.54-5.84) greater chance of unsuccessful

treatment than females. Those who did not have bank savings had a 3.15 time (95% CI = 1.60-6.20) greater chance of unsuccessful treatment than those who had. Those who had to travel to a TB clinic without a supporter had a 6.02 time (95% CI = 2.71-13.36) greater chance of unsuccessful treatment than those who had family support. Those with a history of weight loss had a 6.25 time (95% CI = 3.01-12.98) greater chance of unsuccessful treatment than those who did not. Those who had fatigue had a 4.61 time (95% CI = 1.98-10.73) greater chance of unsuccessful treatment than those who did not. Those who had a family member with TB treatment failure had a 4.47 time (95% CI = 1.68-11.91) greater chance of unsuccessful treatment than those who did not. Those who had depressive syndromes had an 11.52 time (95% CI = 3.89-34.12) greater chance of unsuccessful treatment than those who did not. Those who had HIV co-infection had a 4.81 time (95% CI = 1.64-14.12) greater chance of unsuccessful treatment than those who did not.

Conclusions: The study identified multiple factors contributing to unsuccessful TB treatment among hill tribes and stateless populations. Economic, social, and mental health factors were crucial in determining treatment outcomes. The findings can inform policies and healthcare services designed to improve TB treatment efficiency and reduce unsuccessful outcomes among vulnerable populations.

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Trends of Mental Disorders Among People Living with HIV in South Korea: A Nationwide Study Using National Health Insurance Service Data

Kim C¹, Kim T², Hong S³, Choi J⁴, Jun Y⁵, Park D⁶, Song J⁶, Kim S⁷, Choi H⁸, Go M⁹, Kim J⁴

¹Kangwon National University College of Medicine, Chuncheon, South Korea, ²Sungkyunkwan University, Seoul, South Korea, ³Hanyang University College of Medicine, Seoul, South Korea, ⁴Yonsei University College Of Medicine, Seoul, South Korea, ⁵The Catholic University of Korea, , South Korea, ⁶Korea University College of Medicine, Seoul, South Korea, ⁷Kyungpook National University, Daegu, South Korea, ⁸Ewha Womans University College of Medicine, Seoul, South Korea, ⁹National Institute of Health, Cheongju, South Korea

Background: People living with HIV (PLWH) experience more challenges related to mental health conditions compared to those without HIV. Difficulties with mental health can impact the quality of life and reduce continuity of treatment. Despite the importance of mental health in PLWH, there has been a lack of nationwide research in South Korea examining the current situation and trends in mental health conditions among PLWH. Therefore, this study aims to utilize data from South Korea's National Health Insurance Service (NHIS) to investigate trends in mental health conditions following an HIV diagnosis.

Methods: This study utilized data from South Korea's National Health Insurance Service (NHIS) spanning from 2002 to 2021. The study population consisted of individuals who had the Differential Co-payment Code V103, an HIV-specific code, recorded at least twice. The primary outcome was the occurrence of mental disorders among PLWH. A mental disorder was considered diagnosed when a person had at least two outpatient visits or was hospitalized more than once within a year, classified according to ICD-10 codes. The incidence and prevalence of mental disorders among PLWH were calculated throughout the study period, and changes in prevalence by calendar year were analyzed. Additionally, cumulative incidence curves for mental disorders following an HIV diagnosis were compared between men and women using Gray's test and the log-rank test.

Results: During the study period, a total of 18,073 individuals received the HIV diagnosis. After excluding 1,073 individuals whose data were unavailable before the implementation of the Differential Co-payment system in 2004, 17,000 individuals were included in the analysis. Among them, 15,517 (91.28%) were men, and 1,483 (8.72%) were women. During the observation period, 8,776 (51.62%) PLWH had at least one mental disorder diagnosis. The incidence rate of mental disorders was higher among women (5,334.49 per 100,000 person-years) than men (4,355.02 per 100,000 person-years). Among the mental disorders, the incidence of anxiety and stress-related conditions was the highest in both men and women (men: 1,786.45 per 100,000 person-years; women: 2,210.49 per 100,000 person-years), followed by mood disorders without psychotic symptoms (men: 895.18 per 100,000 person-years; women: 1,159.40 per 100,000 person-years). The prevalence rate (per 1,000 individuals) of mental disorders was 516.2 for men and 606.9 for women, with anxiety and stress-related conditions remaining the most common (men: 424.8; women: 532.0). Among PLWH who had mental disorders, 6,447 (73.5%) had two or more mental disorders. The cumulative incidence curve for mental disorders after an HIV diagnosis showed a continuous upward trend, with a significantly higher rate of increase among women compared to men ($P=0.017$).

Conclusions: More than half of PLWH in South Korea have experienced mental disorders, and the incidence has continued to rise following an HIV diagnosis. This study provides insights into trends in mental health conditions, which may inform future efforts to improve mental health care and interventions for PLWH.

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HIV Sexual Risk, Stigma, Mental Health, and Substance Use Among Transgender People in Southeast Asia: The SEATrans Study

Payuha T¹, Janamnuysook R^{1,2}, Pumphosuwat P¹, Suriwong S¹, Tasomboon W¹, Saiwaew S³, Pagtakhan R⁴, Le T⁵, Phanuphak N^{1,2}, Sangpasert T³, Mongkol K³, Ruanto J⁴, Black Z⁴, Tran M⁵, Lu T⁵, Samitpol K¹, Amatsombat T¹, Ramautarsing R¹, Ross J⁶

¹Institute of HIV Research and Innovation (IHRI), Bangkok, Thailand, ²Chulalongkorn University, Center for Excellence in Transgender Health (CETH), Bangkok, Thailand, ³Rainbow Sky Association of Thailand (RSAT), , Thailand, ⁴LoveYourself Inc., , the Philippines, ⁵Glink Vietnam Social Enterprise Company Limited, Ho Chi Minh City, Vietnam, ⁶The Foundation for AIDS Research, amfAR's TREAT Asia, , Thailand

Background: Transgender people are at high risk of HIV, mental illness, and other health issues due in part to various biomedical factors, behavioral risks, stigma, and discrimination. We established Asia's first prospective observational transgender cohort study to assess their HIV, mental health and other health behaviors, risks and impacts.

Methods: Transgender persons, aged ≥18 years, attending the Rainbow Sky Association of Thailand and Tangerine Clinic in Thailand, Glink in Vietnam, and Victoria by LoveYourself in the Philippines were enrolled between December 2022 to October 2024. Six-monthly study visits were conducted which included assessment of behavioral risks, stigma, discrimination, and experiences of physical, sexual, and psychological violations related to being transgender, using self-administered questionnaires. Depression, anxiety, and PTSD were screened using PHQ-9, GAD-7, and PCL-5, respectively. Associations between stigma, discrimination, violations, and mental health problems were analyzed using Fisher's exact or chi-squared test.

Results: At baseline, of 415 transgender people with a median (interquartile range, IQR) age of 28 (23-33) years, 381 (92%) were transgender women, 31 (7%) transgender men, and 3 (1%) non-binary. Two hundred eighty (67.5%) were Thai, 75

(18%) Filipino, and 60 (14.5%) Vietnamese. 121 (29%) were living with HIV. Sixty-six (16%) engaged in sex work, 28 (7%) used substances, 43/375 (11%) engaged in chemsex. Ninety-three (22%) participants had moderate depression (PHQ-9 ≥10), moderate anxiety (GAD-7 ≥10), or severe PTSD (PCL-5 ≥33). Two hundred sixty-five (64%) reported ever experiencing stigma, 343 (83%) discrimination, and 106 (26%) violations. Compared to those without, those with mental health problems were more likely to report experiencing stigma (13% vs 28%, $p<0.001$), discrimination (7% vs 26%, $p=0.001$) and violations (16% vs 42%, $p<0.001$).

Conclusions: Transgender people in our cohort had high rates of risk behaviors, HIV prevalence, mental health issues, substance use, stigma, discrimination and violations. Mental health challenges were associated with lifetime experience of stigma, discrimination, and violations, highlighting the need for transgender-specific integrated interventions.



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Associations Between Sexual Orientation and Gender Identity Change Efforts (SOGICE) and Mental Health Outcomes Among People Living with HIV in Chengdu, China

Zhao P¹, Song H², Wu D¹

¹Nanjing Medical University, Nanjing, China, ²Sichuan University, Chengdu, China

Background: People living with HIV (PLWH) are disproportionately affected by poor mental health outcomes. Sexual Orientation and Gender Identity Change Efforts (SOGICE) are harmful practices aimed at changing an individual's sexual orientation or gender identity. PLWH with prior exposure to SOGICE may be at a higher risk of mental health disorders. This study explores the associations between SOGICE exposure and mental health outcomes among PLWH.

Methods: Data were collected from an LGBTQ+ cohort study conducted in Chengdu City between November 2023 and December 2024. Participants were eligible if they were 16 years or older, self-identified as LGBTQ+, and lived in Chengdu City or surrounding areas. SOGICE exposure was assessed by asking participants whether they had ever undergone practices that attempted to change their sexual orientation or gender identity to conform to cis-heteronormativity. The mental health outcomes assessed included depressive symptoms (PHQ-9), non-suicidal self-injury, suicidal behaviors (SBQ_R), PTSD symptoms (PCL-5). Covariates included demographic factors, disclosure status, childhood homophobia violence, and adverse childhood experiences. Multivariable logistic regressions were conducted to examine the associations between SOGICE and mental health outcomes after controlling for covariates. The mediation effects of depressive symptoms and PTSD symptoms were tested using causal mediation models.

Results: In total, 8039 LGBTQ+ participants were included in the cohort and 642 (8.0%) were PLWH.

The average age of the PLWH was 35.5 years. The majority of PLWH were men who have sex with men (MSM) (92.5%), cisgender individuals (66.2%), employed full-time (60.8%), and in relationships (64.1%). Two-thirds of the participants disclosed their sexual orientations to others. More than one-third of participants reported experiencing homophobia violence during childhood, and over 70% had adverse childhood experiences. Among PLWH, 64 (10.0%) reported having undergone SOGICE, with psychotherapy (n=27), verbal insults (n=25), and forced changes in dress style (n=19) being the most reported forms. Nearly half of SOGICE-exposed participants (45.3%, n=29) reported coercive involvement, while 15.6% (n=10) participated voluntarily and 39.1% (n=25) experienced a combination of voluntary and forced SOGICE. Most PLWH (92.68%) first encountered SOGICE after the age of 18. Nearly half of PLWH (47.2%) reported suicidal ideation or attempts, 23.4% reported non-suicidal self-injury, 26.3% reported depressive symptoms, and 32.2% had PTSD symptoms. Exposure to SOGICE was associated with increased odds of depressive symptoms (aOR=2.73, 95% CI:1.40-5.37), non-suicidal self-injury (aOR=2.77, 95% CI: 1.41-5.47), and PTSD symptoms (aOR=4.01, 95% CI: 1.95-8.24). Mediation analysis revealed that depressive symptoms mediated 40.9% of the association between SOGICE exposure and suicidal ideation or attempts, while PTSD symptoms mediated 54.5% of this relationship.

Conclusions: Exposure to SOGICE practices among PLWH in this cohort was associated with an increased likelihood of poor mental health outcomes. Depressive and PTSD symptoms are important mediators of the relationship between SOGICE and suicidal behaviors. Mental health services should prioritize these individuals by providing trauma-informed care and creating supportive environments to foster healing and resilience. Further research is needed to understand the long-term mental health impact of SOGICE and to develop effective strategies for prevention and support.

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Prevalence of Hepatitis D Virus Infection and Its Impact on the Clinical Efficacy of Antiretroviral Therapy in Patients Co-Infected with Hepatitis B and HIV

He Y¹, Lin W¹, Li H¹, Gu F¹, Lan¹, Liu X¹, Zhang Y¹, Li R¹, He R¹, Cai W¹, Tang X¹, Li L¹

¹Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China

Background & aims: Research on the prevalence of HDV infection in individuals co-infected with HBV/HIV in China remains limited. Moreover, the effect of HDV infection on the clinical efficacy of antiretroviral therapy and liver disease progression in patients co-infected with HBV/HIV remains unclear.

Methods: This retrospective cohort study included patients co-infected with HBV/HIV-1 between January 1, 2005, and August 31, 2022. Baseline plasma samples were collected to measure HDV IgM and IgG antibody levels. HDV RNA levels were assessed in patients who tested positive for HDV antibodies. Demographic data, development of liver complications, and treatment responses were compared based on HDV status.

Results: Overall, 1,130 patients co-infected with HBV/HIV-1 were included, of whom 84 (7.4%) tested positive for HDV antibodies. Among these, 19 (22.6%) were HDV RNA-positive. Approximately 41.7% of HDV antibody-positive patients had HCV co-infection. The median duration of antiretroviral therapy was 7.4 years (interquartile range [IQR]: 5.1, 9.9). Longitudinal samples were available from 14 HDV RNA-positive patients. Baseline HDV RNA was 2.98 (IQR: 2.17, 4.78) log₁₀ IU/mL. After a rapid decline with TDF-based antiretroviral therapy, 92.8% (13/14) of patients reached undetectable levels at 7 years. When adjusted for HCV infection, HIV and HBV virological suppression, HBsAg clearance, and immunological non-responders were comparable between HDV antibody-positive and -negative patients (all $P > 0.05$), and between HDV RNA-positive and -negative patients (all $P > 0.05$). The incidence rates

of newly developed cirrhosis and hepatocellular carcinoma were also similar.

Conclusions: HDV co-infection is common in patients co-infected with HBV/HIV-1, but HDV RNA became undetectable rapidly after antiretroviral therapy and does not affect the efficacy of HIV and HBV treatments.

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Key Population-Led Test and Treat for Hepatitis C Virus Infection in Thailand Enables Rapid Initiation of Treatment and Achieved High Virological Success Rates

Wongsa A¹, Janamnuysook R¹, Sinchai K¹, Phunkron A², Sangtong S³, Pasansai T³, Boonruang J¹, Thitipatarakorn S¹, Tangcharoensathien S¹, Janyam S², Patpeerapong P³, Mills S⁴, Phanuphak N¹, Ramautarsing R¹

¹Institute of HIV Research and Innovation (IHRI), Bangkok, Thailand, ²Service Worker in Group Foundation (SWING), Bangkok, Thailand, ³MPLUS Foundation, Chiang Mai, Thailand, ⁴FHI 360 and USAID EpiC Project, Bangkok, Thailand

Background: Two key populations (KP)-led clinics in Thailand have integrated hepatitis C virus (HCV) test-and-treat intervention into routine HIV-related services to address rising HCV prevalence and care barriers among key populations. We report outcomes of the first year of implementation.

Methods: Thai citizens aged ≥18 years who tested anti-HCV positive during routine services at two KP-led clinics were enrolled. They received counselling, laboratory testing (including HCV-RNA point-of-care testing) and basic examinations by trained KP-lay providers and virtual doctor consultations. Those who met simplified treatment criteria (absence of advanced fibrosis score, hepatitis B (HBV) co-infection, or other medical concerns) received 12-week oral direct-acting antivirals (DAAs – sofosbuvir 400mg and velpatasvir 100mg once daily). Sustained virological response (SVR) was measured 12-week post-treatment completion. Hospital referrals were arranged for those ineligible for simplified treatment. Descriptive analysis was conducted using STATA.

Results: From January-December 2024, 152 clients were enrolled. Median age (interquartile range, IQR) was 29 (25-36) years; 136/152 (89.5%) and 8/152 (5.3%) were men who have sex with men and transgender women, respectively. 52/152 (34.2%) were living with HIV and 14/152 (9.2%)

engaged in chemsex. Of these, 111/152 (73.0%) had active HCV-infection (HCV-RNA detected), 109/111 (98.2%) underwent pre-treatment investigation, and 85/109 (78.0%) met simplified treatment criteria, all of whom (100%) started DAAs within a median (IQR) of 5.0 (2.0–7.0) days. Fifty-three people had SVR assessment scheduled during the observation period, all (100%) completed treatment, 36/53 (67.9%) returned for testing, and 36/36 (100%) achieved SVR. Furthermore, 24/109 (22.0%) were ineligible for simplified treatment (due to laboratory indications of fibrosis, or HBV infection). These were referred out for treatment, 11/24 (45.8%) initiated treatment within a median (IQR) of 64.0 (23.0–87.0) days.

Conclusions: KP-led HCV test-and-treat intervention enabled quick confirmation of active HCV-infection, quick DAAs initiation, and high rates of treatment completion and SVR. Clients referred out for treatment often did not initiate DAAs or did so after significant delays. To increase rates of SVR assessment, barriers for SVR testing should be explored to design and implement targeted interventions. Nevertheless, KP-led HCV test-and-treat intervention delivered in and by communities is a promising strategy to reach HCV elimination among key populations in Thailand.



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Rapid DAA Initiation and HCV Treatment Outcomes Among PWH in an Integrated HIV and HCV Care Program

Chen L¹, Chen Y¹, Luo Y¹, Wu P¹, Chang H¹, Chen W², Tsai L³, Li H³, Sun H^{2,4}, Hung C^{2,5,6}

¹Center for Infection Control, National Taiwan University Hospital, Taipei, Taiwan, ²Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan, ³Department of Nursing, National Taiwan University Hospital, Taipei, Taiwan, ⁴National Taiwan University College of Medicine, Taipei, Taiwan, ⁵Department of Internal Medicine, National Taiwan University Hospital Yunlin Branch, Yunlin, Taiwan, ⁶Department of Tropical Medicine and Parasitology at the National Taiwan University College of Medicine, Taipei, Taiwan

Background: People with HIV (PWH) are a key population for HCV elimination. In Taiwan, DAAs have been reimbursed since 2017. Initially, DAAs could only be prescribed by gastroenterologists/hepatologists with eligibility criteria fulfilled and data on liver fibrosis stage, HCV RNA and genotyping, biochemistry and coagulation profile were required before applying for approval. In 2019, the criterion of fibrosis stage was lifted and infectious disease (ID) specialists were authorized to prescribe DAAs. We evaluated the impact of rapid DAA initiation on treatment outcomes among PWH in an integrated HIV-HCV care program.

Materials and Methods: This retrospective study included PWH diagnosed with HCV viremia at a medical center in Northern Taiwan, 2019-2024. HIV case managers facilitated DAA applications, coordinated care with ID specialists and gastroenterologists/hepatologists, and provided adherence counseling. Treatment initiation time, SVR12, virological failure, non-completion, and loss to follow-up were recorded. Outcomes were compared between PWH initiating treatment within 30 days (rapid DAA initiation) vs those beyond 30 days (delayed DAA initiation) after detection of HCV RNA. Multivariable logistic regression was performed to identify factors associated with treatment outcomes.

Results: Among 379 DAA treatment courses in 342 PWH, the median interval from HCV diagnosis to DAA initiation decreased significantly from 436.5

days in 2019 to 35 days in 2022-2024 ($p < 0.01$). The proportion of PWH put on rapid DAA initiation increased over time, from 3.8% in 2019, 35.4% in 2020-2021, to 47.1% in 2022-2024 ($p < 0.001$), with a more pronounced increasing trend among those managed by ID specialists (5.5% in 2019, 40.6% in 2020-2021, and 47.2% in 2022-2024 ($p < 0.001$). A similar increase, though delayed, was observed among PWH managed by gastroenterologists/hepatologists (0% in 2019, 7.7% in 2020-2021, 46.2% in 2022-2024 ($p < 0.001$). Multivariable logistic regression identified three independent factors associated with rapid DAA initiation: ID specialist management (adjusted odds ratio [aOR], 3.22; 95% CI, 1.41-7.37); later diagnosis years (2020-2024 vs 2019, aOR, 1.83, 95% CI, 1.54-2.19), reflecting improved accessibility and efficiency of the treatment process, and older age (per 1-year increase, aOR, 0.97; 95% CI, 0.94-0.99). Among the PWH put on rapid DAA initiation, SVR12 was achieved in 96.1% (99/103), with 3 (2.9%) virological failures and 1 (1.0%) loss to follow-up. For those put on delayed DAA initiation, SVR12 was achieved in 94.9% (262/276), with 12 (4.3%) virological failures and 2 (0.7%) treatment non-completion and loss to follow-up. No statistically significant differences in the treatment outcomes were observed between the two groups ($p = 0.795$).

Conclusions: Integrating HIV and HCV case management reduced the interval from detection of HCV RNA to treatment initiation and improved DAA access among PWH. The increasing trend of rapid DAA initiation supports integrating HCV care within HIV services to enhance accessibility and accelerate HCV clearance. Our study suggested that rapid DAA initiation shortens HCV viremia duration, which could potentially reduce the risk of onward transmission in this high-risk population for HCV infection. With widespread use of DAAs that are well-tolerated, safe and highly effective for all HCV genotypes, simplification of the treatment requirement is warranted to further expedite DAA initiation.

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The Ongoing Need for HBV Prevention: Vaccination Gaps and Strategies to Improve Outcomes in People Living with HIV

Lee P¹

¹Tan Tock Seng Hospital, Singapore, Singapore

Background: Co-infection with hepatitis B virus (HBV) and human immunodeficiency virus (HIV) greatly increases the risk of liver-related complications and mortality, highlighting the need for HBV prevention in people living with HIV (PLHIV). Since the onset of the HIV epidemic, HBV vaccination has been a cornerstone of prevention, providing effective protection against infection. Given the challenges of managing HBV in co-infected individuals, preventive strategies particularly vaccination play a more significant role than treatment in reducing the overall burden of HBV among PLHIV.

Material and Methods: A retrospective analysis was conducted using a clinical database to determine the proportion of people living with HIV (PLHIV) who received the recommended three doses of the hepatitis B vaccine. We reviewed 889 PLHIV enrolled in the Clinical HIV Programme at the National Centre for Infectious Diseases (NCID), Singapore for HIV care between 2019 and 2023, assessing hepatitis B serology, hepatitis B vaccination record and the HIV/HBV co-infection antiviral therapy.

Results: A total of 819 cases (92%) had documented hepatitis B serology records. Among them, 37 cases (4.5%) tested positive for hepatitis B surface antigen (HBsAg). Of these, 16 cases (43.2%) were both HBsAg and hepatitis B core antibody (anti-HBc) positive, while hepatitis B surface antibody (anti-HBs) was negative. Additionally, 2 out of 37 cases (5.4%) demonstrated seroconversion from HBsAg positive to HBsAg negative. The majority (86.4%) of PLHIV co-infected with hepatitis B were receiving tenofovir-based antiviral therapy. However, five individuals were unable to tolerate treatment due to renal impairment, pill burden, or treatment

failure. A total of 178 cases who received at least one dose of the hepatitis B vaccine were reviewed. Of these, 78 cases (43.8%) demonstrated immunity, confirmed through follow-up anti-HBs testing. Specifically, 26 individuals (14.6%) received a single vaccine dose, 15 (8.4%) received two doses, and 29 (16.2%) completed the three-dose series. Additionally, 8 individuals (4.4%) required a booster dose after completing the three-dose regimen to achieve an anti-HBs level greater than 10. Our data analysis found no linear correlations between vaccine dosage and weight, CD4 count, or age.

Conclusions: Our study highlights the need for a more structured vaccination workflow to optimize HBV prevention among PLHIV. This includes enhancing documentation of vaccination status, ensuring timely completion of the three-dose series, and implementing routine post-vaccination immunity assessments. Additionally, identifying individuals who require booster doses and tailoring vaccination strategies based on immune response could further improve protection. Strengthening these measures will be crucial in reducing the burden of HBV in PLHIV and enhancing long-term health outcomes.

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Preliminary Findings of Pay-If-Forward Strategy to Increase HPV Vaccination Rates Among Girls Aged 15-18 in China: Pilot Results of a Cluster Randomized Controlled Trial

Li Y¹, Li J², Wu D¹

¹Department of Social Medicine and Health Education, School of Public Health, Nanjing Medical University, Nanjing, Jiangsu, China, ²West China School of Public Health and West China Fourth Hospital, Sichuan University, Chengdu, Sichuan, China

Background: Human papillomavirus (HPV) vaccination is a cost-effective strategy to prevent HPV-related diseases, yet HPV vaccine uptake remains low in China. In 2022, only 4.0% of girls aged 9-14 years received the vaccine in China, falling short of the World Health Organization (WHO) target of 90% coverage. Despite the introduction of a subsidized vaccine policy covering 40% of girls aged 9-14 years old in China, access to this policy remains limited in certain regions. The pay-it-forward, a multi-component strategy, where an individual receiving a subsidized vaccine has the opportunity to promote vaccination through gifts or community engagement, has shown potential for improving vaccine uptake. This study aims to assess the preliminary effectiveness of different components of the pay-it-forward model in promoting HPV vaccination among adolescent girls in China.

Methods: This cluster-randomized controlled trial was conducted from January 5, 2024, to January 5, 2025, across 11 schools in Nanjing and Chengdu, China. Nine schools were randomized into three intervention arms: pay-it-forward (financial subsidy, community co-created health education video and community engaged postcards), subsidy-focused (financial subsidy only), and health education-focused (community co-created health education video and community engaged postcards), with a 1:1:1 ratio. Two schools were assigned to the pay-it-forward arm. Eligible participants were girls aged 15-18 years, without prior HPV vaccination, paired with a caregiver, and who provided informed consent. The primary outcome, first-dose HPV vaccine uptake, was

assessed through WeChat follow-up eight weeks post-intervention, with verification via the vaccination invoice. Additional data on vaccine delay intention were collected through self-administered questionnaires.

Results: A total of 285 participants were included: 134 in the pay-it-forward arm, 73 in the health education-focused arm, and 78 in the subsidy-focused arm. The mean age of caregivers was 42.7 $\pm$ 4.7 years, with 87.4% (249/285) being female. Baseline characteristics were comparable across the three arms. Eight weeks after the intervention, the first-dose vaccination rates were as follows: pay-it-forward arm, 44.8% (60/134); health education-focused arm, 16.4% (12/73); and subsidy-focused arm, 46.2% (36/78). After adjusting for caregiver gender, education level, household income, and prior awareness of the HPV vaccine, logistic regression revealed that the likelihood of HPV vaccination in the pay-it-forward arm was significantly higher than in the health education arm (adjusted odds ratio (aOR) = 4.3, 95% CI: 2.1, 8.9). No significant difference was observed between the pay-it-forward and subsidy-focused arms (aOR = 0.9, 95% CI: 0.5, 1.7). Vaccine delay intention decreased in the pay-it-forward arm (13/134, proportion difference = -9.7%, 95% CI: -16.9, -2.4%) and the health education-focused arm (12/73, proportion difference = -16.4%, 95% CI: -26.3, -6.6%), while no significant difference was observed in the subsidy-focused arm (3/78, proportion difference = -3.8%, 95% CI: -12.6, 4.9%).

Conclusion: The pay-it-forward and subsidy-focused arms were more effective in increasing vaccination rates compared to the health education arm. The inclusion of health education within the intervention helped reduce caregivers' vaccine delay intention. Further validation of these findings with a larger sample size is needed.

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Preferences of Chinese Caregivers for Their Daughters' HPV Vaccines and Services: Two Discrete Choice Experiments

Fang H¹, Li M¹, Huang B¹, Yang S¹, Chow E^{2,3}, Ong J^{2,3}, Wu D¹, Zhang Y¹

¹Department of Social Medicine and Health Education & National Vaccine Innovation Platform, Nanjing, China, ²School of Translational Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia, ³Melbourne Sexual Health Centre, Alfred Health, Melbourne, Australia

Background: Cervical cancer, primarily caused by human papillomavirus (HPV) infection, poses a substantial health risk to women. The HPV vaccine serves as a highly effective preventive measure against cervical cancer. However, since its introduction into the Chinese market in 2016, HPV vaccination coverage among adolescent girls in China has remained significantly low. Understanding the factors influencing caregivers' decisions regarding HPV vaccination is crucial. This study aimed to investigate the preferences of Chinese caregivers for HPV vaccine profile characteristics and service delivery methods for adolescent girls.

Methods: Between November 2024 and March 2025, two discrete choice experiments (DCEs) were conducted to examine the preferences of caregivers of unvaccinated adolescent girls aged 9–18 years regarding HPV vaccination. Data were collected from individuals undergoing health check-ups at Jiangsu Provincial People's Hospital and from vaccination clinics at three community health service centers in Hangzhou Zhejiang Province. Preferences were evaluated across seven attributes associated with HPV vaccine profiles (level of protection against cervical cancer and genital warts, risk of severe side effects, number of dose(s), vaccine origin, waiting time, and price) and six attributes related to service delivery methods (source of vaccination recommendation, information channels, message framing, appointment methods, vaccination location, and incentives). Additionally, caregivers' willingness to vaccinate their daughters was assessed.

Conditional logit regressions were utilized to assess caregivers' preference for HPV vaccine and vaccination rated service.

Results: A total of 301 caregivers completed valid DCE questionnaires. The mean age of the caregivers was 41.25 years (SD = 3.92), and the mean age of their daughters was 12.27 years (SD = 2.49). Caregivers exhibited a strong preference for higher protection against cervical cancer and genital warts, a lower risk of severe side effects, imported vaccines, and reduced prices. The selection of a vaccine was most strongly influenced by the degree of protection against cervical cancer (24.5%), followed by protection against genital warts (19.5%), the risk of severe side effects, price and the vaccine origin. Regarding service delivery methods, caregivers preferred receiving vaccination recommendations from doctors, positive promotional messaging, online appointment scheduling, school-based vaccination and financial incentives such as coupons for left-behind girls. The source of vaccination recommendations was the most influential factor in shaping preferences (37.9%), followed by financial incentives (20%), appointment methods, vaccination locations and the framing of informational content. Although 77.4% of caregivers expressed plans or willingness to vaccinate their daughters, more than half reported hesitancy or delays, and 20.3% outright refused. The primary reasons for hesitancy, delay, or refusal included concerns about vaccine side effects (73.3%), uncertainty about vaccine efficacy (49.3%), and the perception that their daughters were at low risk of HPV infection due to a lack of sexual activity (47.0%).

Conclusion: The findings of this study highlight caregivers' preferences regarding HPV vaccine profile characteristics and service delivery methods for adolescent girls in China. These preferences data may inform future tailored strategies to improve vaccine uptake. Despite generally positive attitudes toward HPV vaccination, persistent concerns regarding side effects, efficacy, and perceived low infection risk remain substantial barriers.

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Stigma Leads to Substance Use Among MSM and Transgender Women Living with HIV: Insights from Vietnam

Colby D^{1,2}, Nguyen Thien M^{1,2}, Do L^{1,3}, Le Cong T¹, Tran H¹, Luong B¹, Doan Thi Kim P¹, Do Quang K⁶, Van H⁴, Bao A^{1,2}

¹University of Medicine and Pharmacy at Ho Chi Minh City, Ho Chi Minh city, Việt Nam, ²Center for Applied Research on Men and Community Health (CARMAH), Ho Chi Minh, Vietnam, ³Pham Ngoc Thach University of Medicine, Ho Chi Minh, Vietnam, ⁴HCMC Center for Disease Control, Ho Chi Minh, Vietnam, ⁵Can Tho Center for Disease Control, Can Tho, Vietnam, ⁶Galant Clinic, Ho Chi Minh, Vietnam

Background: Previous research on stigma as a driver of substance use among men who have sex with men (MSM) and transgender women (TW) living with HIV has been predominantly cross-sectional, limiting causal inference. We aimed to evaluate the association between stigma experiences and the subsequent initiation of opiates and amphetamine-type stimulants (methamphetamine, heroin, and ecstasy) in a prospective cohort of MSM and TW with HIV in Vietnam.

Method: A community-based study was conducted in the Mekong Delta, Vietnam (2019–2022), involving MSM and TW with HIV who had no prior substance use. Five stigma dimensions—mockery, negative judgment, physical attack, sense of exclusion, and emotional/mental trauma—were assessed at baseline, and substance use initiation was evaluated after a follow-up period (median: 394 days). Univariable and multivariable Poisson models were used to estimate prevalence differences (PD), attributable risk (AR), and 95% confidence intervals (CIs).

Result: Among 504 participants, 76.0% were MSM and 24.0% were TW. By the end of the follow-up, 30.1% had initiated substance use (21.8% methamphetamine, 16.5% ecstasy, and 0.8% heroin). Overall, 66.8% of participants reported experiencing at least one form of stigma (57.7% sense of exclusion, 49.4% emotional/ mental trauma, 47.4% mockery, 45.8% physical attack, and 22.8% negative judgment). Physical attacks, sense of exclusion, and emotional/mental trauma

were significantly associated with increased risk of substance use. Among MSM, stigma led to 14 new substance users per 100 annually (PD=0.14 [95% CI: 0.08–0.19]; AR=36.7% [24.8–47.1]). Among TW, it resulted in 18 new users per 100 annually (PD=0.18 [0.07–0.30]; AR=37.9% [16.0–54.1]).

Conclusion: By capturing the temporal relationship between stigma experiences and subsequent substance use, our findings reinforce the urgency of addressing stigma as a critical social determinant of health. Beyond its psychosocial toll, stigma drives harmful risk behaviors that undermine treatment adherence, exacerbate HIV transmission risks, and amplify health inequities. Recognizing these multifaceted impacts calls for immediate integration of stigma-reduction strategies into both clinical practice and public health policy.



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Cost-Effectiveness of Rapid Versus Delayed ART Initiation in Japan: A Markov Modeling Analysis

Taniguchi T¹, Noda T², Imahashi M³, Omata K⁴

¹Chiba University Hospital, , Japan, ²Nara Medical University, , Japan, ³National Hospital Organization Nagoya Medical Center, Nagoya, Japan, ⁴National Center for Global Health and Medicine, , Japan

Background: In Japan, starting antiretroviral therapy (ART) for people living with HIV (PLWH) is often delayed—typically by about two months—due to the time required to obtain various medical support certificates and financial assistance. Although this delay is institutionally driven, its economic and health consequences have not been fully elucidated. We aimed to determine whether immediate (0-month) ART initiation, compared to the standard 2-month delay, is cost-effective under the Japanese healthcare system.

Methods: We constructed a Markov cohort model to project HIV disease progression over a 40-year horizon. Each month, patients transitioned among four CD4 count categories (≥ 500 , 350–499, 200–349, < 200 cells/ μ L), ART status (on ART with suppression/not suppressed, off ART, dropout), and death. We applied age-stratified background mortality rates, HIV-specific mortality multipliers, CD4-specific disutilities, and monthly costs (in Japanese yen [JPY]). Model outputs included total discounted costs and quality-adjusted life-years (QALYs) at a 3% annual discount rate. Two strategies were compared: (1) ART initiation immediately upon diagnosis (0-month strategy) versus (2) initiating ART around 2 months after diagnosis (2-month strategy). Both a single-cohort analysis (30-year-old male) and a population-level analysis (with distributions of age, sex, and baseline CD4) were performed.

Results: In the deterministic single-cohort analysis, immediate ART yielded total discounted costs of JPY 68.95 million and 223.30 QALYs, whereas delayed ART yielded costs of JPY 50.65 million and 215.76 QALYs. The incremental cost (0m–2m) was JPY 18.30 million, and the incremental QALYs gained were 7.55, resulting in an incremental cost-

effectiveness ratio (ICER) of approximately JPY 2.43 million per QALY gained. In the population-based analysis that accounted for the distribution of baseline CD4 counts, ages, and sexes, the ICER was around JPY 2.22million per QALY. Probabilistic sensitivity analysis showed that at a willingness-to-pay threshold of JPY 5 million per QALY, immediate ART was cost-effective in a substantial proportion of simulations. One-way sensitivity analyses identified key drivers of uncertainty to be disutility of pre-ART, HIV-related mortality multipliers, probability of dropout, and costs associated with pre-ART care.

Conclusions: Our findings suggest that rapid ART initiation at the time of HIV diagnosis is likely to be cost-effective in Japan, with an ICER consistently below the common threshold of JPY 5 million per QALY. Although institutional requirements currently delay ART initiation, these results highlight the potential economic and health benefits of streamlining administrative processes for earlier ART. Policymakers and healthcare providers should consider revising current guidelines to facilitate immediate treatment access, thereby improving both clinical outcomes and the overall efficiency of HIV care in Japan.

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Improving Mental Health of People Living with HIV Through a Community-Based Antiretroviral Delivery: A Quasi-Experimental Study in Cambodia

Yi S^{1,2,3}, Tian Z¹, Oy S¹, Chhoun P², Tuot S², Hayashi M¹, Yam E¹, Samreth S⁴, Ngauv B⁴, Ouk V⁴

¹National University of Singapore, Singapore, Singapore,

²KHANA Center for Population Health Research, Phnom Penh, Cambodia, ³Touro University California, Vallejo, USA, ⁴National Center for HIV/AIDS, Dermatology, and STD, Phnom Penh, Phnom Penh

Background: People living with HIV are at a significantly higher risk of experiencing depression compared to the general population. Depression among this group is often exacerbated by stigma, discrimination, and socio-economic challenges. Community-based interventions have shown promise in addressing these issues by improving socio-economic conditions and social support systems, reducing stigma, and fostering a sense of inclusion and well-being. Mental health, an essential component of HIV care, plays a critical role in adherence to treatment and overall quality of life. In Cambodia, community-based antiretroviral therapy (ART) delivery (CAD) has emerged as an innovative intervention to support people living with HIV. This study assessed the effectiveness of the CAD intervention in enhancing mental health outcomes, specifically focusing on depressive symptoms, among stable people living with HIV.

Methods: This study employed a two-arm quasi-experimental design conducted across 20 ART clinics in Phnom Penh and nine provinces in Cambodia from May 2020 to April 2023. The intervention group received CAD, a model that delivers ART and related services closer to individuals' homes, while the comparison group followed the multi-month ART dispensing (MMD) model, where patients collected medications from healthcare facilities every three to six months. Participants were surveyed at baseline and endline using structured questionnaires. Depressive symptoms were measured by the Center for

Epidemiologic Studies Depression Scale–10 items (CES-D-10). A CES-D-10 score of ≥ 10 indicated depressive symptoms. A difference-in-difference analysis was conducted to evaluate the impact of CAD on depressive symptoms, with adjusted odds ratios (aOR) and 95% confidence intervals (CIs) calculated to account for confounding factors.

Results: A total of 4089 people living with HIV participated in the baseline survey, with 2040 in the CAD intervention group. By the endline, 79.7% (n=1626) of CAD participants and 70.3% (n=1441) of MMD participants completed the survey. Depressive symptoms increased in both groups over the study period, but the rise was less pronounced in the CAD group (aOR=0.65, 95% CI: 0.50, 0.84). Participants in the CAD group had a 6.7 percentage point lower probability of reporting depressive symptoms compared to those in the MMD group. At baseline, 21.7% of CAD participants and 16.8% of MMD participants exhibited depressive symptoms. By the endline, these rates increased to 27.1% in the CAD group and 28.9% in the MMD group, demonstrating a relatively smaller increase in depressive symptoms among CAD participants.

Conclusions: The findings reveal a concerning overall rise in depressive symptoms among stable people living with HIV in both groups, likely exacerbated by the psychosocial impacts of the COVID-19 pandemic. Despite this increase, the CAD intervention proved more effective than the MMD model in mitigating the rise in depressive symptoms. These results highlight the potential of CAD as a valuable strategy to improve mental health outcomes for people living with HIV. Further scaling of CAD, accompanied by targeted mental health support, may significantly enhance the well-being and treatment adherence of this vulnerable population. Addressing the mental health needs of people living with HIV is crucial to achieving comprehensive HIV care in Cambodia.

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Expanding Access to Oral HIV Pre-Exposure Prophylaxis (PrEP): Implementation Outcomes of a Pharmacy-Led PrEP Service Delivery Model in Malaysia

Gan Y^{1,2}, Azwa I^{3,4}, Hafidzar S³, Altice F^{3,5,6,7}, Lim S^{1,3}, Ahmad Zaki R^{1,8}

¹Department of Social & Preventive Medicine, University of Malaya, Kuala Lumpur, Malaysia, ²Malaysian Health Technology Assessment Section, Putrajaya, Malaysia, ³Centre of Excellence for Research in Infectious Diseases and AIDS (CERiA), University of Malaya, Kuala Lumpur, Malaysia, ⁴Infectious Diseases Unit, Department of Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia, ⁵Section of Infectious Diseases, Department of Internal Medicine, Yale School of Medicine, New Haven, United States, ⁶Department of Epidemiology of Microbial Diseases, Yale School of Public Health, New Haven, United States, ⁷Center for Interdisciplinary Research on AIDS (CIRA), Yale University, New Haven, United States, ⁸Centre for Epidemiology and Evidence-based Practice (CEBP), University of Malaya, Kuala Lumpur, Malaysia

Background: Despite the availability of free oral HIV pre-exposure prophylaxis (PrEP) in Malaysia, uptake remains low (<5,000 users) due to stigma, long waiting times, and limited clinic hours. To address this gap, we piloted and evaluated the implementation effectiveness of a pharmacy-led PrEP service delivery model.

Methods: A single-arm prospective study was conducted at six private pharmacies in Klang Valley (October 2023–October 2024). Eligible participants were Malaysians aged 18–49 interested in PrEP, willing to pay for PrEP medication (subsidized price ~USD \$15/month), and at low risk of kidney impairment. At baseline and follow-up visits, pharmacists assessed eligibility for PrEP initiation and continuation using digital checklists, facilitated oral-fluid HIV self-testing, provided counseling, coordinated electronic prescriptions with physicians via telemedicine, and dispensed PrEP. Follow-up visits occurred at months 1, 4, and 7 post-initiation. A PrEP-experienced subgroup self-reporting continued use and a recent negative HIV test (≤ 3 months before baseline) was followed at months 3 and 6. Participant records were collected from digital assessments and appointment updates in Google Sheets. Upon study completion,

implementation outcomes (acceptability, appropriateness, feasibility, fidelity, and sustainability) were assessed via online surveys, while adoption (initiation and retention) was evaluated via participant records. Acceptability, appropriateness, and feasibility were measured using the validated 4-item AIM, IAM, and FIM (5-point scale). Fidelity was assessed using eight items on core service components (privacy, HIV testing, counselling, kidney monitoring, dispensing, follow-up, and quality of care; 5-point scale). Sustainability was evaluated via a 10-point overall satisfaction scale and participants' willingness to recommend and continue the service at retail prices (~USD \$35/month). Data analysis included descriptive statistics, Kruskal-Wallis, and post-hoc Mann-Whitney U tests to assess factors associated with overall retention ($p < 0.05$).

Results: A total of 230 participants enrolled; 19 defaulted and 211 attended baseline visits. Of these, one tested HIV-positive and was linked to care, while two had medical contraindications, leaving 208 eligible for PrEP. Median age was 30 years (IQR 8), 92% were gay/bisexual men, 37% reported condomless sex in the past three months, 52% were first-time PrEP users, and 65% preferred event-driven PrEP. Initiation rate was 98% (205/208). Retention rates were 82% (169/205), 75% (155/205), and 72% (127/175) at the first, second and third follow-up visits, respectively (third follow-up excluded 30 participants requiring only two follow-ups). Overall, 13% (28/205) were lost to follow-up. Survey completion was 79% (166/208). Mean scores for acceptability, appropriateness, feasibility, and fidelity were 4.81, 4.77, 4.76, and 4.76, respectively. Satisfaction was high (9.39/10), with 98% (164/166) willing to recommend and 83% (137/166) willing to continue, citing convenience, accessibility, and affordability. Retention was significantly associated with age ($p = 0.013$), ethnicity ($p = 0.039$), and prior HIV testing ($p = 0.042$), with higher retention in older participants (40–49 years), Chinese ethnicity, and those with prior HIV testing.

Conclusions: Findings suggest that pharmacy-led PrEP services demonstrate implementation effectiveness, with high acceptability, appropriateness, feasibility, fidelity, and adoption (strong initiation, moderate retention of 72–82%), as well as indications of sustainability. These services offer a promising alternative PrEP access point in Klang Valley and could support broader scale-up across Malaysia.

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Informing the Design of Future PrEP Strategies for MSM in Taiwan: a Bayesian Discrete Choice Experiment Analysis

Wu J¹, Wu D², Ku S³, Li C⁴, Shih S¹, Huang P^{5,6}, Chan C¹, Ong J^{7,8,9}, Tieosapjaroen W^{7,8}, Cassell M¹⁰, Phanuphak N¹¹, Bavinton B¹, Schmidt H^{12,13}, Strong C¹⁴

¹The Kirby Institute, Sydney, Australia, ²Saw Swee Hock School of Public Health, National University of Singapore, Singapore, ³Division of Infectious Diseases, Department of Medicine, Taipei City Hospital Renai Branch, Taipei, Taiwan, ⁴Division of Infectious Diseases, Department of Internal Medicine, National Cheng Kung University Hospital, Tainan, Taiwan, ⁵Institute of Health Behaviors and Community Sciences, College of Public Health, National Taiwan University, Taipei, Taiwan, ⁶Master of Public Health Degree Program, College of Public Health, National Taiwan University, Taipei, Taiwan, ⁷The School of Translational Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University, Australia, ⁸Melbourne Sexual Health Centre, Alfred Health, Australia, ⁹Faculty of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, London, United Kingdom, ¹⁰FHI360, United States, ¹¹Institute of HIV Research and Innovation (IHRI), Bangkok, Thailand, ¹²Joint United Nations Programme on HIV/AIDS (UNAIDS), Geneva, Switzerland, ¹³World Health Organization, Geneva, Switzerland, ¹⁴Department of Public Health, College of Medicine, National Cheng Kung University, Tainan, Taiwan

Background: HIV pre-exposure prophylaxis (PrEP) uptake among men who have sex with men (MSM) in Taiwan remains critically low, with only an estimated 1.6% of MSM using PrEP. This is far short of the 25% coverage needed to meet HIV elimination goals by 2030. The introduction of long-acting injectable PrEP presents a promising alternative for users and has the potential to expand coverage. However, its overall impact will largely depend on user preferences. The PrEP APPEAL study, which conducted a Discrete Choice Experiment (DCE) in 15 countries in Asia-Pacific region, explored how MSM weigh different PrEP attributes and service delivery models. In this study, we analysed the Taiwan sub-sample of PrEP APPEAL to provide insights for optimising PrEP strategies and HIV prevention efforts.

Material and Methods: The PrEP APPEAL study conducted a Discrete Choice Experiment (DCE) across 15 Asia-Pacific countries to assess MSM's PrEP preferences region between May 10, 2022,

and November 30, 2022. This analysis specifically focused on MSM in Taiwan.

Participants completed six choice sets with two hypothetical PrEP options and an opt-out alternative. A Bayesian multinomial logit model with hierarchical random effects was applied using effect coding, running 4,000 iterations with 1,000 discarded as burn-in, assuming normal priors. Relative attribute importance was reported by calculating the range of estimated coefficients divided by the total sum of all attribute ranges.

Results: This study analysed 43,977 observations from 2,564 Taiwanese MSM participants. The model achieved good convergence (Rhat $\approx$ 1.00). The analysis showed that PrEP choices were driven by attributes rather than random selection or individual biases with the baseline choice probability less than 50% and the low variation in individual preferences (SD = 0.01, 95% Credible interval, CrI: 0.00–0.02). The top three factors influencing PrEP choice were cost (31.86%), PrEP type (26.94%), and visit frequency (23.08%). Among PrEP attributes, event-driven oral PrEP was the most preferred option (β = 0.32, 95% CrI: 0.27–0.37), while implants were the least preferred (β = -0.17, 95% CrI: -0.23, -0.11). Community clinics were the most preferred service location (β = 0.18, 95% CrI: 0.12–0.24) and lower costs (β = 0.22, 95% CrI: 0.18–0.26) and less frequent follow-up visits were preferred (β = 0.27, 95% CrI: 0.23–0.32). Side effects had minimal impact on choice probability. Among additional bundled services, STI services were preferred over mental health support or no additional services.

Conclusions: The findings highlight the importance of cost, familiar PrEP options, and simplified delivery in shaping PrEP preferences among MSM in Taiwan. Subsidising PrEP and integrating services could significantly improve uptake and HIV prevention. Future research could use Bayesian trade-off simulations to assess uncertainty and the impact of different service models, providing data-driven insights to policymakers to design and implement effective, community-tailored PrEP services.

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Twelve-Month (12M) Effectiveness and Safety of Bictegravir/Emtricitabine/Tenofovir Alafenamide (B/F/TAF) in Treatment-Experienced People with HIV: A Pooled Analysis from Observational Cohort Studies Across Asia

Minami R¹, Sun L², Tseng Y³, Cai L⁴, Ma P⁵, Teruya K⁶, Taguchi N⁷, Lim T⁸, McDwyer P⁹, Ryu J⁸, Cai W¹⁰

¹National Hospital Organization Kyushu Medical Center, Fukuoka, Japan, ²Beijing Youan Hospital, Capital Medical University, Beijing, China, ³Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan, ⁴Public Health Clinical Center of Chengdu, Chengdu, China, ⁵Tianjin Second People's Hospital, Tianjin, China, ⁶AIDS Clinical Center, National Center for Global Health and Medicine, Tokyo, Japan, ⁷Gilead Sciences K.K., Tokyo, Japan, ⁸Gilead Sciences, Inc., Foster City, CA, USA, ⁹Gilead Sciences Ireland UC, Dublin, Ireland, ¹⁰Guangzhou Medical University, Guangzhou Eighth People's Hospital, Guangzhou, China

Background: Reducing pill burden is associated with improved long-term HIV treatment success. B/F/TAF is a single-tablet regimen (STR) that is guideline-recommended for the treatment of HIV-1. Here we present 12M outcomes from treatment-experienced people with HIV in Asia who switched to B/F/TAF from multi-tablet regimens (MTRs) or STRs and from tenofovir disoproxil fumarate (TDF)-based or non-TDF-based regimens.

Material and methods: Retrospective and prospective data were pooled from participants enrolled in the BICSTaR Asia cohort (Republic of Korea, Singapore, Taiwan), the BICSTaR Japan cohort, and a similar observational study of B/F/TAF in China. Outcomes included virologic suppression (HIV-1 RNA <200 copies/mL; missing=excluded), treatment persistence, safety, patient-reported treatment satisfaction (prospective data only; HIV Treatment Satisfaction Questionnaire-change [HIVTSQc]), and changes in weight, lipids (total cholesterol, low-density lipoprotein [LDL], high-density lipoprotein [HDL], triglycerides), and renal function (estimated glomerular filtration rate [eGFR]). Effectiveness,

persistence, and treatment satisfaction were assessed in participants who switched from MTRs or STRs. Weight, lipids, and renal function were assessed in participants who switched from TDF-based or non-TDF-based regimens. The effect of a third agent will be presented at the congress.

Results: Overall, 2397 participants with prior MTR/STR data available were included (1316 switching from MTR; 1081 switching from STR). At baseline, median (quartile [Q1, Q3]) age was 37 (31, 47) years, 93.2% were male, and 45.9% had ≥1 comorbidity.

Among participants with a viral load at 12M, 99.6% (1148/1153) had HIV-1 RNA <200 copies/mL in the overall population (prior MTR: 99.3% [579/583]; prior STR: 99.8% [569/570]). B/F/TAF persistence at 12M was 98.7% (2273/2302) in the overall population (prior MTR: 98.7% [1245/1261]; prior STR: 98.8% [1028/1041]). Drug-related adverse events (DRAEs) occurred in 17.5% (419/2397) of participants and 0.4% (9/2397) discontinued B/F/TAF through 12M due to DRAEs. No treatment-emergent resistance to any components of B/F/TAF occurred.

Median (Q1, Q3) HIVTSQc score at 12M was +29 (22, 30; P<0.001) indicating an increase in treatment satisfaction, with no difference between MTR and STR groups (prior MTR: +29 [23, 30]; prior STR: +28 [21, 30]; P=0.27).

A separate analysis included 2433 participants switching from TDF-based (n=1021) and non-TDF-based (n=1422) regimens. Overall median (Q1, Q3) weight change was minimal at 12M (0.0 kg [0.0, 2.0]) and was similar between the TDF and non-TDF groups (0.0 kg [0.0, 2.5] and 0.0 kg [0.0, 2.0], respectively). Lipid profiles remained stable at 12M in the overall population (median [Q1, Q3] changes [mmol/L]: total cholesterol, -0.2 [-0.7, 0.3]; LDL, 0.0 [-0.4, 0.4]; HDL, 0.0 [-0.1, 0.2]; triglycerides, -0.1 [-0.8, 0.4]) and were similar in the TDF and non-TDF groups. Median (Q1, Q3) eGFR levels showed a small decrease at 12M in the overall population (-5.0 [-12.7, 1.4]), with similar changes in the TDF (-6.2 [-14.2, 0.5]) and non-TDF (-4.1 [-11.2, 2.0]) groups.

Conclusions: B/F/TAF demonstrated high levels of effectiveness, persistence, safety, and tolerability over 12M, and treatment satisfaction improved in these participants receiving routine clinical care across Asia. Results were similar for participants who switched from MTRs or STRs, and in those who switched from TDF or non-TDF-based regimens.

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Week 96 Results from Dolutegravir/Lamivudine Versus Bictegravir/Emtricitabine/Tenofovir Alafenamide Fumarate: Real-World Assessment of Weight Gain in People Living with HIV of Asian Origin (DRAGON)

Cheng C¹, Yang C², Zhao Q³, Hsieh W⁴, Ho M⁴, Chen T⁵, Tsai M², Lee S¹, Lin Y¹, Chen C¹, Cheng S¹, Zhang X³, Zou M⁶, Wu Y⁷, Huang M⁷, Hung T⁸, Lai H⁹, Ma P¹⁰, Li L¹¹

¹Taoyuan General Hospital, Taoyuan City, Taiwan, ²Far Eastern Memorial Hospital, New Taipei City, Taiwan, ³Henan Infectious Diseases Hospital, Zhengzhou, Henan, China, ⁴China Medical University Hospital, Taichung City, Taiwan, ⁵Taichung Hospital, Ministry of Health and Welfare, Taichung City, Taiwan, ⁶Nantong Third People's Hospital, Nantong, Jiangsu, China, ⁷Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien city, Taiwan, ⁸Ditmanson Foundation Chiayi Christian Hospital, Chiayi City, Taiwan, ⁹Yangming Branch, Taipei City Hospital, Taipei City, Taiwan, ¹⁰Tianjin Second People's Hospital, Tianjin, China, ¹¹Guangzhou Medical University Affiliated Eighth Hospital, Guangzhou, China

Background: Several studies have demonstrated that significant weight gain occurs in some people living with HIV (PWH) after initiating antiretroviral therapy (ART). Baseline factors such as low CD4 counts, high HIV RNA levels, female sex, and Black race have been associated with a higher likelihood of weight gain. Most studies on weight change have been clinical trials conducted primarily in Africa, Europe, and North America, with limited representation from real-world studies in Asia. The DRAGON study aimed to compare weight gain among Asian ART-naïve patients initiated on DTG/3TC or BIC/FTC/TAF.

Methods: This was a retrospective, multi-center, observational cohort study conducted at eleven HIV-care-designated hospitals from March 2019 to January 2024 in Taiwan and mainland China. The primary endpoint was the proportion of participants who experienced a $\geq 10\%$ increase in weight. Secondary endpoints included achieving undetectable plasma HIV RNA levels (<200 copies/mL) at weeks 24 to 96 after initiating

DTG/3TC or BIC/FTC/TAF, evaluated using a snapshot of the per-protocol-exposed population. Additional secondary outcomes included changes in total cholesterol and triglyceride levels over the course of the study.

Results: A total of 1,053 patients were included, with 372 in the DTG/3TC group and 681 in the BIC/FTC/TAF group. The CD4⁺ cell count was 295 (178–425) cells/ μ L and 240 (93–390) cells/ μ L in the DTG/3TC and BIC/FTC/TAF groups, respectively ($p=0.03$), and HIV RNA levels were 4.75 (4.16–5.33) log₁₀ copies/mL and 5.03 (4.38–5.68) log₁₀ copies/mL ($p<0.01$). Figure 1 showed that the effectiveness was not significantly different from week 24 to week 96 between DTG/3TC and BIC/FTC/TAF in the overall population and subgroups with CD4 <200 cells/ μ L and HIV RNA $>500,000$ copies/mL.

The absolute body weight and body mass index (BMI) at baseline were 65 (58–75) kg and 22.6 (20.1–25.5) kg/m² in the DTG/3TC group and 65 (58–72) kg and 22.1 (20.1–24.2) kg/m² in the BIC/FTC/TAF group, respectively. The adjusted mean weight change from baseline to week 48 was 2.9 kg in the DTG/3TC group and 4.2 kg in the BIC/FTC/TAF group (adjusted difference: 1.3 kg; 95% CI, 0.2–2.4; $p=0.01$). At week 96, the adjusted mean weight change was 3.5 kg in the DTG/3TC group and 5.1 kg in the BIC/FTC/TAF group (adjusted difference: 1.6 kg; 95% CI, -0.03–3.3; $p=0.05$). Additionally, 143 patients (24.3%) and 134 patients (33.7%) exhibited $\geq 10\%$ weight gain at weeks 48 and 96. A logistic regression model of the response on weight gain ($\geq 10\%$ increase) was conducted to identify the risk factors, including CD4 <200 cells/ μ L and BMI <24 kg/m². (Table 1)

Conclusions: In a real-world setting, statistical analysis showed that DTG/3TC was comparable to BIC/FTC/TAF in achieving virologic suppression during follow-up. Furthermore, low CD4 cell counts and BMI were associated with a higher likelihood of significant weight gain among treatment-naïve PWH in Asia.

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Efficacy, and Safety of AINUOVIRINE Plus Lamivudine, and Tenofovir DF in Young People with HIV-1: Pooled Analyses of RACER, and SPRINT Studies, Two Randomized, Active-Controlled Phase 3 Trials

Chen Y¹, Wu H², Cai W³, Ma P⁴, Zhao Q⁵, Wei H⁶, Lu H⁷, Wang H⁸, He S⁹, Chen Z¹⁰, Wang M¹¹, Zhang E¹², Fu H¹³, Yun X¹³, Wang Y¹³

¹Division of Infectious Diseases, Chongqing Public Health Medical Center, Chongqing, China, ²Clinical and Research Center for Infectious Diseases, Beijing Youan Hospital, Capital Medical University, Beijing, China, ³Infectious Disease Center, Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China, ⁴Department of Infectious Diseases, Tianjin Second People's Hospital, Tianjin, China, ⁵Department of Infectious Diseases, The Sixth People's Hospital of Zhengzhou, Zhengzhou, China, ⁶Department of Infectious Diseases, The Second Hospital of Nanjing, Nanjing, China, ⁷National Clinical Research Centre for Infectious Diseases, The Third People's Hospital of Shenzhen, The Second Affiliated Hospital of Southern University of Science and Technology, Shenzhen, China, ⁸Department of Infectious Diseases, Shenzhen Third People's Hospital, Shenzhen, China, ⁹Department of Infectious Diseases, Public Health Clinical Medical Center of Chengdu, Chengdu, China, ¹⁰Drug Clinical Trial Institution, Public Health Clinical Medical Center of Chengdu, Chengdu, China, ¹¹Institute of HIV/AIDS, The First Hospital of Changsha, Changsha, China, ¹²Clinical and Research Center for Infectious Diseases, Beijing Ditan Hospital Capital Medical University, Beijing, China, ¹³Clinical Research & Development, Jiangsu Aidea Pharmaceutical Co., Ltd, Yangzhou, China

Background: Young people under 25 years are more susceptible to human immunodeficiency virus 1 (HIV-1) globally, and also in the Asia-Pacific region. AINUOVIRINE (ANV) is a new generation non-nucleoside reverse transcriptase inhibitor that demonstrates a virological efficacy non-inferior to efavirenz (EFV), and boosted elvitegravir (E/C), in combination with nucleoside reverse transcriptase inhibitor backbone, with an improved safety profile, among treatment-naïve (TN), and virologically suppressed (VS) people with HIV-1, respectively, in randomized phase 3 trials. This study aimed to evaluate the efficacy, and safety profile of young people with HIV-1 (YPWH), aged between 18, and 25 years (inclusive), on ANV-

versus comparator-based antiretroviral (ARV) regimens.

Material and Methods: In the RACER study, TN YPWH (N=219) were randomized to receive ANV (N=103) or EFV (N=116), both plus lamivudine (3TC), and tenofovir DF (TDF), for 48 weeks. In the SPRINT study, VS YPWH (N=107) were randomized to receive ANV plus 3TC-TDF (N=59) or E/C plus emtricitabine, and tenofovir alafenamide (E/C/F/TAF, N=48) for 48 weeks. The primary or key secondary efficacy endpoint was the proportion of participants with HIV-1 RNA titer below 50 copies/mL at week 48 in the intention-to-treat-exposed population as per the US FDA snapshot algorithm. Safety outcomes of primary interest included changes from baseline (CFBs) in body weight, fasting serum lipids, and estimated glomerular filtration rate (eGFR) at week 48, if applicable.

Results: The two arms were well balanced in demographic, and baseline characteristics for both subpopulations. The proportions of participants with HIV-1 RNA titer below 50 copies/mL were comparable between the two arms for both subpopulations at week 48: TN, 87.4% (90/103) vs. 89.7% (104/116), $p>0.05$ for difference; VS, 96.6% (57/59) vs. 100% (48/48), $p>0.05$. Increase in CD4 cell absolute count was significantly greater with the ANV arm in the TN subpopulation (mean $\pm$ SEM, 160.8 $\pm$ 29.5 vs. 116.7 $\pm$ 29.0 cells/mm³, $p=0.041$). The safety, and tolerability profile was also similar between the two arms. Weight gain in VS YPWH was significantly less in the ANV/3TC/TDF arm compared to that in the E/C/F/TAF arm (1.6 $\pm$ 2.7 vs. 3.3 $\pm$ 3.0 kg, $p=0.046$). In the TN subpopulation, LDL-C level showed a remarkable decline to a similar extent in both arms at week 48 (-0.17 $\pm$ 0.04 vs. -0.18 $\pm$ 0.04 mmol/L, $p>0.05$) but total cholesterol level was significantly reduced in the ANV arm compared to that with a small-magnitude increase in the EFV arm (-0.24 $\pm$ 0.06 vs. 0.05 $\pm$ 0.06 mmol/L, $p<0.001$). These differences were even significantly more marked in the VS subpopulation: 0.00 $\pm$ 0.12 vs. 0.47 $\pm$ 0.14 mmol/L, and -0.12 $\pm$ 0.14 vs. 0.78 $\pm$ 0.17 mmol/L; both $p<0.001$. In the TN subpopulation, ANV/3TC/TDF arm exhibited a significantly greater but clinically insignificant decline in CFBs in eGFR (CKD-EPI) compared to EFV/3TC/TDF arm (-2.2 $\pm$ 1.4 vs. 1.0 $\pm$ 1.3 mL/min/1.73 m², $p=0.001$), whereas in the VS subpopulation, ANV/3TC/TDF arm showed a significantly less reduction compared to E/C/F/TAF arm (-0.5 $\pm$ 1.6 vs. -6.3 $\pm$ 2.1 mL/min/1.73 m², $p<0.001$).

Conclusions: ANV-based ARV regimen was noninferior to approved active comparators in viral suppression for YPWH. The additional benefits included more reduced weight gain in the VS YPWH, and more improved lipid metabolism in the TN, and VS subpopulations.

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Phase 3/3b Experience with Long-Acting Cabotegravir and Rilpivirine: Efficacy, Safety, and Virologic Outcomes Beyond 124 Weeks in Participants Identifying as Asian

Choi J¹, Holohan V², Oka S³, Kim Y⁴, Shirasaka T⁵, Chamay N⁶, Meares L⁷, Grove R⁷, D'Amico R⁸, Baugh B⁹, Brown K⁸

¹Yonsei University College of Medicine, Seoul, Republic of Korea, ²ViiV Healthcare, Singapore, Singapore, ³National Center for Global Health and Medicine, Tokyo, Japan, ⁴Chungnam National University School of Medicine, Daejeon, Republic of Korea, ⁵AIDS Medical Center, National Hospital Organization Osaka National Hospital, Osaka, Japan, ⁶ViiV Healthcare, London, UK, ⁷GSK, London, UK, ⁸ViiV Healthcare, Durham, USA, ⁹Johnson & Johnson Innovative Medicine, Raritan, USA

Background: Cabotegravir (CAB) + rilpivirine (RPV) administered intramuscularly monthly or every 2 months is the first complete long-acting (LA) regimen recommended by treatment guidelines for maintenance of HIV-1 virologic suppression. CAB + RPV LA reduces dosing frequency compared with daily oral antiretroviral therapy (ART), potentially improving quality of life and medication adherence. CAB + RPV LA dosed every 4 weeks (Q4W) or every 8 weeks (Q8W) demonstrated non-inferior efficacy in phase 3/3b trials. This post hoc analysis summarizes outcomes for participants identifying as Asian across the FLAIR and ATLAS-2M studies through final visit (Week 124 and Week ≥ 152 , respectively).

Material and Methods: Data from participants identifying as Asian, naive to CAB + RPV, and randomized to receive Q4W or Q8W dosing in the FLAIR and ATLAS-2M phase 3/3b studies were pooled. Endpoints included proportions of participants with plasma HIV-1 RNA ≥ 50 and < 50 c/mL (FDA Snapshot) at final visit, incidence of confirmed virologic failure (CVF; 2 consecutive HIV-1 RNA ≥ 200 c/mL) and safety and tolerability through final visit, as well as adherence through Week 112.

Results: Overall, 41 participants identifying as Asian received CAB + RPV LA (Q4W, n=24; Q8W, n=17). Median (range) age was 39 (21-68) years and median (range) body mass index was 23 (18-31) kg/m²; 10% (n=4) were assigned female at birth. Participants were enrolled at centers in the Republic of Korea (39%, n=16); the United States (24%, n=10); Japan (20%, n=8); France (5%, n=2); and Australia, Canada, Italy, South Africa, and the United Kingdom (2% [n=1] each). At final visit, 78% (32/41) of participants maintained virologic suppression (HIV-1 RNA < 50 c/mL) with CAB + RPV LA, none had HIV-1 RNA ≥ 50 c/mL, and 22% (9/41) had no virologic data (7% [3/41] discontinued the study due to adverse events [AEs]; 15% [6/41] discontinued the study for other reasons). No participants experienced CVF. All drug-related AEs were grade 1 or 2. Across the 41 participants in both LA groups, drug-related AEs other than injections site reactions (ISRs) occurring in $> 5\%$ of the population were pyrexia (12%, n=5); myalgia (10%, n=4); and chills, fatigue, malaise, and dizziness (7% [n=3] each). Overall, 5% (2/41) of participants withdrew due to drug-related non-ISR AEs. Median ISR duration was 2 days, and most events resolved within 7 days (89%, 467/523). The number of participants reporting ISRs at each visit decreased over time. Overall, 2% (8/508) of ISRs resulted in study withdrawal. Most injection visits (96%, 716/742) occurred within the ± 7 -day dosing window, and 2 injection visits were missed and covered by oral CAB + RPV.

Conclusions: Overall, CAB + RPV LA demonstrated high efficacy, with no CVFs, and an acceptable safety profile in participants identifying as Asian through the final visit in FLAIR and ATLAS-2M. All ISRs were grade 1 or 2, most were short-lived, and few discontinuations were for injection-related reasons. These data support the use of CAB + RPV LA as a complete regimen for the maintenance of HIV-1 virologic suppression for people with HIV-1 who identify as Asian.

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Low Levels of Awareness of Undetectable=Untransmittable Among MSM in Five Asian Countries: Results from the Asia Pacific MSM Internet Survey

Chan C¹, Bavinton B¹, Holt M², Hill A^{3,4}, Guadamuz T⁵, Bourne A⁴

¹Kirby Institute, Sydney, Australia, ²Centre for Social Research in Health, UNSW Sydney, Sydney, Australia, ³Nagoya University, Nagoya, Japan, ⁴Australia Research Centre in Sex, Health, and Society, La Trobe University, Melbourne, Australia, ⁵Mahidol Center for Health, Behavior and Society, Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand

Background: Compelling evidence has shown that people living with HIV (PLHIV) who have an undetectable viral load cannot sexually transmit HIV. The Undetectable=Untransmittable (U=U) message has been promoted globally to combat HIV stigma, encourage HIV testing and treatment, and reassure PLHIV and their partners. However, there is limited data on whether men who have sex with men (MSM) in Asia, a priority population for HIV prevention, are aware of this message.

Material and Methods: The Asia Pacific MSM Internet Survey (APMIS) was an online cross-sectional survey of MSM from Indonesia, Japan, Malaysia, Thailand and Vietnam conducted during May-December 2020. Participants were recruited via social media, dating apps, and community organisations. Participants were asked if they were aware that a PLHIV with an undetectable viral load could not transmit HIV to their sexual partner. Demographic, behavioural, and attitudinal factors associated with awareness of U=U were assessed using multivariate logistic regression.

Results: Of 15,937 who completed the survey, 5,696 (35.7%) reported they were aware of U=U. Participants from Japan (n=7,452) were the most aware of U=U (41.1%), followed by Malaysia (n=849, 39.3%), Thailand (n=1,566, 33.4%), Vietnam (n=4,663, 30.2%) and Indonesia (n=1,342, 27.6%). Compared to those not aware or unsure (n=10,176), those who were aware of U=U were older (mean age 34.4 vs 31.6, aOR=1.01,

95%CI=1.00-1.01), more likely to be university educated (60.7% vs 51.4%, aOR=1.29, 95%CI=1.20-1.29), had more sexual partners in the last twelve months (aOR=1.56, 95%CI=1.34-1.83), had engaged in group sex in the last twelve months (26.6% vs 15.4%, aOR=1.13, 95%CI=1.03-1.25), had received an HIV test (75.9% vs 45.7%, aOR=2.13, 95%CI=1.94-2.33) or an STI test in the last twelve months (43.1% vs 22.7%, aOR=1.28, 95%CI=1.17-1.40), sought information about HIV testing, treatment, or prevention in the last twelve months (68.7% vs 54.2%, aOR=1.56, 95%CI=1.44-1.69), and reported being happy with their sex life (35.2% vs 28.6%, aOR=1.13, 95%CI=1.04-1.22). Compared to HIV-negative and untested participants not on PrEP, HIV-negative participants on PrEP (aOR=2.33, 95%CI=1.98-2.74) and PLHIV (aOR=4.30, 95%CI=3.69-5.01) were more likely to be aware of U=U. Compared to those who were not out about their sexuality to family, friends, work, or school, those who were out to some people (aOR=1.12, 95%CI=1.02-1.24) or all/most people (aOR=1.21, 95%CI=1.08-1.35) were more aware of U=U.

Conclusions: In this large sample of MSM across five Asian countries, only one third of participants were aware of U=U. Awareness of U=U was associated with greater sexual activity, openness about sexuality, and use of sexual health services, including HIV/STI testing and PrEP. Greater satisfaction with one's sex life could be leveraged in health promotion to highlight the utility of U=U for individuals. Encouraging openly gay and bisexual MSM to disseminate U=U information within their social networks may help raise awareness among those who are not open about their sexuality. More work is needed to increase awareness of U=U among MSM in Asia to facilitate HIV stigma reduction and promote the importance of early detection of HIV through accessing testing services.

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Building Inclusive Healthcare: Tackling HIV-Related Stigma and Discrimination in Malaysian Primary Care Clinics

Maruan K¹, Awang S¹, Mohd Ujang I¹, Mohamed N¹, Hamidi N¹, Narayanan D¹, Shaharuddin N¹, Supadi R¹, Mohamad M¹, Ramly M², Mohamad Yadzir Z²

¹Institute For Health Systems Research (IHSR), National Institutes of Health (NIH), Ministry of Health, Malaysia, Setia Alam, Malaysia, ²HIV/STI/Hep C Sector, Ministry of Health Malaysia, , Malaysia

Background: HIV-related stigma and discrimination (S&D) among healthcare workers (HCWs) present a significant barrier to effective HIV care and prevention, leading to delayed testing, poor treatment adherence, and unfavourable patient experiences. Despite global efforts to diminish S&D, challenges remain in integrating stigma-free practices into routine healthcare services. This study assessed the effectiveness of quality improvement (QI) interventions to reduce S&D in Malaysian primary care settings and to determine predictors of negative HCWs' attitudes toward people living with HIV (PLHIV).

Materials and Methods: A QI study was conducted from 2022 to 2023 across 55 purposely selected public primary care facilities in Malaysia, involving all HCWs from participating locations. Baseline levels of S&D were assessed through an online validated survey measuring eight S&D indicators, which included fear of contracting HIV (Indicators 1 to 3), awareness (Indicators 4 and 5), institutional environment (Indicators 6 and 7), and attitude (Indicator 8) towards PLHIV. A six-month intervention phase followed, targeting structural, process, and personnel factors such as service integration, guidelines and procedures revisions, training, stigma awareness campaigns, recognition initiatives, incident reporting mechanisms, and engagement sessions with PLHIV. After the intervention, the survey was repeated to evaluate changes in S&D levels. Data were analyzed using the Statistical Package for the Social Sciences 29. Categorical data were presented as frequencies and percentages. A Z-test for two proportions was used to determine significant differences in

indicator performance between the baseline and post-intervention phases. Subsequently, logistic regression analysis was conducted to determine the factors affecting negative HCWs' attitudes towards PLHIV.

Results: A total of 6,249 HCWs completed the survey at baseline, and 4,806 completed the post-intervention survey. Findings revealed a significant improvement in 6 out of 8 S&D indicators in the post-intervention phase compared to baseline. Indicator 1 (worried about taking blood from PLHIV) reduced from 72.8% to 52.5% ($Z=18.28$, $p<0.001$); indicator 2 (avoid physical contact with PLHIV) reduced from 32.0% to 18.8% ($Z=13.73$, $p<0.001$); indicator 3 (wearing double gloves when attending PLHIV) exhibited the most substantial reduction, from 67.9% to 47.1% ($Z=19.62$, $p<0.001$); indicator 5 (observed other HCWs provide poor care to PLHIV) reduced from 6.6% to 5.2% ($Z=2.78$, $p=0.005$); indicator 7 (no written guidelines to protect PLHIV from discrimination at the facility) reduced from 9.3% to 7.1% ($Z=3.37$, $p<0.001$) and indicator 8 (women with HIV should not be allowed to get pregnant) reduced from 34.8% to 23.3% ($Z=13.07$, $p<0.001$). HCWs who are older, nonmedical officers, lack previous working experience in the HIV unit, have never provided care to PLHIV, and have not undergone S&D training were significant predictors for negative HCWs' attitudes towards PLHIV.

Conclusions: These findings highlight the successful outcomes of targeted QI interventions in decreasing HIV-related S&D among primary care HCWs in Malaysia. However, the ongoing presence of S&D in specific HCW groups points to a need for sustained engagement and policy reinforcement. Future phases should concentrate on long-term behavioral change strategies, including institutional support, ongoing training, and systemic policy integration to achieve stigma-free healthcare environments.

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Data from the Positive Perspectives 3 Study Highlights the Continued Need for Expansion of Awareness, Belief and Confidence in Undetectable Equals Untransmittable (U=U)

Iwahashi K¹, Allan B², Brough G³, Cascio M⁴, Castellanos E⁵, Cingolani A⁶, Dubula V⁷, Hardy W⁸, Mbudwini S⁹, McBritton M¹⁰, Ndungu M¹¹, Richman B¹², Shibemba M¹³, Appiah A¹⁴, Fox D¹⁵, Mayer M¹⁶, Mellors S¹⁴, Patel R¹⁴, Vega V¹⁵, Nwokolo N¹⁴

¹Akita, Tokyo, Japan, ²National Association of People Living with HIV Australia, Newtown, Australia, ³Transformation Partners in Health and Care, London, UK, ⁴European AIDS Treatment Group (EATG), Bruxelles, Belgium, ⁵Global Action for Trans Equality (GATE), , Netherlands, ⁶Fondazione Policlinico A. Gemelli, IRCCS, Catholic University of the Sacred Heart, Roma, Italy, ⁷The Global Fund, Geneva, Switzerland, ⁸USC Rand Schrader (HIV) Clinic, Keck School of Medicine of USC, Los Angeles, USA, ⁹Nelson Mandela University, Port Elizabeth, South Africa, ¹⁰Barong, São Paulo, Brazil, ¹¹Women's Health in Women's Hands Community Centre, Toronto, Canada, ¹²Prevention Access Campaign, Brooklyn, USA, ¹³Manchester, , UK, ¹⁴ViiV Healthcare, London, UK, ¹⁵ViiV Healthcare, Durham, USA, ¹⁶ViiV Healthcare, Rueil-Malmaison, France

Background: The Positive Perspectives studies are global, cross-sectional surveys of people living with HIV co-designed by community advocates, people living with HIV, healthcare providers and industry representatives. The third Wave of the Study launched in 2024.

Methods: This analysis utilized interim data from 834 participants in Positive Perspectives Study Wave 3 from adults living with HIV on antiretroviral therapy (ART) from Australia, Argentina, Chile, South Africa, Colombia, Italy, and USA. Variables examined included U=U awareness, stigma, and emotional challenges. Binary logistic regression was used to measure the relationship between awareness of U=U and various quality-of-life indicators, adjusting for age, gender, and income.

Results: 58.0% of people living with HIV reported being aware of U=U; of these, 64.1% reported

being informed about U=U by their healthcare provider, 23.1% by other people living with HIV, 20.9% by the internet, 17.2% by social media, and 16.3% by general non-HIV healthcare personnel. 65.1% agreed that U=U-awareness had potential to increase confidence and enjoyment during intimacy. 67.7% and 64.7% recognized its potential to reduce internal and external stigma, respectively. However, of those aware of U=U, 35.0% did not feel confident explaining it to others and 39.9% expressed hesitancy about engaging in condomless sex with an HIV-negative partner, citing fears of residual transmission risk despite an undetectable viral load.

Among all participants with HIV-negative partners (n=148), HIV prevention strategies included condoms (64.2%), reliance on U=U (35.1%), and PrEP (29.1%).

Awareness of U=U was associated with improved perceptions of ART's impact on daily well-being (AOR=1.89, 95% CI:1.02–3.50), self-reported viral suppression (AOR=5.43, 95% CI:2.83–10.43), optimal sexual health (AOR=1.91, 95% CI:1.02–3.57), treatment satisfaction (AOR=2.42, 95% CI:1.31–4.49), and comfort discussing specific medications with healthcare providers (AOR=2.49, 95% CI:1.36–4.54).

Conclusions: U=U awareness was reported by a small majority of people (58%), and even amongst those, there was a lack of belief in the message; almost 40% of those aware of U=U did not feel comfortable having condomless sex even if they were virally suppressed. This highlights the need for more clear and effective communication to raise awareness, belief and confidence in U=U, and its impact on people's lives.

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Bioinformatics Analysis of the Immune Microenvironment and Diagnostic Biomarkers in AIDS-Related Diffuse Large B-Cell Lymphoma

Zhao S¹

¹Beijing Youan Hospital, Capital Medical University, Beijing, China

Objective: Human immunodeficiency virus (HIV)-associated non-hodgkin lymphoma (NHL) is one of the common malignancies in people living with HIV (PLWH). This increases the risk of NHL due to impaired immune system function as a result of HIV infection. Although antiretroviral therapy (ART) has been successful in reducing the incidence of HIV-defining cancers, PLWH still have a significantly increased risk of developing NHL compared to the general population. Among HIV-associated NHL subtypes, diffuse large B-cell lymphoma (DLBCL) remains one of the more prevalent tumor types in PLWH. The mechanism of HIV-associated DLBCL is complex, and there have been fewer studies on the immunological characteristics of HIV-associated DLBCL. In addition, the definitional indicators of HIV-associated DLBCL are not well defined at this stage in clinical practice, which affects the timeliness and accuracy of its diagnosis by physicians. Therefore, this study will analyze the immunological microenvironmental characteristics of HIV-associated DLBCL based on bioinformatics and search for potential biomarkers to determine HIV-associated DLBCL.

Methods: Transcriptomic data of AIDS-associated DLBCL and DLBCL tumor tissue samples were obtained from gene sets GSE2350 and GSE262621 of the GEO database, and a series of bioinformatics methods were used to analyze the characteristics of the immune microenvironment of AIDS-associated DLBCL and to screen out biomarkers that could be used to diagnose AIDS-associated DLBCL.

Results: Gene chip expression matrices of 56 AIDS-incorporated DLBCL and 54 DLBCL tumor tissue samples were collected from the GEO database,

and multiple analyses were performed using bioinformatics research methods. Effector memory CD8 T cells ($P<0.05$), activated CD4 T cells ($P<0.01$), central memory CD4 T cells ($P<0.001$), effector memory CD4 T cells ($P<0.01$), Treg cells ($P<0.01$), type 2 T helper cells ($P<0.01$), NK T cells ($P<0.01$), CD56bright NK T cells ($P<0.0001$), gamma delta T cells ($P<0.01$), immature B cells ($P<0.01$), myeloid derived suppressor cells ($P<0.05$), activated dendritic cells ($P<0.01$), plasmacytoid dendritic cells ($P<0.0001$), immature dendritic cells ($P<0.05$), eosinophils ($P<0.05$), and monocytes ($P<0.05$) were significantly higher than in DLBCL, while the abundance of type 17 T helper cells ($P<0.0001$), macrophages ($P<0.01$), and neutrophils ($P<0.001$) was significantly lower than in DLBCL. After considering the ART situation, it was found that ART reduced the differences between the immune microenvironment of AIDS-combined DLBCL and DLBCL samples. The diagnostic discrimination of differentially expressed genes was validated, and nine genes associated with AIDS-combined DLBCL, namely TNFRSF10B, REL, GLRX, RPL41, SMTN, and PFKFB4, were screened and obtained, and their roles and the related miRNA-mRNA regulatory networks were preliminarily explored.

Conclusion: In this study, we analyzed the characteristics of the immune microenvironment of AIDS-associated DLBCL based on the bioinformatics method and searched for potential biomarkers for determining AIDS-associated DLBCL, and found that there was a significant difference in the immune infiltration of immune system tissues (tumor tissues), and nine genes were obtained, which can provide a theoretical basis for the clinical diagnosis of AIDS-associated DLBCL. It provides a theoretical basis for the clinical diagnosis of AIDS combined DLBCL.

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Prevalence of Integrase Strand Transfer Inhibitors (INSTI) Resistance in People Living with HIV and Virological Failure in an Area with Universal Implementation of Single Tablet Regimen as the First Line Therapy

Tsai H¹, Chen I¹, Chang H², Weng Y¹, Wu K¹, Chen Y¹

¹Division of Infectious Diseases, Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan, ²Department of Pharmacy, Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan

Background: Single tablet regimen (STR) has been associated with better drug adherence, decreased risk of resistance-associated mutations, and a low resistance rate in treatment-naïve patients. Limited clinical data are available on the prevalence of integrase strand transfer inhibitors (INSTI) resistance in patients with virological failure in an area with universal implementation of STR as the first line therapy

Methods: This multicenter retrospective study was conducted in Taiwan between 2015 and 2023. Clinical samples were obtained island wide from patients failing a STR requested for genotypic drug resistance testing at our laboratory. Virological failure was defined as a plasma viral load ≥ 1000 copies/ml. Resistance-associated mutations were guided by the 2022 IAS-USA list. Drug resistance was analyzed using the HIV Stanford HIVDB 9.4 edition algorithm. Logistic regression analysis was used to analyze the risk factors associated with INSTI resistance.

Results: A total of 216 patients failed to STRs, of whom 116 failed on nonnucleoside reverse transcriptase inhibitors based STRs, 1 on protease inhibitors, and 99 on INSTIs. For the 99 patients who failed on INSTI based STRs, 26 were treatment naïve with INSTI based STR failure and 73 were virological failure after switching to INSTI based STRs. A total of 60 patients failed to abacavir/dolutegravir/lamivudine (ABC/DTG/3TC), 3 to dolutegravir/lamivudine (DTG/3TC), 22 to

elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide (EVG/COBI/TAF/FTC) and 14 to bictegravir/emtricitabine/tenofovir alafenamide (BIC/FTC/TAF). Seventy-eight patients had INSTI drug resistance testing results available, of whom 24.4% (19/78) showed INSTI resistance at failure. Among them, 9.4% (5/53) resistance to DTG based STR and 12.5% (1/8) to BIC/FTC/TAF. None of the treatment naïve patients with DTG or BIC based STR failure developed INSTI resistance. Among the 22 patients failed to EVG/COBI/TAF/FTC, 76.5% (13/17) developed INSTI resistance. Logistic regression analysis showed that the patients with EVG/COBI/TAF/FTC failure were more likely development of INSTI resistance ($p=0.043$, adjusted OR 64.08, 95% CI: 1.15-3569) and being hepatitis B carrier ($p=0.019$, adjusted OR 33.37, 95% CI: 1.79-621) compared to DTG or BIC based STR failure.

Conclusions: INSTI resistance was uncommon when failure if the DTG or BIC based STR was used as the first line therapy. INSTI resistance should be considered when patients failed to first generation INSTI, such as EVG/COBI/TAF/FTC.

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Transmitted and Acquired Integrase Strand Transfer Inhibitor (INSTI) Resistance Mutation in a Prospective Cohort of Thai People Living with Acute HIV

Promsena P^{1,2}, Poonpitak L¹, Sacdalan C^{1,2}, Moreland S^{3,4}, Pinyakorn S^{3,4}, Ratnaratorn N¹, Sae-Eiaw N¹, Savadsuk H¹, Kroon E¹, Sriplienchan S¹, Colby D^{3,4}, Trautmann L^{3,4}, Vasan S^{3,4}, Phanuphak N⁵

¹Search Research Foundation, Bangkok, Thailand, ²Research Affairs, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ³U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, MD, USA, ⁴Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc., Bethesda, MD, USA, ⁵Institute of HIV Research and Innovation, Bangkok, Thailand

Background: Data on transmitted and acquired Integrase Strand Transfer Inhibitor (INSTI) drug resistance mutations (TDRM and ADRM) in Thailand are limited. This study assessed the prevalence of INSTI TDRM and ADRM in a longitudinal early-treated acute HIV (AHI) cohort in Thailand.

Material and Methods: HIV genotyping was done in RV254/SEARCH010 AHI cohort to identify TDRM at enrolment (before ART initiation) and ADRM in participants experiencing virologic failure (VF). DTG-based regimens and integrase gene sequencing were introduced in SEARCH010/RV254 in 2017, with results analyzed using the Stanford University HIV Drug Resistance Database.

Results: INSTI TDRM data prior to ART initiation were available for 304 participants while sequencing was also available for 32 participants who experienced VF after earlier control on DTG-based ART. HIV-1 subtype AE was predominant (n=191, 62.8%). INSTI TDRM were detected in 15 (4.9%) participants during AHI. TDRM prevalence per year decreased over time, reaching 0% in 2023-2024. TDRM included 1 major mutation in 3 (1.0%) participants and 5 accessory mutations in 12 (4.0%) participants. Most (96.4%) remained susceptible to all INSTIs; 2 (0.7%) had low level and 6 (2.0%) had potential low-level DTG resistance.

Among 32 participants with VF while on DTG-based ART, only 1 had ADRM (1 major and 1 accessory mutation).

Conclusion: INSTI TDRM decreased over time in this AHI cohort, reflecting low current community transmission of INSTI resistance. INSTI ADRM was rare after VF, reflecting high barrier to resistance of DTG-based regimens, which may also be favorable for clinical trials incorporating analytic treatment interruptions and supporting ART switching without drug-resistance testing.



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Long-Acting Injection with Cabotegravir/Rilpivirine Among People Living with HIV: Real-World Experience from Taiwan

Huang D¹, Wu S², Li L², Yu S³, Tsou H³, Huang Y³, Chang Y¹, Ku S¹

¹Division of Infectious Diseases, Department of Medicine, Taipei City Hospital Renai Branch, Taipei, TAIWAN, ²Department of Laboratory Medicine, Taipei City Hospital Linsen, Chinese Medicine and Kunming Branch, Taipei, TAIWAN, ³Infection Control Unit, Taipei City Hospital Renai Branch, Taipei, TAIWAN

Background: Long-acting injection (LAI) with cabotegravir/rilpivirine (CAB/RPV) has been available in Asia since 2022, yet its real-world experience regarding adverse effects and virological failure remains scarce in our region. Taiwan National Health Insurance started to reimburse bimonthly CAB/RPV LAI in April 2024, requiring pre-authorization approval from Taiwan Centers for Disease Control for people with HIV conforming to the switching criteria. Here we report the first-year data from the cohort receiving CAB/RPV LAI in one regional hospital.

Methods: We collected data retrospectively from the electronic medical record in a regional hospital, where approximately 250 people living with HIV visit regularly. Basic demographics, antiretroviral regimens prior to switching, adverse effects from LAI, and HIV viral load/CD4+ T lymphocyte count at baseline as well as in the first, third, and ninth month after switching were documented. Genotypic resistance testing using conventional Sanger method was performed in case of suspected virological failure (SVF), defined as any HIV viral load greater than 200 copies/mL. We used Exatype HIV drug resistance analysis platform with Stanford HIV database algorithm to determine HIV subtype and detected mutations.

Results: From April 2024 to January 2025, there were 40 people with HIV receiving CAB/RPV LAI, and none had oral lead-in. The median age was 39.8 years (IQR 31-63) and most people were men (97.5%) and of Asian ethnicity (90.0%). None of them had a past history of documented virological failure or a BMI greater than 30 kg/m² before

switching. The median CD4+ T lymphocyte count before switching was 595 cells/cumm (IQR 213-1536). Most people were switched from DTG-based dual therapies including 3TC/DTG (37.5%) and RPV/DTG (12.5%), followed by NNRTI-based regimens such as TAF/FTC/RPV (22.5%) and TDF/3TC/DOR (10.0%), and TAF/FTC/BIC (17.5%). None had missed or delayed their injections. The most common immediate adverse effects are injection site reaction (85.0%), followed by fever (10.0%) and fatigue (10.0%). Three people switched back to their previous regimen due to intolerance to adverse effects. One Caucasian woman had SVF after receiving the third injection. She developed fever and headache after the second and third injection, with a HIV viral load of 880 copies/mL in the fourth month after switching. The HIV subtype was CRF02_AG, and resistance-associated mutations to NNRTI (E138A) and InSTI (S153Y) were detected. Her HIV viral load became re-suppressed one month after switching to TAF/FTC/BIC.

Conclusions: Immediate adverse effects from CAB/RPV LAI were frequent yet mostly tolerable among people living with HIV in Taiwan. We reported one case of SVF with no apparent risk factors identified, although the confirmed virological failure rate was rather low from other cohorts globally. Closer monitoring of HIV viral load within the first year after switching to CAB/RPV LAI is advisable.

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Sexualized Drug Use and Its Association with STD Among Sexual Minorities in China

Wang H¹, Wu D¹, Zhang Y¹

¹Nanjing Medical University, Nanjing, China

Background: Sexualized drug use (SDU) is defined as using drugs in a sexualized context to facilitate, prolong, and enhance sexual performance or experience. A rising prevalence of sexual minorities engaging in SDU and experiencing sexual health issues has been reported. However, the relationship between SDU patterns and sexually transmitted disease (STD) in Mainland China remains unexplored. This study aims to estimate the patterns of SDU and examine their associations with STD.

Method: Sexual minorities from Chengdu, Sichuan Province, were included in our study. Information on sociodemographics, STD, and SDU was collected. An Apriori algorithm-based association rule analysis and latent class analysis were used to identify the drug use combinations and categorize sexual minorities into subgroups based on their SDU patterns. Multivariable logistic regression analyses were used to examine differences in STD between these subgroups.

Results: We included 8,039 participants, and 19% involved in SDU in the past 12 months. Fifteen drug combinations (support $\geq 1\%$, confidence $\geq 1\%$) were ultimately identified, and some combinations were most strongly associated, such as Zero capsule and G spot. Compared with participants who did not engage in SDU, sexual minorities engaging in SDU experienced significantly higher rates of STD (AOR: 3.63, 95%CI: 2.95-4.46), with polydrug users facing a greater risk compared with single-drug users (AOR: 1.82, 95%CI: 1.23-2.66). Three latent classes were identified: (1) the rush group (mainly use rush with 10% engaging in polydrug use); (2) the varied-use group (mainly use zero capsule or G spot with 50% engaging in polydrug use); (3) the chemsex group (mainly use methamphetamine, mephedrone, and gamma hydroxybutyrate/gamma butyrolactone, with 30% engaging in polydrug use). Compared with rush group (reference group), individuals in

the varied-use group or chemsex group showed no significant differences on STD prevalence ($P > 0.05$).

Conclusions: This study is the first to delineate both SDU patterns and STD risk among sexual minorities in Mainland China. Our study found that there were significant differences in STD among different drug use patterns, in whom polydrug use coincided with higher STD risk compared with single-drug users. The findings could provide insights for targeted STD prevention for sexual minorities engaging in SDU.

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Using Deep Learning Systems for Diagnosing Common Skin Lesions in Sexual Health

Soe N^{1,2}, Latt P^{1,2}, Lee D¹, Yu Z^{2,3}, Schmidt M¹, Bissessor M¹, Aung E^{1,2}, Ge Z^{3,4}, Ong J^{1,2}, Fairley C^{1,2}, Zhang L^{1,2,5}

¹Melbourne Sexual Health Centre, Melbourne, Australia, ²School of Translational Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia, ³Augmented Intelligence and Multimodal analytics (AIM) for Health lab, Faculty of Information Technology, Monash University, Melbourne, Australia, ⁴Data Science And AI (DASI), Faculty of Information Technology, Monash University, Melbourne CBD, Australia, ⁵Clinical Medical Research Centre, Children's Hospital of Nanjing Medical University, Nanjing, China

Background: Early identification and treatment of sexually transmitted infections (STIs) prevent complications and improve STI control. A deep learning system (DLS) that automates the diagnosis of skin lesions may facilitate access to health care but has not been evaluated across a comprehensive range of sexual health-related skin conditions.

Methods: We developed a DLS using 15,891 clinical images from public repositories and the Melbourne Sexual Health Centre (MSHC) to classify 33 anogenital dermatoses. We prospectively collected 336 images to evaluate the DLS's accuracy and compared it to the clinician's diagnosis. We also evaluated whether DLS recommendations aligned with clinical urgency for seeking care based on the diagnosis.

Results: On the hold-out test dataset, the DLS achieved an accuracy of 59.2% (SD 0.7%) (top-1) and the correct diagnosis was included in the top five diagnoses (top-5) with an accuracy of 82.1% (SD 13.3%). On the 8-month prospective dataset at MSHC, the DLS achieved a top-1 accuracy of 52.1%, top-3 of 73.8%, and top-5 of 89.9%. The highest accuracy was achieved for tinea curitis, discharge-associated gonorrhoea or chlamydia, molluscum contagiosum, and mpox. The DLS recommendation based on top-5 diagnoses for seeking care maintained 100% sensitivity for urgent cases (e.g. syphilis) but had a lower positive predictive value (59.5%). The recommendation

based on top-1 diagnosis provided more balanced sensitivity (85.0%) and PPV (80.5%).

Conclusions: The DLS demonstrated satisfactory statistical accuracy and could enhance the sexual health intervention for early diagnosis and treatment. When the actual diagnosis was included in the top 5 diagnoses predicted by DLS, the recommendation for the urgency of seeking health care was highly sensitive but not specific. Future work should evaluate the DLS's performance across expanded populations and skin conditions from multiple clinics in different countries and determine how such tools could be used for the public good.

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A Community-Based Antiretroviral Delivery Model for Improving Health and Quality of Life of People Living with HIV in Cambodia: A Quasi-Experimental Study

Yi S¹, Tian Z¹, Choun P², Hayashi M¹, Yam E¹, Tuot S², Sameth S³, Ngauv B³, Ouk V³, Prem K¹

¹National University of Singapore, Singapore, Singapore,

²KHANA Center for Population Health Research, Phnom Penh, Cambodia, ³National Center for HIV/AIDS, Dermatology, and STD, Phnom Penh, Cambodia

Background: The global response to HIV has increasingly recognized the critical importance of community-based antiretroviral therapy (ART) delivery and multi-month dispensing (MMD) in achieving comprehensive care. The community-based ART delivery (CAD) intervention is designed to reduce clinic visits for people living with HIV, improving healthcare accessibility and fostering better health outcomes. By decentralizing ART provision, CAD enhances the socio-economic conditions of people living with HIV and their families, combats stigma, and addresses related mental health concerns. This study aims to evaluate the effectiveness of the CAD and MMD interventions in improving care for stable people living with HIV, contributing valuable insights to global HIV service delivery models.

Methods: Conducted from May 2021 to April 2023, this quasi-experimental study involved 20 selected ART clinics in Cambodia's capital, Phnom Penh, and nine provinces. We engaged 2,352 participants, dividing them into two groups: 1,626 receiving CAD and 1,441 undergoing MMD. Data collection included self-reported ART adherence questionnaires and pill identification tests to assess treatment understanding and adherence. To evaluate patient outcomes, we measured viral load suppression, care retention, mental health, and quality of life. Data analysis employed descriptive statistics, difference-in-difference analyses, and multivariable logistic regression using STATA and R software.

Results: Throughout the study, viral load suppression and care retention rates consistently exceeded 97%. Self-reported ART adherence remained stable in the CAD group, with adherence levels at 87.0% at baseline and 86.8% at the end. In contrast, the MMD group experienced a significant decline in adherence, decreasing from 90.3% to 84.4% ($p < 0.001$). Pill identification tests showed minimal change in the CAD group (98.0% at baseline vs. 97.0% at endline) but a notable decrease in the MMD group (98.5% to 95.1%, $p < 0.001$). Difference-in-difference analyses revealed that the MMD group had a higher predicted margin of adherence at baseline (89.8%) but a steeper decline at endline (81.3%) compared to the CAD group (84.6%). Additionally, the proportion of individuals with good mental health increased in the CAD group (76.3% to 77.6%), while it declined in the MMD group (84.2% to 82.1%).

Conclusions: Despite the challenges posed by the COVID-19 pandemic on intervention implementation and health outcomes among the study population, this study underscores the effectiveness of the CAD intervention in maintaining ART adherence, enhancing mental health, and improving the quality of life for people living with HIV. The findings offer a strong evidence base for the future implementation and scaling of the CAD model in Cambodia, facilitating its integration into the national HIV care framework. By prioritizing community-based approaches, we can significantly improve the health outcomes of people living with HIV and enhance services for communities as a whole.

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Participating and Recalling in a Digital Intervention Promoting PrEP Adherence and Retention: A Longitudinal Analysis of a PrEP Demonstration Trial in China

Li F¹, Li C², Yin Z³, Fan C¹, Dai Y⁴, Li L⁵, Liang K⁶, Huang H⁷, Wang K⁷, Jiang I⁸, Lio J⁸, Hazra A⁸, D. Tucker J⁹, Sherer R⁸, Tang W^{1,9}

¹Nanjing Medical University, Nanjing, 中国, ²Tokyo College, the University of Tokyo, Guangzhou, Japan, ³University of North Carolina Project-China, Guangzhou, China, ⁴Dermatology Hospital of South Medical University, Guangzhou, China, ⁵Guangzhou Eighth People's Hospital, Guangzhou, Guangzhou Medical University, Guangzhou, China, ⁶Zhongnan Hospital of Wuhan University, Wuhan, China, ⁷Wuhan Tongxing LGBT Center, Wuhan, China, ⁸University of Chicago, Chicago, USA, ⁹University of North Carolina at Chapel Hill, Chapel Hill, USA

Background: PrEP has emerged as a highly effective strategy for HIV prevention, yet improving adherence to PrEP remains a challenge. Digital interventions present a promising tool for enhancing PrEP uptake and continuum. This study aimed to analyze the dose effect of digital interventions on PrEP adherence by analyzing longitudinal data from a digital intervention trial in China.

Material and Methods: By adopting a stepped-wedge RCT design, this study delivered digital intervention messages to participants on a biweekly basis over 12 months from a demonstration trial in China. At enrollment, participants were randomized to four groups to receive a digital message on promoting PrEP adherence in a quarterly staggered order. Self-reported PrEP adherence (optimal adherence defined by at least six doses per week for daily regimen users and strictly following 2-1-1 regimens for on-demand users) was measured at 3, 6, 9, and 12 months. We also collected self-reported data on participants' receiving and opening starting from the 3-month survey, along with recall data at the 12-month. We analyzed the impact of these factors on PrEP adherence using the GLMM model in Stata (version 16).

Results: A total of 1,099 participants enrolled in SWRCT and received intervention, with a mean age of 29.6 (SD=5.87). Participants reported having received 4.5±2.3 intervention messages and opened 3.9±2.2 messages during the 12-month intervention period. In terms of content recalling, 86.8% of participants recalled at least one message and they recalled 4.0±2.2 messages on average. After adjusting for potential confounders, no association was identified between optimal PrEP adherence and the number of intervention messages received (aOR = 1.02; 95% CI: 0.98, 1.06), or the number of intervention messages recalled (aOR = 0.95; 95% CI: 0.90, 1.01). However, opening each additional intervention message increased 6% odds of optimal adherence (aOR = 1.06; 95% CI: 1.01, 1.10).

Conclusions: Digital intervention has been proven valuable in promoting the use of PrEP. We found a significant effect of increased intervention dose on optional PrEP adherence, with participants opened more digital messages having higher PrEP adherence. This highlights the importance of promoting the intervention fidelity and encouraging participants to actively respond to digital interventions.

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Preferences for Integrated, Comprehensive Substance Use and Chemsex Recovery Services Among Gay, Bisexual and Other Men Who Have Sex with Men: Findings of a Discrete Choice Experiment in Singapore

Ng W¹, Wang Y¹, Har C¹, Tan A², Ong E^{1,2}, Ho D², Howard N¹, Tang W³, Tan R¹

¹Saw Swee Hock School of Public Health, National University of Singapore and National University Health System, , Singapore,

²The Greenhouse Community Services Ltd, , Singapore,

³University of North Carolina at Chapel Hill, Chapel Hill, United States

Background: Gay, bisexual, and other men who have sex with men (GBMSM) acquire the most new HIV infections in Asia. Sexualized drug use (SDU), or 'chemsex', is a risk factor for HIV acquisition among GBMSM, and SDU is a rising concern in Asia. Research has focused primarily on where SDU occurs or its motivations, with little having focused on developing differentiated harm reduction interventions. Our study aims to examine preferences in seeking out substance use-related services for GBMSM in Singapore through a discrete choice experiment (DCE), thus facilitating development of harm reduction interventions.

Methods: We conducted a cross-sectional survey and DCE in February 2025 among individuals who identified as GBMSM, were 21 to 85 years old, literate in English, and currently residing in Singapore. Participants were recruited through the online channels of The Greenhouse, an addiction recovery centre for marginalised and vulnerable communities, as well as additional social media advertisements. Sociodemographic variables were collected, alongside information about sexual behaviours, sexualized drug use, and the Drug Abuse Screening Test. The DCE required participants to choose between two sets of treatment options, each with varying attributes, which included service provider characteristics (setting, anonymity, cost, affirmative practices),

care delivery modality, and integration of services (types of core health services, other support services, peer support). Associations between outcome variables and sociodemographic data were analyzed using Pearson's chi-square test. DCE data were assessed using a mixed logit model.

Results: We recruited 316 eligible participants, who primarily identified as gay (n=242, 75.58%), bisexual (n=62, 19.62%), and queer (n=11, 3.48%), with an average age of 34.47 (± 7.52) years. A total of 60 (18.99%) were living with HIV, and 18 (5.70%) did not know their HIV status. Participants preferred substance-use services that ensured anonymity (reference category[ref]=registration required, Willingness-To-Pay[WTP]=Singapore Dollars [SGD] 365.69, $p < 0.001$) and were delivered in outpatient settings (ref=inpatient, WTP=-SGD227.45, $p = 0.006$). They valued integrated trauma-informed and LGBTQ+-affirming care (ref=trauma-informed care only; WTP=SGD584.31, $p < 0.000$) and provision of holistic counselling services that concurrently addressed substance use, mental health, and sexual health (ref=substance use-related counselling only; WTP=SGD211.76, $p = 0.036$).

Conclusions: GBMSM in Singapore prefer services that are anonymous and outpatient-based, suggesting a high value on privacy and flexibility. Preference for LGBTQ+ affirming care and holistic services emphasize the importance of a stigma-free and integrated approach to healthcare. This study advances our understanding of preferences among GBMSM when seeking substance use-related services, providing evidence to create person-centered and culturally tailored intervention to address SDU and reduce HIV transmission.

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Intersecting Stigmas, Social-Behavioral Disengagement, and HIV Viral Load Among Men Who Have Sex with Men Living with HIV in Vietnam: A Latent Class Regression Analysis

Wiginton J¹, Turpin G¹, Lyons C¹, Dunaway K², Brion S², Nangombe H³, Dong D⁴, Savin P⁵, Baral S¹

¹Johns Hopkins University Bloomberg School of Public Health, Baltimore, United States, ²International Community of Women Living with HIV (ICW), ³Global Network of People Living with HIV (GNP+), ⁴The Vietnamese Network of People Living with HIV (VPN+), ⁵ALE Central Asian Association of PLHIV, ,

Background: Vietnam has a concentrated HIV epidemic, with key populations such as gay men and other men who have sex with men (MSM) bearing the brunt of the burden. MSM living with HIV are stigmatized both for their sexuality and HIV status, a process that not only undermines HIV treatment outcomes, but also reduces quality of life by promoting disengagement from various life domains. We sought to identify patterns of social-behavioral disengagement, explore stigma's relationship with these patterns, and assess variation in HIV viral load status by pattern.

Methods: Using data from the People Living with HIV Stigma Index 2.0 from MSM in Vietnam (2020; N=572), we calculated descriptive statistics for variables of interest, after which we performed latent class analysis on 6 indicators of past-year social-behavioral disengagement associated with living with HIV (not attending social gatherings, not going to a clinic/hospital when needed, not applying for a job, not seeking social support, self-isolating from friends/family, and not having sex). We performed multinomial logistic regression to estimate odds ratios for associations between both sexual stigma (range=0-5) and HIV stigma (range=0-11) and class membership, after which we assessed between-class differences in detectable/unknown HIV viral load.

Results: Mean participant age was 29 years (SD=7.2); nearly half (n=264, 46.2%) had university/tertiary education, and more than half (n=330, 57.7%) were employed full-time. Over half

(n=313, 54.7%) endorsed any social-behavioral disengagement, including self-isolating from friends or family, 32.0% (n=183); not having sex, 21.7% (n=124); not seeking social support, 19.2% (n=110); not attending social gatherings, 18.7% (n=107); not applying for a job, 17.0% (n=97); and not going to a clinic/hospital when needed, 13.5% (n=77). Mean sexual stigma score was 1.1 (SD=1.3); mean HIV stigma score was 0.9 (SD=1.7). Detectable/unknown HIV viral load prevalence was 22.9% (n=131). Three latent classes emerged. Class 1, "Resource-Avoidant" (n=89, 15.6%), featured high probabilities of not seeking employment or social support; Class 2, "Withdrawn" (n=98, 17.2%), featured moderate to high probabilities of avoiding social gatherings, isolating from friends/family, abstaining from sex, and refraining from healthcare-seeking; and Class 3, "Engaged" (n=385, 67.2%), featured low probabilities of all indicators. Compared to the "Engaged" class, greater sexual stigma was associated with membership in the "Resource-Avoidant" (OR=1.30, 95% CI=1.04, 1.62) and "Withdrawn" (OR=1.75, 95% CI=1.45, 2.11) classes, and greater HIV stigma was associated with membership in the "Withdrawn" class (OR=1.56, 95% CI=1.34, 1.82). Detectable/unknown HIV viral load prevalence was higher in the "Withdrawn" (37.0%; $\chi^2=10.1[2]$, $p<0.01$) and "Resource-Avoidant" classes (31.1%; $\chi^2=5.2[2]$, $p<0.05$) compared to the "Engaged" class (17.4%).

Conclusions: MSM living with HIV in Vietnam who confront sexuality- and/or HIV-based stigmas may avoid or withdraw from various facets of life and experience suboptimal HIV treatment outcomes. Further research is needed to establish temporality and causal mechanisms between stigma, social-behavioral disengagement, and viral load status. Additionally, holistic, affirming, multilevel interventions co-developed with MSM living with HIV are central to mitigating intersecting stigmas. Supporting broader psychosocial wellness is essential to optimizing HIV treatment and helping MSM living with HIV to thrive in Vietnam.

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Pre-Exposure Prophylaxis for HIV STArTer Pack (PrEP STAT) Nudgeathon: Improving the Uptake and Ongoing Access/Linkage to PrEP Among Overseas-Born Men Who Have Sex with Men without Medicare in Australia.

Tieosapiaroen W^{1,2}, Armishaw J³, Cardwell E⁴, Chan C⁵, Tapa J², Chow E^{1,2,6}, Lee D², Ong J^{1,2}

¹The School of Translational Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia, ²Melbourne Sexual Health Centre, Alfred Health, Melbourne, Australia, ³Alfred Health, Melbourne, Australia, ⁴Melbourne School of Population and Global Health, University of Melbourne, Melbourne, Australia, ⁵Kirby Institute, University of New South Wales, Sydney, Australia, ⁶Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, University of Melbourne, Melbourne, Australia

Background: In Australia, pre-exposure prophylaxis (PrEP) is subsidised under Medicare (National universal health insurance program), but overseas-born men who have sex with men (MSM) without Medicare face costs of up to AU\$926/month, which has been reported as a major barrier to access. The PrEP STArTer (PrEP STAT) pack includes a free one-month supply of PrEP and other nudging messages. It was designed using nudges to improve uptake and linkage to care in this population. A Nudgeathon is a competition where multidisciplinary teams, including end users, apply behavioural science and "nudge" techniques to develop solutions. Nudges are subtle interventions that influence behaviour while preserving individual freedom of choice. We describe experiences from a Nudgeathon focused on designing the PrEP STAT Pack to improve PrEP uptake among overseas-born MSM without Medicare in Australia.

Methods: A two-day Nudgeathon was held in Melbourne, Australia, on August 17–18, 2024. Participants attended sessions on nudge theory, co-design, and prototyping, with mentoring from experts in HIV, graphic design, implementation science, and community leadership. Teams

developed innovative PrEP STAT pack designs, which were evaluated by a panel of HIV experts and community leaders based on the feasibility, innovation, and impact of the pack. The winning team received an AU\$1000 e-voucher, and their PrEP STAT pack would be implemented in a pilot randomised controlled trial (RCT) at the Melbourne Sexual Health Centre (MSHC). All participants were reimbursed AU\$400 or provided with flights and accommodation if travelling interstate.

Results: Four teams (22 participants, including overseas-born MSM, clinicians, and researchers) participated. The winning team proposed the Love Kit, which featured:

- Love Yourself – A package including body cream, pill containers, and condoms to support self-care and PrEP adherence, with multilingual messaging.
- Love Letter – A feature allowing PrEP users to share personal stories, fostering community-driven health promotion.
- Share Love – A 'Pay-It-Forward' donation model enabling individuals to support PrEP access for others, expanding awareness and community support. Pay-It-Forward is a social innovation in which a person receives a gift before voluntarily giving a gift to another person, and it has been successfully implemented in a variety of settings to sustain health programs.

Following the Nudgeathon, two focus groups of 10 overseas-born MSM were conducted to refine the design. The final PrEP STAT pack will be implemented in an open-label pilot RCT at MSHC. The final PrEP STAT pack, finalised by the winning team, includes: 1) A tote bag branded with Peace of Mind, 2) A free one-month supply of PrEP, 3) Body wipes, rainbow shoelaces, dating profile/chat postcards (with nudging messages) and 4) QR codes linking to the trial website and donation platform.

Conclusion and Next Steps: The Nudgeathon demonstrated the value of co-design in developing community-driven PrEP access solutions. However, their effectiveness needs an evaluation. The PrEP STAT pack will be implemented in a pilot RCT at the MSHC in July 2025 to assess its impact on PrEP uptake among overseas-born MSM without Medicare. Findings will inform future interventions to reduce PrEP access barriers in underserved populations.

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CekUpYuk.id: A Community-Driven Digital Tool Addressing Critical HIV & STI Education & Prevention Gaps Among MSM in Indonesia.

Eril E², Martins M², Rahmawati D⁷, Muhamad T², Kawi N⁴, Luis H³, Oktaviani M⁷, Sukmaningrum E⁵, Wignall F³, Januraga P⁶, Hamers R⁷, Irwanto I⁵, GEDELA K¹

¹Chelsea & Westminster Hosp NHS Fdn Trust, London, United Kingdom, ²Yayasan Kasih Suwitno, Jakarta, Indonesia, ³Yayasan Bali Peduli, Denpasar, Indonesia, ⁴Klinik Utama Globalindo, Jakarta, Indonesia, ⁵HIV/AIDS Research Centre, Atma Jaya Catholic University, Jakarta, Indonesia, ⁶Centre for Public Health Innovation, Udayana University, Denpasar, Indonesia, ⁷Oxford University Clinical Research Unit Indonesia, Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia

Background: Indonesia faces a growing HIV epidemic among men who have sex with men (MSM), driven by the lack of basic sex education, societal conservatism, and stigma that hinder access to HIV prevention and care. CekUpYuk.id, developed collaboratively by community and clinical teams, addresses this gap by engaging MSM through personalised digital HIV risk-reduction interventions. The platform directs users to high-serving non-government sexual health clinics in Jakarta and Bali for acute HIV infection (AHI) testing under the Indonesia Intervention Study to Test & Treat People with Acute HIV Infection (INTERACT).

Methods: CekUpYuk.id was co-designed through a participatory process combining community and clinical expertise. Talent for website development and digital outreach was directed by Yayasan Kasih Suwitno (YKS), a community/peer organisation focusing on HIV education with a large social media following in Indonesia.

We conducted a needs assessment through participatory workshops with MSM community groups in Jakarta and Bali to identify barriers, educational gaps and content preferences. The digital platform integrates an interactive AHI algorithm for tailored risk assessments, comprehensive educational modules (HIV testing, ART, PrEP, and STIs), and trust-building content (healthcare worker videos and community stories).

CekUpYuk.id was launched in May 2024 and promoted via tailored posts on Instagram, TikTok, and X targeting Jakarta and Bali. We analysed user data, including risk assessments, social media engagement, and Google Analytics metrics.

Results: Between May-November 2024, CekUpYuk.id had 11,873 unique users and 14,650 sessions recorded, peaking in July (4,629 users and over 20,000 tracked actions). High engagement was recorded on 'STIs and HIV,' 'HIV Testing,' and 'Acute HIV Infection.' 1,680 individual users completed the AHI-risk tool [1914 total assessments-752 (39%) among those under 25 years-old]; 80% (1,339) from Jakarta, 11% (185) Bali, and 9% (156) from other provinces. Of the users, 1,172 self-identified as male, 496 as female, 10 as non-binary, and 2 as transwomen. Posts garnered 117,242 TikTok views, 148,251 views on Instagram, and 435,000 impressions on X; reaching a combined Instagram and X following of over 30,000. Social media outreach drove significant traffic, contributing to peaks in user engagement from July to September, with TikTok views and Instagram followers enhancing visibility.

Conclusions: CekUpYuk.id engaged over 11,000 users and 1,600 individual risk assessments in only five months. This demonstrates the huge potential of tailored, community-clinical digital tools working at scale to address gaps in HIV prevention and care in Indonesia and highlights this unmet need.

By integrating personalised risk assessments, culturally sensitive but factual, community-focused education, and strategic social media outreach, CekUpYuk engaged at-risk MSM with vital education and resources. Partnerships with trusted community organisations underscore the importance of leveraging local expertise to combat stigma and enhance outreach. This model provides a scalable, impactful framework for addressing HIV epidemics in stigmatised and underserved populations globally.

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SHIP "Cookbook": A Differentiated Service Delivery (DSD) Toolkit for Scaling Up Community-Based HIV Testing

De Castro M¹

¹Sustained Health Initiatives of the Philippines, Mandaluyong City, Philippines

Background: To address gaps in HIV testing uptake among key populations, the Sustained Health Initiatives of the Philippines (SHIP), as the Sub-Recipient for Field Operations under the Global Fund HIV Project in the Philippines, developed the Cookbook—a structured Differentiated Service Delivery (DSD) Toolkit for HIV testing. This toolkit enables regional implementers across 17 regions and 100+ sites to select, adapt, and scale high-yield testing models based on localized needs while maintaining standardized national technical guidance.

Methods: The Cookbook framework serves as the central implementation guide for differentiated testing models, allowing a nuanced approach per site. The Strategy Unit provides technical assistance through:

1. Standardized site visits conducted by Programmatic Officers to assess best practices and implementation challenges.
2. Real-time data analysis by Monitoring & Evaluation Officers to ensure evidence-based adaptation and program refinements.
3. Capacity-building and mentorship across regional teams, ensuring alignment with national DSD objectives.

The Cookbook models include:

- a. Mass Testing Approaches: Community HIV Testing and Counseling, Night-time Testing, Festival-Based Testing, Mobile Health Caravans, and CaraVan Testing with Mobile Clinic.
- b. Peer-Led MSM & TGW Testing Models: Social and Sexual Network Incentivized Testing, MSM Chemsex-Groups Engagement, Digital MSM Influencer Outreach, TGW Influencer-Led Testing, and Pre-Pageant Testing.
- c. Young Key Populations (YKP) Strategies (Limited Implementation Due to Institutional Hesitation):

Youth Leadership-Integrated Testing, School-Based Wellness Booths, and HIV Testing during a Viewing Party (Movies and Series).

Results: a. Nationwide Scale-Up: The Cookbook serves as a national communication tool, ensuring regional teams can apply context-specific models while maintaining structured implementation strategies.

b. Higher Testing Uptake in Flexible Models: Pre-Pageant SSNT, nightlife testing, and incentivized outreach yielded higher engagement at lower costs per client compared to traditional, event-based same-day testing.

c. Data-Driven Adjustments: Site visits and real-time program monitoring enabled adaptive improvements, optimizing technical support delivery across 100+ sites.

Limitations & Ongoing Review:

- a. Not all models have been fully implemented, with school-based approaches facing resistance from educational institutions.
- b. Year 1 implementation results are still under review, with yield estimates subject to refinement based on comprehensive data analysis.
- c. Some models remain in the pilot phase, requiring further validation before full-scale adoption.

Lessons Learned: a. A Nationwide DSD Toolkit Can Standardize & Decentralize HIV Testing Approaches.

b. Ongoing Site Visits and Real-Time Data Analysis Improve Communication & Implementation.

c. Regional Teams Benefit from Adaptive, Peer-Led Models Instead of Rigid One-Size-Fits-All Strategies.

d. Institutional Barriers (e.g., School-Based Testing Hesitations) Require Further Multi-Sectoral Engagement.

Conclusion: The SHIP PROTECTS UPSCALE

Cookbook successfully evolved into a nationally scalable DSD Toolkit, allowing HIV programs to efficiently implement, monitor, and refine tailored testing strategies across diverse sites. The Strategy Unit's structured site visits, data analysis, and mentorship approach ensures dynamic, evidence-driven adjustments. Future efforts should enhance digital tracking tools and stakeholder collaboration to further strengthen HIV case finding and testing scale-up in the Philippines.

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Lessons Learned from the National Implementation of the NAPPLUS API: Transforming Laboratory Data Management in Thailand, 2024

Nookhai S¹, Mookleemas P², Jangkhum S², Nenjatee N², Kanphukiew A¹, Satproedprai N¹, Chottanapund S², Northbrook S¹

¹Division of Global HIV and Tuberculosis, U.S. Centers for Disease Control and Prevention, Nonthaburi, Thailand, ²Division of AIDS and STI, Department of Disease Control, Nonthaburi, Thailand

Background: The national implementation of the Application Programming Interface for National AIDS Program (NAPPLUS API) has been launched since September 2024 and marked a pivotal step in advancing Thailand's HIV care by integrating laboratory data with national health databases. This initiative aimed to overcome fragmented data management, reduce time and error on manual result entering, and enhance interoperability between Hospital Information Systems (HIS) or Laboratory Information Systems (LIS) and the National AIDS Program (NAP) database. By streamlining reporting processes and improving data accuracy, this implementation provided valuable insights, highlighting successes and challenges that will inform future digital health initiatives and drive continuous improvements in laboratory information management.

Key Achievements: The NAPPLUS- API significantly improved operational efficiency and improved data quality across over 100 laboratories in 19 provinces within 5 months (September 2024 – January 2025), including five community-based organizations. The API enabled rapid reporting of HIV-related test results, such as viral load and CD4, to the national database within the same-day of their entry into HIS or LIS. While this timely data exchange facilitated improvement of national data quality, enhancing the use of NAP for policy-making decision, and strengthened national health monitoring, challenges such as inconsistent NAP-ID recording impacted seamless data linkage. Addressing these gaps requires validation checks in HIS/LIS to enhance data accuracy at the source, ensuring accurate and comprehensive reporting.

The workflow API reduced staff workload by automating data entry, prepopulating fields previously entered manually, minimizing transcription errors, allowing laboratory personnel to focus on quality assurance and patient care, and reducing data management time by 70%. Comprehensive training and strong stakeholder engagement are needed to ensure laboratory and IT staffs are well-prepared for system adoption. Effective leadership at national and provincial levels, supported by real-time dashboards and helpdesk services, enabled continuous monitoring and rapid issue resolution, fostering user confidence and enhancing overall operational efficiency.

Challenges Encountered: Despite these successes, several challenges emerged during implementation process. One of key obstacles was incomplete recording of NAP IDs in HIS and LIS, which limited the seamless linkage to the national database. The inconsistency in capturing this critical identifier resulted in gaps that affected the accuracy and comprehensiveness of national-level reporting.

The varying levels of IT competency across facilities affected API adoption, with some laboratories adapting quickly while others struggled, requiring additional support and tailored training to overcome technical challenges. Although the API streamlined many aspects of data management, manual test request entries remained a resource-intensive task prone to errors. Addressing this bottleneck enhances system efficiency and strengthens laboratory data management.

Lessons Learned and Future Directions: Our findings highlighted importance of thorough infrastructure and competency assessments before deployment. Future initiatives can benefit from standardized data entry protocols to improve patient identifier accuracy and data linkage. Enhancing IT capacity through targeted training and mentorship may support equitable adoption and long-term sustainability. Encouraging API code sharing among facilities with similar LIS/HIS systems can accelerate implementation. Expanding API to include drug-resistance, tuberculosis, and hepatitis testing will further enhance data management and support national health initiatives.

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Double-Dose (HBsAg 20µg) Re-Vaccination After Primary or Secondary HBV Vaccine Failure in Japanese People Living with HIV

Kaneko S¹, Muramatsu T¹, Harada Y¹, Miyashita R¹, Kamikubo Y¹, Ichiki A¹, Chikasawa Y¹, Yamaguchi T¹, Bingo M¹, Yotsumoto M¹, Hagiwara T¹, Amano K¹, Kinai E¹

¹Tokyo Medical University Hospital, Shinjuku, Japan

Background: Hepatitis B virus (HBV) co-infection remains a major concern for people living with HIV (PLWH), yet response rates to HBV vaccination are suboptimal in this population. In Japan, universal HBV vaccination was only introduced in 2016, meaning that most Japanese adults have never received HBV vaccination. Additionally, the HBV vaccine approved in Japan (Biimugen®) contains 10µg of HBsAg and has traditionally been administered subcutaneously, a method associated with lower immunogenicity compared to intramuscular administration. Given these challenges, we evaluated the effectiveness of double-dose HBV re-vaccination (20µg HBsAg per dose) in Japanese PLWH who showed primary or secondary failure to the primary series of HBV vaccination.

Methods: Between 2004 and 2016, we administered an HBV vaccination program to 277 PLWH without HBV immunity at our hospital. The primary vaccination regimen consisted of three doses of 10µg HBsAg (Biimugen®) administered subcutaneously at 0, 1, and 6 months. Among these participants, 164 (59.2%) showed a serological response (anti-HBs ≥ 10 mIU/mL), while the remaining 112 (40.8%) were classified as primary non-responders. Additionally, 113 participants initially achieved an adequate response (anti-HBs ≥ 10 mIU/mL) but later experienced a decline in antibody levels to <10 mIU/mL during follow-up, meeting the definition of secondary failure. Both primary and secondary failures were offered a double-dose (20µg) re-vaccination regimen, administered at the same intervals (0, 1, and 6 months). Serological responses were assessed immediately post-re-

vaccination and during long-term follow-up to evaluate response durability and factors influencing vaccine effectiveness.

Results: Among 52 participants who received double-dose re-vaccination, the median age was 34 (IQR: 27-39) years and 52 (100%) were men. The median CD4 cell count was 561 (408-724)/µL, and 33 (63%) were receiving antiretroviral therapy at baseline. Twenty-seven (52%) were smokers and 12 (23%) reported excessive alcohol consumption. Two (4%) were positive for anti-HCV antibodies. Forty-six (88%) showed a serological response immediately after re-vaccination. Antiretroviral therapy use was significantly higher among responders than non-responders (70% vs 17%, $p = 0.013$). During 260.0 participant-years of follow-up, 34 patients (74% of those with a primary response) experienced loss of anti-HBV seroprotection. The median time to loss of anti-HBV seroprotection was 3.6 (2.6-4.6) and 7.9 (4.0-11.9) years for participants with anti-HBs titers of 10-100 and >100 mIU/mL immediately after re-vaccination, respectively.

Conclusions: Double-dose re-vaccination significantly improves initial serological response. However, the durability of immunity remains a challenge, with a high proportion of patients losing seroprotection within a few years. Further studies should explore predictors of sustained immunity and evaluate whether modified vaccination schedules could enhance serological protection in this population.

POSTER ABSTRACT PRESENTATIONS

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Arsenic Trioxide and Therapeutic Vaccines Synergistically Reduce the SIV Reservoir in Rhesus Macaques: Implications for the “Shock and Kill” Strategy

He Y¹, Liu Z², Li L¹, Chen L², Li P²

¹Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China, ²Guangzhou Institutes of Biomedicine and Health, Chinese Academy of Sciences, Guangzhou, China

Background: While antiretroviral therapy (ART) effectively suppresses viral load in individuals with HIV infection, a definitive cure remains elusive due to the persistence of viral reservoirs. Developing therapeutic strategies to achieve a functional cure for HIV/AIDS represents a critical global challenge. This study investigates the potential of a combinatorial approach utilizing arsenic trioxide (As₂O₃) and therapeutic vaccines to address this unmet need. As₂O₃, a clinically approved agent for acute promyelocytic leukemia, has previously been demonstrated by us to reactivate latent HIV reservoirs and promote reservoir reduction via apoptosis induction. Based on our prior development of the adenovirus vector-infected PBMCs (AVIP) vaccine platform, which induces robust immunogenicity, we combined ART with As₂O₃ and Ad2-SIV-Gag/Pol/Env vaccines (AVIP strategy) to evaluate the efficacy of this combination in clearing SIV reservoirs in chronically SIVmac239-infected rhesus macaques.

Methods: To compare the efficacy of ART+As₂O₃+Vaccine and ART+Vaccine therapies in the treatment of HIV/SIV infection, we enrolled a total of nine Chinese rhesus macaques chronically infected with SIVmac239, including five macaques in the ART+As₂O₃+Vaccine treatment group and four macaques in the ART+As₂O₃ group. From day 0 to day 69 (70 days), all macaques received antiretroviral therapy, including daily subcutaneous infusion of 9-[2-(R)-(phosphonomethoxy) propyl] adenine (PMPA, 30

mg/kg) and emtricitabine (FTC, 20 mg/kg). In the ART+As₂O₃+Vaccine group, five macaques received subcutaneous administration of As₂O₃ (0.32 mg/kg) from day 27 to day 55 (28 days), while four macaques in the ART+Vaccine group were given saline as controls during the same period. On days 27 and 48, all macaques were immunized with Ad2-SIV-Gag, Ad2-SIV-Pol, and Ad2-SIV-Env vaccines (1×10¹¹ vp each) using the AVIP method. Peripheral blood samples and inguinal lymph nodes were collected from the macaques at multiple time points for immunological and virological assays.

Results: Data revealed that the ART+As₂O₃+Vaccine treatment significantly reduced SIV usRNA levels in PBMCs and inguinal lymph nodes, with concomitant decreases in SIV Total DNA in PBMCs of 4/5 macaques and SIV msRNA in PBMCs of 3/5 macaques. Notably, SIV Total DNA in inguinal lymph nodes was also reduced in 4/5 animals post-treatment. Immunological analyses demonstrated enhanced SIV-specific immune responses, with significant negative correlations observed between SIV Gag-specific IFN-γ-producing cells and viral reservoir markers after treatment (day 69): SIV Total DNA in PBMCs ($r=-0.8443$, $p=0.0042$) and lymph nodes ($r=-0.6756$, $p=0.0458$), as well as SIV usRNA in PBMCs ($r=-0.7192$, $p=0.0290$).

Conclusions: These findings underscore the synergistic potential of ART combined with As₂O₃ and therapeutic vaccination to promote SIV reservoir clearance. The study provides critical insights into the optimization of “shock and kill” strategies, highlighting a promising pathway toward HIV functional cure.

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P-Selectin Glycoprotein Ligand (PSGL)-1 Expression on CD4+ T-cells in HIV-Infected Individuals: Contributing Factors and Impact on Cell Behaviour

Zaongo S¹, Chen Y¹

¹Chongqing Public Health Medical Center, Chongqing, China

P-Selectin Glycoprotein Ligand (PSGL)-1 acts as an HIV restriction factor and may also mediate the transmission of HIV to uninfected cells. We aimed to explore PSGL-1 expression on CD4+ T-cells in HIV-infected individuals, the potential factors contributing to PSGL-1 expression, and the impact of PSGL-1 expression on CD4+ T-cells.

Flow cytometry was used to determine PSGL-1 expression on CD4+ T-cells, proportions of CD4+ T-cell-platelet aggregates, and expression of markers of cell exhaustion (PD-1), survival (BCL-2), and death (Caspase-3) in HIV-negative and HIV-positive individuals. ELISA kits were used to determine the levels of interleukin (IL)-12, interferon-gamma (IFN- γ), lipopolysaccharides (LPS), and beta (β)-glucan.

A total of 117 participants (26 HIV negative, 52 ART-treated, and 39 ART-naïve) were enrolled. ART-treated individuals with CD4+ T-cells <200 cells/ μ l had a significantly higher level of PSGL-1 expression on their CD4+ T-cells compared to HIV negative controls and ART-treated individuals with CD4+ T-cells $\geq$ 200 cells/ μ l. ART-naïve individuals with CD4+ T-cells <200 cells/ μ l had a significantly higher level of PSGL-1 expression compared to ART-naïve individuals with CD4+ T-cells $\geq$ 200 cells/ μ l. The proportions of CD4+ T-cell-platelet aggregates corresponded with the PSGL-1 expression on CD4+ T-cells, with ART-treated individuals with CD4+ T-cells <200 cells/ μ l having significantly higher proportions of CD4+ T-cell-platelet aggregates compared to negative controls and ART-treated individuals with CD4+ T-cells $\geq$ 200 cells/ μ l, and ART-naïve individuals with CD4+ T-cells <200 cells/ μ l having significantly higher proportions of CD4+ T-cell-platelet aggregates compared to negative controls and ART-naïve

individuals with CD4+ T-cells $\geq$ 200 cells/ μ l. PSGL-1 expression was significantly and positively correlated with levels of IFN- γ , IL-12, LPS, and β -glucan in ART-treated individuals, whereas no significant correlations were observed in ART-naïve individuals. ART-treated individuals with CD4+ T-cells <200 cells/ μ l showed significantly higher proportions of Caspase-3 and PD-1, and significantly lower proportions of BCL-2 compared to those with CD4+ T-cells $\geq$ 200 cells/ μ l. Our results showed that PSGL-1 expression on CD4+ T-cells varied in HIV-infected individuals depending on their ART status and immunological status, and that systematic inflammation contributed to PSGL-1 expression on CD4+ T-cells, which resulted in cell exhaustion and death.

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Changes of Blood and Semen HIV-1 Viral Load in Sexually Transmitted HIV Infected Men in Five Cities of China After Antiviral Therapy: A Multicenter Observational Cohort Study

Dong W¹

¹National Center For Aids/std Control And Prevention, Chinese Center For Disease Control And Prevention, Beijing, China

Objective: The aim of this study was to explore the changes of VL in blood semen of sexually infected men after antiretroviral therapy (ART), and to understand the differentiating features of antiviral drugs inhibiting viral replication in blood semen of HIV-infected men.

Methods: We designed a cohort study from September 2019 to the end of March 2021 in five cities in China, recruit men who were first enrolled in ART, self-reported sexually infected HIV, with the age of 18 to 50 years. Blood and semen samples were collected for HIV VL testing at one, two, three, six, nine and twelve months after ART. At the same time, the basic demographic information, CD4 value before ART and treatment plan were collected. The trial is registered with Chinese Clinical Trial Registry, ChiCTR1900021099.

Results: A total of 822 (97.9%) out of 840 eligible participants were enrolled from September 2019 to December 2020. HIV-1 VL levels in the blood dropped below 50 copies/ml by the third month of treatment (median VL 25 copies/ml [IQR 0-82]). HIV-1 VL levels in semen decreased greater than blood, with the average VL level in semen reaching median 0 copies/ml (IQR 0-308) by one month after treatment. At all the time points, the proportion of patients achieving undetectable level of the HIV-1 VL both in blood and semen using integrase inhibitors were higher than those using other HIV antiviral drugs. 66 (18.3%) patients had detectable VL in their semen with at least five months of undetectable VL in the blood.

Conclusion: After 3 months of ART in sexually infected men with HIV, VL in both blood and semen were effectively suppressed. The strategy of monitoring the viral suppression level to estimate the transmissible risk is basically scientific. A greater proportion of patients using integrase inhibitors were able to achieve effective HIV-1 VL suppression in both blood and semen. For those patients with durably undetectable HIV-1 VL in their blood within 6 months, a certain percentage of people still had detectable HIV-1 virus in their semen.

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Identification of CD98 as a Novel Biomarker for HIV-1 Permissiveness and Latent Infection

Zhang W¹

¹Guangzhou Eighth People's Hospital, Guangzhou, China

Human immunodeficiency virus type 1 (HIV-1) can integrate viral DNA into host cell chromosomes to establish a long-term stable latent reservoir, which is a major obstacle to cure HIV-1 infection. The characteristics of HIV-1 latent reservoir have not been fully understood.

Here, we identified 126 upregulated plasma membrane proteins in HIV-1 latently infected cells by a label-free liquid chromatography-tandem mass spectrometry analysis. The higher levels of CD98 expression in multiple HIV-1 latently infected cell lines and primary CD4⁺ T cells compared to uninfected cells were further confirmed by quantitative reverse transcription-PCR and flow cytometry analyses. In addition, CD98^{high} CD4⁺ T cells displayed hyper-permissiveness to HIV-1 infection and possessed distinct immune phenotypic profiles associated with Th17 and peripheral follicular T helper (pTFH) characteristics. Notably, the CD98^{high} resting memory CD4⁺ T cells harbored significantly higher cell-associated viral RNA and intact provirus than CD98^{low} CD4⁺ T cells in HIV-1 infected individuals receiving combined antiretroviral therapy. Furthermore, CD98^{high} CD4⁺ T cells exhibited a robust proliferative capacity and significantly contributed to the clonal expansion of the HIV-1 latent reservoir.

Our study demonstrates that CD98 can be used as a novel biomarker of HIV-1 latently infected cells to indicate the effect of various strategies to reduce viral reservoir.

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Impaired Immune Reconstitution in HIV Infection: The Role of CD4+ T Cell-Associated NKG2D Ligands and CD4+ T Cell Subsets Imbalance

Xu Q^{1,2}, Zhang Q³, Xu P^{1,2}, Zhang T^{1,2}, Wu H^{1,2}, Zhang X^{1,2}, Moog C⁴, Su B^{1,2}

¹Beijing Key Laboratory for HIV/AIDS Research, Clinical and Research Center for Infectious Diseases, Beijing Youan Hospital, Capital Medical University, Beijing, China, ²Sino-French Joint Laboratory for HIV/AIDS Research, Sino-French Joint Laboratory for Research on Humoral Immune Response to HIV Infection, Beijing Youan Hospital, Capital Medical University, Beijing, China, ³Department of Immunity and Infectious Diseases, Third People's Hospital of Shenzhen, National Clinical Research Center for Infectious Diseases, Shenzhen, China, ⁴Laboratoire d'Immunorhumatologie Moléculaire, Institut National de la Santé et de la Recherche Médicale (INSERM) UMR_S 1109, Université de Strasbourg, Strasbourg, France

Objective: The role of natural killer (NK) cells, which mediate innate immunity, in the immune reconstitution of people living with HIV (PLWH) remains unclear. Our previous research indicated that early activation of CD56dimCD16dim/- NK cells plays an important role in the recovery of CD4+ T cells in immunological non-responders (INRs) after ART. This study mainly focuses on the profiles of cell receptors and their relative ligands for NK cells and CD4+ T cells exhibited on INRs and immunological responders (IRs) in order to analyze the impact of differential immune status on immune reconstitution in PLWH receiving ART.

Methods: This study included 66 PLWH who had been on ART for 4 years, comprising 32 INRs and 34 IRs. Using flow cytometry, we examined the expression of cell receptors and ligands for NK cells and CD4+ T cells in PBMCs, as well as the differentiation of CD4+ T cells.

Results: The expression of NKG2D ligands, including MICA/B and ULBP2-5, on CD4+ T cells in INRs is elevated prior to ART. Further research found that the expression of CD95 on MICA/B+CD4+ T cells and ULBP2-5+CD4+ T cells was higher in INRs before ART compared to IRs. Simultaneously, the percentages of death receptor CD95 expression on MICA/B+CD4+ T cells and on

ULBP2-5+CD4+ T cells before ART were negatively correlated with CD4+ T-cell counts and Δ CD4. Among the CD4+ T-cell subsets, an imbalance persists in the CD4+ Tcm and CD4+ Temra subsets in both INRs and IRs, before or after ART. CD4+ T cells exhibit elevated levels of activation, proliferation, exhaustion, and apoptosis prior to ART initiation. However, CD4+ T-cell activation and proliferation normalize post-ART, while apoptosis and exhaustion levels remain significantly elevated. Regardless of ART, the anti-apoptotic capacity of CD4+ T cells in INRs is still lower than that of healthy controls (HCs) and IRs. Before ART, the frequency of CD31 expression on naive CD4+ T cells in INRs is lower than that in IRs and HCs. Following ART, the amounts of CD31+ Tn from CD4+ T cells remain impaired in both INRs and IRs compared to HCs.

Conclusion: The upregulation of related ligands for the NKG2D receptor on CD4+ T cells in INRs is associated with increased susceptibility of CD4+ T cells to NK cell-mediated killing. CD95 may play an important role in poor recovery of CD4+ T cells co-expressing NKG2D-related ligands. The imbalance in CD4+ Tcm and CD4+ Temra subset homeostasis and impaired CD31 expression on naive CD4+ T cells in INRs are associated with poor immune reconstitution outcomes.

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Expression of DDIT4 in $\gamma\delta$ T Cells and Its Correlation with Clinical Indicators in People Living with HIV

Wang H^{1,2}, Wang X^{1,2}, Ren Z^{1,2}, Li Z^{1,2}

¹Beijing Key Laboratory for HIV-1/AIDS Research, Beijing Youan Hospital, Capital Medical University, Beijing, China, 100069, Beijing, China, ²Clinical Research Center of Infectious Diseases, Beijing Youan Hospital, Capital Medical University, Beijing, China, 100069, Beijing, China

Background: $\gamma\delta$ T cells are innate immune cells whose subset homeostasis is disrupted during HIV infection. This quantitative imbalance and functional impairment of $\gamma\delta$ T cell subpopulations are closely associated with HIV disease progression. DNA Damage Inducible Transcript 4 (DDIT4), a negative regulator involved in cellular metabolism, proliferation, and survival regulation, plays significant roles in immune modulation and cellular stress responses. However, the specific role of DDIT4 in $\gamma\delta$ T cells during HIV infection remains unclear. This study aims to investigate the expression patterns of DDIT4 in $\gamma\delta$ T cells from people living with HIV (PLWH) and analyze its potential associations with immune functions, metabolic characteristics, and clinical parameters.

Methods: This cross-sectional study included 25 healthy controls (HC) and 40 PLWH receiving antiretroviral therapy (ART). Peripheral blood mononuclear cells (PBMCs) were isolated using Ficoll density gradient centrifugation, followed by magnetic bead-based purification of $\gamma\delta$ T cells. Reverse transcription quantitative real-time PCR (RT-qPCR) and flow cytometry were utilized to detect changes in DDIT4, metabolism-related genes (GLUT1, GLUT3, HK1, TKT), differentiation markers (CD27, CD45RA), inhibitory receptor (TIGIT), and activation markers (CD38, HLA-DR) in PBMCs. The Mann-Whitney U test was applied for intergroup comparisons, and Spearman's rank correlation test was employed for correlation analyses.

Results: Flow cytometry analysis showed that the proportion of DDIT4+ $\gamma\delta$ T cells in PLWH was significantly higher than in HC. Moreover, the expression levels of DDIT4 were markedly

upregulated in the TIGIT+ $\gamma\delta$ T cell subset, the CD38+HLA-DR+ $\gamma\delta$ T cell subset, as well as in effector memory T cells (TEM) and terminally differentiated effector memory T cells (TEMRA) within the $\gamma\delta$ T cell population. RT-qPCR results demonstrated an increasing trend in DDIT4 expression in PLWH, with significant positive correlations observed between DDIT4 and GLUT1, GLUT3, HK1, and TKT. In addition, among PLWH, the proportion of DDIT4+ $\gamma\delta$ T cells was significantly negatively correlated with CD4+ T cell counts, the CD4+/CD8+ T cell ratio, total T lymphocyte counts, white blood cell counts, as well as the absolute counts of neutrophils, lymphocytes, and basophils, and alanine aminotransferase levels, while showing a significant positive correlation with the aspartate aminotransferase/alanine aminotransferase ratio.

Conclusion: This study reveals the correlation between DDIT4 expression in $\gamma\delta$ T cells and clinical parameters among PLWH, suggesting that DDIT4 may play a critical role in regulating both immune function and metabolic activity of $\gamma\delta$ T cells in PLWH. These findings provide a novel therapeutic target for developing $\gamma\delta$ T cell-based immunotherapeutic strategies.

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Plasma IL-6 Level Predict the Risk of In-Hospital Mortality in HIV-Associated Pneumocystis Pneumonia

Xia H¹, Song J, Hu Y, Ma P

¹Tianjin Second People's Hospital, Tianjin, China

Objective: To determine plasma biomarkers that may predict in-hospital mortality in HIV-infected individuals diagnosed with pneumocystis jirovecii pneumonia (PCP).

Methods: This study prospectively included 125 HIV-infected patients with PCP. Biomarkers involving clinical variables and 8 pre-selected plasma inflammatory cytokines were evaluated at time of admission. Multivariate logistic regression analysis was used to identify factors substantially associated with in-hospital mortality. The predictive value of the biomarkers for in-hospital mortality was assessed using the ROC curve.

Results: Our results show a hospital mortality rate of 12.8% (16/125). When compared to surviving AIDS PCP patients, non-survivors had substantially higher levels of C-reactive protein, interleukin (IL)-6, and lactate dehydrogenase and lower levels of albumin, PO₂, and CD4 count. We found a significant association between increased IL-6 levels and hospital mortality using multivariable logistic regression analysis (adjusted odd ratio, 1.525; 95% CI, 1.407-1.631; $p = 0.004$). Patients with IL-6 levels more than 30.6 pg/mL had substantially reduced survival rates, highlighting the biomarker's prognostic relevance for in-hospital mortality.

Conclusions: A high level of plasma IL-6 has been associated to an elevated probability of in-hospital mortality.

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Enhances Amygdala Functional Connectivity in Adolescents and Young Adults with Persistent High-Risk Behaviours

Chunamchai S¹, Sena A¹, Kittikiatkumjorn N¹, Hiransuthikul A², Chunharas C¹, Puthanakit T³

¹Cognitive Clinical and Computational Neuroscience Lab, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ²Department of Preventive and Social Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ³Department of Pediatrics, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Adolescence and young adulthood represent critical developmental stages characterized by unique decision-making behaviors, including a tendency to underestimate risks while overestimating potential benefits, often employing emotion-based reasoning and a lack of intuitive decisions derived from life experiences. These tendencies might contribute to challenges in substance use, HIV and other sexually transmitted infection (STI) prevention. This study aims to understand the neural mechanism responsible for decision-making processes of young adults with and without persistent high-risk behavior.

A cross-sectional study was conducted at the Buddy CU Clinic, an adolescent-focused HIV clinic, in Bangkok, Thailand. Inclusion criteria were (1) adolescents and young adults (AYA) aged 15-24 years at risk of HIV and under care > 12 months (2) Stratified behavior as persistent or discontinued high-risk behavior. Persistent high-risk behaviors were defined as having at least one of the following: history of an STI within 12 months, HIV seroconversion, or Alcohol Use Disorders Identification Test (AUDIT) score of >8. Resting-state functional MRI brain (GE 3.0 T) was employed to measure blood oxygenation level-dependent (BOLD) activity of 5 regions of interest (ROIs) related to decision making, emotion and reward system including anterior cingulate cortex, striatum, amygdala, dorsolateral prefrontal cortex (DLPFC), and ventromedial prefrontal cortex (VMPFC). Correlations of BOLD signals between ROIs were analyzed to measure the strength of functional connectivity.

From September 2024 to February 2025, we enrolled 50 participants (25 in each group), with a median age of 22 (IQR: 20–23) year. Higher functional connectivity between amygdala and the reward system (anterior cingulate cortex, striatum, and insular cortex) was demonstrated in AYA with persistent high-risk behavior compared to ones with discontinued high-risk behavior (Spearman's $\rho = 0.61$ vs. 0.49 , 0.64 vs. 0.54 , 0.63 vs. 0.55 respectively, $p < 0.001$). In contrast, there is less connectivity between DLPFC and VMPFC with other ROIs in the network which have similar patterns between groups. No significant differences in structural volumes of these ROIs were observed between the groups.

These findings suggest that heightened functional connectivity in brain regions related to emotion and reward perception may influence decision-making in young adults with persistent high-risk behavior. The observed imbalance in top-down control from the prefrontal cortex, combined with a misestimation of risks and benefits, could contribute to their unique decision-making strategies. Improved understanding of these neural processes could inform targeted health education and prevention strategies for this vulnerable population.

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Identification of CD98 as a Novel Biomarker for HIV-1 Permissiveness and Latent Infection

Zhang W¹

¹Guangzhou Eighth People's Hospital, Guangzhou, China

Human immunodeficiency virus type 1 (HIV-1) can integrate viral DNA into host cell chromosomes to establish a long-term stable latent reservoir, which is a major obstacle to cure HIV-1 infection. The characteristics of HIV-1 latent reservoir have not been fully understood.

Here, we identified 126 upregulated plasma membrane proteins in HIV-1 latently infected cells by a label-free liquid chromatography-tandem mass spectrometry analysis. The higher levels of CD98 expression in multiple HIV-1 latently infected cell lines and primary CD4⁺ T cells compared to uninfected cells were further confirmed by quantitative reverse transcription-PCR and flow cytometry analyses. In addition, CD98^{high} CD4⁺ T cells displayed hyper-permissiveness to HIV-1 infection and possessed distinct immune phenotypic profiles associated with Th17 and peripheral follicular T helper (pTFH) characteristics.

Notably, the CD98^{high} resting memory CD4⁺ T cells harbored significantly higher cell-associated viral RNA and intact provirus than CD98^{low} CD4⁺ T cells in HIV-1 infected individuals receiving combined antiretroviral therapy. Furthermore, CD98^{high} CD4⁺ T cells exhibited a robust proliferative capacity and significantly contributed to the clonal expansion of the HIV-1 latent reservoir.

Our study demonstrates that CD98 can be used as a novel biomarker of HIV-1 latently infected cells to indicate the effect of various strategies to reduce viral reservoir.

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Characteristics and Risk Factors of Acquired Drug Resistance Among People Living with HIV: A Retrospective Study in Guangdong, China (2018–2023)

Ly S¹, Li Q¹, Lin W¹, Chen J¹, Ling X¹, Li J¹, Cai W¹, Tang X¹, Lan Y¹, Li L¹

¹Guangzhou Eighth People's Hospital, Guangzhou, China

Background: Acquired drug resistance (ADR) reduces treatment efficacy, restricts drug options, and increases the risk of HIV transmission. The resistance characteristics and associated risk factors among people living with HIV (PLWH) experiencing virological failure (VF) in Guangdong remain unclear, highlighting the need for further research. This study examines the prevalence, resistance characteristics, and contributing factors of ADR among PLWH who experienced VF in Guangzhou, China, between 2018 and 2023.

Methods: Blood samples and data were collected from PLWH who experienced VF in Guangzhou, China, between 2018 and 2023. ADR was analyzed through HIV pol sequences, with drug resistance mutations (DRMs) identified using the Stanford University HIV Drug Resistance Database. A 1:1 matched group of virologically suppressed (VS) patients was randomly selected to analyze factors associated with ADR, and logistic regression models were utilized to identify contributing factors.

Results: During the study period, 1592 patients experienced VF, of whom 959 had protease (PR)/reverse transcriptase (RT) sequences and 479 had integrase (IN) sequences obtained. DRMs were identified in 60.2% of patients, with an overall ADR prevalence of 46.1%. Resistance rates for specific drug classes were: nucleotide reverse transcriptase inhibitors (NRTIs) at 33.3%, non-nucleoside reverse transcriptase inhibitors (NNRTIs) at 36.8%, protease inhibitors (PIs) at 3.3%, and integrase strand transfer inhibitors (INSTIs) at 1.5%. In the multivariable logistic regression analysis, factors linked to a higher risk

of ADR included World Health Organization (WHO) clinical stages III and IV, baseline CD4+ T cell counts <200 cells/mm³, and frequent antiretroviral therapy (ART) regimen changes. Conversely, patients on 2NRTI+INSTI regimens and with heterosexual transmission had a lower risk of ADR.

Conclusion: The prevalence of ADR in Guangzhou was 46.1%, with NNRTI resistance remaining the predominant component. The choice and use of treatment regimens are closely linked to the occurrence of ADR, and minimizing unnecessary regimen changes can significantly lower its risk.

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Pre-Treatment and Acquired HIV Drug Resistance in Hunan: A Cross-Sectional Analysis of a Growing Challenge

Long S¹, Zheng F¹

¹The First Hospital of Changsha, Changsha, China

Background: HIV Drug resistance is a key consideration in determining ART regimens. In recent years, both pretreatment drug resistance (PDR) and acquired drug resistance (ADR) are changing rapidly, and understanding the latest resistance prevalence is crucial for patient regimen determination. We studied the latest PDR and ADR in Hunan Province, China.

Method: HIV-1 infected patients in Hunan Province who were followed up at The First Hospital of Changsha from May 2021 to August 2023 were included in the study. PDR was implemented for patients newly diagnosed with HIV-1. ADR was implemented for patients with treatment failure, defined as a continuous HIV-1 RNA greater than 200 copies/mL. At the same time, baseline characterization data were collected from participants. Gene amplification was performed using polymerase chain reaction technology, sequencing was performed using pyrophosphate sequencing reaction (First generation sequencing), and HIV-1 subtypes and drug resistance in HIV-1-infected patients were analyzed using the Stanford University HIV drug resistance database. Statistical descriptions were performed using descriptive analysis.

Results: A total of 1314 HIV-1 infected patients with blood collection were included, and drug resistance testing was successfully implemented in 1277 cases. 917 treatment naïve patients had an overall PDR of 14.7% (135/917). Of these, the NNRTIs PDR was 11.6% (106/917), and the ARV that were resistant were, in descending order, NVP (11.6%), EFV (11.1%), RPV (6.7%), ETR (6.3%), and DOR (3.2%). The NRTIs PDR was 3.6% (33/917), and the rates of resistance were, in descending order, ABC (3.4%), 3TC or FTC (3.3%), DDI (1.6%), D4T (1.4%), TDF (0.9%), and AZT (0.3%). INSTIs PDR was 1.1%

(10/917), and PIs PDR was 0.8% (7/917). The maximum rate of drug resistance for PIs and INSTIs of all types did not exceed 1.1%. In 360 patients with treatment failure, the overall ADR was 67.2% (242/360), of which the NNRTIs ADR was 54.7% (197/360), NRTIs ADR was 38.1% (137/360), INSTIs ADR was 3.1% (11/360), and PIs ADR was 4.2% (15/360). The highest NNRTI resistance rate was NVP (54.2%), followed by EFV (52.5%), RPV (38.3%), ETR (35.3%), and DOR (30.6%). The highest NRTI resistance rates were 3TC (35.3%), followed primarily by ABC (35.0%), FTC (34.4%), and DDI (26.7%). PIs and INSTIs had maximum drug resistance rate of not more than 4.2% for all types of ARVs.

Conclusion: Both HIV-1 PDR and ADR were challenged in Hunan Province, China. PDR has exceeded the World Health Organization's recommended threshold of 10%. Therefore, HIV resistance testing should be conducted before selecting ART regimen to guide initial ART regimen. For patients who fail to complete HIV resistance testing, it is more advisable to choose a regimen containing INSTIs or PIs with high resistance barrier before treatment. For ADR, HIV resistance testing should also be performed when changing ART regimen to develop more precise regimen.

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Safety and Efficacy of Tenofovir DF-Containing, AINUOVIRINE-Based Regimen (ANV/3TC/TDF) vs Tenofovir Alafenamide-Containing, Cobicistat-Boosted Elvitegravir-Based Regimen (E/C/F/TAF) for Maintaining Virologic Suppression in Adults Living with HIV-1: Week 96 Results from the Phase 3, Noninferiority SPRINT Randomized Trial

Zhang F¹, Wu H², Cai W³, Ma P⁴, Zhao Q⁵, Wei H⁶, Lu H⁷, Wang H⁸, He S⁹, Chen Z¹⁰, Chen Y¹¹, Wang M¹², Fu H¹³, Yun X¹³, Qin H¹³, Wang Y¹³

¹Clinical and Research Center for Infectious Diseases, Beijing Ditan Hospital Capital Medical University, Beijing, China,

²Clinical and Research Center for Infectious Diseases, Beijing Youan Hospital, Capital Medical University, Beijing, China,

³Infectious Disease Center, Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China,

⁴Department of Infectious Diseases, Tianjin Second People's Hospital, Tianjin, China, ⁵Department of Infectious Diseases, The Sixth People's Hospital of Zhengzhou, Zhengzhou, China,

⁶Department of Infectious Diseases, The Second Hospital of Nanjing, Nanjing, China, ⁷National Clinical Research Centre for Infectious Diseases, The Third People's Hospital of Shenzhen,

The Second Affiliated Hospital of Southern University of Science and Technology, Shenzhen, China, ⁸Department of Infectious Diseases, Shenzhen Third People's Hospital, Shenzhen, China,

⁹Department of Infectious Diseases, Public Health Clinical Medical Center of Chengdu, Chengdu, China, ¹⁰Drug Clinical Trial Institution, Public Health Clinical Medical Center of Chengdu, Chengdu, China, ¹¹Division of Infectious Diseases, Chongqing Public Health Medical Center, Chongqing, China,

¹²Institute of HIV/AIDS, The First Hospital of Changsha, Changsha, China, ¹³Clinical Research & Development, Jiangsu Aidea Pharmaceutical Co., Ltd, Yangzhou, China

¹³Clinical Research & Development, Jiangsu Aidea Pharmaceutical Co., Ltd, Yangzhou, China

Background: The SPRINT study demonstrated that immediate switch to tenofovir DF (TDF) containing, ainoovirine (ANV), a new-generation non-nucleoside reverse transcriptase inhibitor (NNRTI), based antiretroviral regimen (ANV/3TC/TDF) resulted in non-inferior virologic efficacy, and improved cardiometabolic conditions in weight gain, and lipid metabolism for people with HIV-1

(PWH) compared to that to tenofovir alafenamide-containing, cobicistat-boosted elvitegravir-based regimen (E/C/F/TAF) at 48 weeks.

Material and Methods: In the extensional study between weeks 48, and 96, PWH on ANV/3TC/TDF continued the assigned regimen (immediate switch), while those on E/C/F/TAF re-switched to ANV/3TC/TDF FDC (delayed switch). The E/C/F/TAF arm (weeks 0 to 48) was used as comparator for the extensional study. The primary efficacy end point was proportion of PWH with HIV-1 RNA titer at 50 copies per millimeter or above at a non-inferiority margin of 0.05 as per the snapshot algorithm for the intention-to-treat-exposed population. The safety outcomes of primary interest included absolute changes in body weight, and fasting serum lipids between weeks 48, and 96.

Results: The primary efficacy end points were both 3.4% (13/381, and 13/377) for the two intervention arms at week 96, noninferior to that of the comparator arm at week 48 (1.6%; estimated treatment difference [ETD], 0.018, 95% confidence interval [95% CI], -0.005 to 0.043; 0.019, -0.004 to 0.044). Newly-emerging NNRTI resistance-associated mutation was detected in only one participant experiencing the protocol-defined virological failure in the delayed switch arm. The treatment-emergent adverse events were generally similar between the two intervention arms during the extensional period. The delayed switch arm showed modest reduction in body weight (mean± standard error of mean [SEM], -0.66±0.80 kg), in contrast to the immediate switch arm with slight weight gain from week 48 (0.05±0.82 kg; delayed versus immediate, -0.71 kg, -1.18 to -0.24, P=0.003 for difference). Fasting serum low-density lipoprotein cholesterol remained generally unchanged in the immediate switch arm (0.01±0.04 mmol/L) but improved greatly in the delayed switch arm at week 96 from week 48 (-0.37±0.08 mmol/L; -0.38, -0.46 to -0.31; P<0.001). Statistically significant differences were also noted between the two intervention arms for the changes from baseline in other lipid measures: non-high-density-lipoprotein cholesterol (-0.68 mmol/L, -0.77 to -0.60), total cholesterol (-0.82 mmol/L, -0.92 to -0.73), and triglyceride (-0.94 mmol/L, -1.14 to -0.74). The proportions of participants with desirable lipid profiles increased markedly from week 48 to week 96 in the delayed switch arm, while those remained constant in the immediate switch arm. Estimated glomerular filtration rate (CKD-EPI) increased numerically in

the delayed switch arm but decreased to a modest extent in the delayed switch arm.

Conclusions: Both immediate, and delayed switches to ANV/3TC/TDF maintained high viral suppression through 96 weeks. Delayed switch could offset weight gain, and lipid dysmetabolism associated with previous exposure to E/C/F/TAF. Together with the results from the base study, ANV/3TC/TDF can be an efficacious antiretroviral regimen with additional benefits in management of body weight, and lipid profile as a switch therapy of option for optimization in the currently ageing, and more comorbid PWH population PWH.

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Weight Changes in People Living with HIV Receiving Antiretroviral Therapy After Switching from DTG-, EFV-, EVG-, or LPV/r-Based Regimens to BIC/FTC/TAF

Li B¹, Xinsheng W¹, Ping M², Huachun Z^{1,3,4}

¹Fudan University, Shanghai, China, ²Tianjin Second People's Hospital, Tianjin, China, ³Southwest Medical University, Luzhou, China, ⁴University of New South Wales, Sydney, Australia

Background: Bictegravir (BIC), an integrase strand transfer inhibitor (INSTI), is a key component of the antiretroviral therapy (ART) regimen BIC/FTC/TAF (BFT). Despite its therapeutic benefits, emerging evidence indicates that INSTI-based regimens may be associated with weight gain. This study aimed to investigate the clinical patterns of weight changes in people living with HIV (PLWH) who transitioned from other ART regimens to the BFT regimen, utilizing real-world clinical data to provide evidence-based insights into this potential metabolic effect.

Material and Methods: We conducted a retrospective analysis of anonymized clinical data from PLWH who received care and participated in follow-up at Tianjin Second People's Hospital between July 2005 and June 2024. The analysis categorized the treatment regimens into four groups: the Dolutegravir (DTG) switch group (transition from DTG to BFT), the elvitegravir (EVG) switch group (transition from EVG to BFT), the Efavirenz (EFV) switch group (transition from EFV to BFT), and the lopinavir/ritonavir (LPV/r) switch group (transition from LPV/r to BFT). To assess differences in weight changes over time after switching to BFT, a mixed-effects model was employed, with each case treated as a random effect.

Results: The study cohort comprised 608 anonymized PLWH (median age: 32 years [interquartile range: 27–41]; 96.3% male). After adjusting for covariates including gender, baseline age, baseline weight, and marital status, the mixed-effects model analysis revealed distinct longitudinal weight trajectories following the

transition to BFT. While no significant intergroup differences in weight were observed at the initial timepoint of regimen transition, the DTG switch group demonstrated a gradual weight reduction over time (−0.076 kg/month, 95% CI: −0.15 to −0.01). Conversely, the EFV (0.112 kg/month, 95% CI: 0.01–0.21), EVG (0.097 kg/month, 95% CI: 0.01–0.18), and LPV/r (0.128 kg/month, 95% CI: 0.02–0.24) switch groups exhibited significant weight gains, with annual average weight increases of 1.344 kg, 1.164 kg, and 1.536 kg respectively, compared to the DTG switch group.

Conclusions: This study demonstrated that switching from EFV, EVG, or LPV/r to BFT resulted in continued weight gain, which may pose long-term metabolic and obesity-related risks. Enhanced monitoring of physiological indicators among PLHIV is warranted.

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Effectiveness, Mortality, and Metabolic Outcomes of B/F/TAF versus Dolutegravir-Based Antiretroviral Therapy in People Living with HIV in China: A Retrospective Multicenter Cohort Study

Wu X¹, Li B¹, Wu G¹, Zou H^{1,2,3}

¹Fudan University, Shanghai, China, ²Southwest Medical University, Luzhou, China, ³University of New South Wales, Sydney, Australia

Background: Despite recent evidence demonstrating the non-inferiority and favorable safety profile of bictegravir (BIC)/emtricitabine (FTC)/tenofovir alafenamide fumarate (TAF) (B/F/TAF), large-scale, multicenter real-world studies investigating its association with mortality remain scarce. We aimed to evaluate the impact of dolutegravir (DTG)-based regimens and B/F/TAF on 10 clinical outcomes and metabolic indicators among treatment-naïve people living with HIV (PLWH).

Material and Methods: This study included anonymized clinical records of PLWH who newly started ART in Centers for Disease Control and Prevention (CDCs) and hospitals from 19 provinces and municipalities in China. Data were collected from January 1, 2020 to December 31, 2023. Inclusion criteria included baseline age ≥ 18 years, have not used ART drugs before, and initiation of one of the following regimens: B/F/TAF, DTG+tenofovir disoproxil fumarate (TDF) + lamivudine (3TC) (DTG+TDF+3TC), or DTG/3TC. We employed Poisson regression models with time offset and robust variance to estimate adjusted incidence rate ratios (aIRRs) for virological suppression (HIV RNA < 50 copies/mL), all-cause mortality, AIDS-related mortality, and non-AIDS-related mortality, adjusting for 10 key demographic and clinical variables. Linear mixed models with interaction terms (time-versus-treatment group) and restricted cubic splines with one knot at 1 year after ART were used to evaluate differences in CD4 counts, CD4/CD8 ratios, body weight, blood

glucose, triglycerides, and total cholesterol changes among treatment groups.

Results: Data were analyzed from 13,895 individuals (median age: 38 years [IQR 29–53], 86.6% male) who newly started ART from 2020 to 2023 in China. In the multivariable Poisson regression models, compared to the B/F/TAF regimen, individuals initiating DTG+TDF+3TC showed an 8% increase in virological suppression incidence (aIRRs 1.08, 95% CI 1.00–1.17), while those on DTG/3TC showed no significant differences. All-cause mortality did not differ significantly between B/F/TAF and DTG+TDF+3TC users, but individuals who started DTG/3TC had a 37% higher all-cause mortality rate (1.37, 1.06–1.77) compared to B/F/TAF. No significant differences were observed in AIDS-related mortality among regimens. However, non-AIDS-related mortality was 53% higher in DTG/3TC users (1.53, 1.15–2.03) compared to B/F/TAF. In the multivariable linear mixed model, blood glucose changes were not significantly different between the regimens. CD4 increases were significantly smaller in the DTG/3TC group during the first year (-60.56 cells/ μ L, -83.28 to -37.84) and over 2–4 years (-31.34 cells/ μ L, -54.96 to -7.73) compared to B/F/TAF. Similarly, CD4/CD8 ratio increases were smaller during the first year (-0.04 , -0.07 to -0.01) and over 2–4 years (-0.03 , -0.06 to 0) in the DTG/3TC group. No significant differences in immunological improvement were observed between B/F/TAF and DTG+TDF+3TC. However, DTG+TDF+3TC users experienced significantly smaller increases in triglycerides (-0.41 mmol/L in the first year; -0.06 over 2–4 years) and total cholesterol (-0.57 mmol/L in the first year; -0.07 over 2–4 years) and less weight gain (-4.13 kg in the first year; -1.39 over 2–4 years).

Conclusions: Despite less favorable metabolic control, B/F/TAF was observed to provide comparable virological suppression, immunological improvement, and mortality rates compared to DTG+TDF+3TC, although DTG+TDF+3TC showed a balance of superior effectiveness and better metabolic profiles.

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Efficacy, and Safety of AINUOVIRINE-Based Antiretroviral Regimen in Women with HIV-1: The Pooled Analysis of the RACER, and SPRINT Studies, Two Multicenter, Randomized, Active Controlled Phase 3 Trials

Wang H¹, Wu H², Cai W³, Ma P⁴, Zhao Q⁵, Wei H⁶, Lu H⁷, Zhang F⁸, He S⁹, Chen¹⁰, Chen Y¹¹, Wang M¹², Fu¹³, Yun X¹³, Wang Y¹³

¹Department of Infectious Diseases, Shenzhen Third People's Hospital, Shenzhen, China, ²Clinical and Research Center for Infectious Diseases, Beijing Youan Hospital, Capital Medical University, Beijing, China, ³Infectious Disease Center, Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China, ⁴Department of Infectious Diseases, Tianjin Second People's Hospital, Tianjin, China, ⁵Department of Infectious Diseases, The Sixth People's Hospital of Zhengzhou, Zhengzhou, China, ⁶Department of Infectious Diseases, The Second Hospital of Nanjing, Nanjing, China, ⁷National Clinical Research Centre for Infectious Diseases, The Third People's Hospital of Shenzhen, The Second Affiliated Hospital of Southern University of Science and Technology, Shenzhen, China, ⁸Clinical and Research Center for Infectious Diseases, Beijing Ditan Hospital Capital Medical University, Beijing, China, ⁹Department of Infectious Diseases, Public Health Clinical Medical Center of Chengdu, Chengdu, China, ¹⁰Drug Clinical Trial Institution, Public Health Clinical Medical Center of Chengdu, Chengdu, China, ¹¹Division of Infectious Diseases, Chongqing Public Health Medical Center, Chongqing, China, ¹²Institute of HIV/AIDS, The First Hospital of Changsha, Changsha, China, ¹³Clinical Research & Development, Jiangsu Aidea Pharmaceutical Co., Ltd, Yangzhou, China

Background: Women are vulnerable to human immunodeficiency virus 1 (HIV-1) pathogenesis but underrepresented in randomized, controlled trials of investigational new antiretroviral (ARV) agents. In the RACER, and SPRINT studies, ainuovirine (ANV) plus lamivudine and tenofovir DF (ANV/3TC/TDF) demonstrated durable virological suppression non-inferior to currently approved antiretroviral regimens in people with HIV-1 (PWH). This integrated analysis aimed to evaluate the virological outcomes, and safety benefits of ANV/3TC/TDF in women with HIV-1 (WWH) at week 48.

Material and Methods: In the RACER study, treatment-naïve (TN) WWH (N=34) were randomized to receive ANV/3TC/TDF (N=18) or efavirenz plus 3TC/TDF (EFV/3TC/TDF, N=16) for 48 weeks. In the SPRINT study, virologically suppressed (VS) WWH (N=22) were randomized to receive ANV/3TC/TDF (N=11) or boosted elvitegravir plus emtricitabine, and tenofovir alafenamide (E/C/F/TAF, N=11) for 48 weeks. The primary or key secondary efficacy endpoint was the proportion of participants with HIV-1 RNA titer below 50 copies/mL at week 48 in the intention-to-treat-exposed population as per the US FDA snapshot algorithm. Safety outcomes of primary interest included changes from baseline (CFBs) in body weight, fasting serum lipids, and estimated glomerular filtration rate (eGFR), if applicable.

Results: High proportion of viral suppression was achieved in either arm, and in both subpopulations at week 48: TN, 94.4% (17/18) vs. 100% (16/16); VS, 90.9% (10/11) vs. 100% (11/11); both $p > 0.05$ for difference. CFBs in CD4 cell absolute count were also comparable between the two arms in the TN subpopulation (137.6 ± 60.0 vs. 149.8 ± 80.1 cells/mm³) but numerically higher in the ANV/3TC/TDF arm in contrast to a marked reduction observed in the E/C/F/TAF arm for VS WWH (28.5 ± 96.3 vs. -42.6 ± 83.0 cells/mm³). The difference in frequency of dizziness was statistically significant for TN women (16.7% vs. 68.8%, $p = 0.006$), and those in frequencies of abnormal serum cholesterol, LDL-C, and T-wave on ECG were also observed in VS women (all $p < 0.05$). Weight gain in VS WWH was significantly less with ANV/3TC/TDF arm compared to that with E/C/F/TAF arm (0.3 ± 5.9 vs. 3.4 ± 3.9 kg, $p = 0.006$). Serum lipids showed a marked divergence in CFBs between the two arms for either subpopulation, with a decreasing trend for LDL-C in ANV/3TC/TDF arm in contrast to an increasing or constant trend in the comparator arm (TN, -0.41 ± 0.11 vs. -0.07 ± 0.09 mmol/L, $p = 0.020$; VS, -0.31 ± 0.19 vs. 0.57 ± 0.43 mmol/L, $p = 0.087$), even at a statistical significance for total cholesterol in VS women (-0.59 ± 0.21 vs. 0.61 ± 0.45 mmol/L, $p = 0.012$). In both subpopulations, CFBs in eGFR (CKD-EPI) were similar in either subpopulation, with no clinically significant differences between the two arms (-2.27 ± 3.95 vs. -1.04 ± 6.59 mL/min/1.73 m², $p = 0.640$; 1.76 ± 5.82 vs. -1.86 ± 4.06 mL/min/1.73 m², $p = 0.032$).

Conclusion: ANV/3TC/TDF regimen showed high viral suppression comparable to the comparators in both TN, and VS WWH although at a small sample size. ANV-based ARV regimen exerts

potential cardio-renal-metabolic benefits on WWH differing from the general HIV-1 population. Further investigation is warranted in a designated population of WWH, especially postmenopausal women at a higher risk of cardiometabolic comorbidities.



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Patient-Reported Health and Virological Outcomes Among People with HIV Switching to Long-Acting Injectable Cabotegravir and Rilpivirine (LANTERN)

Cheng C¹, Ku S¹, Lee S¹, Chen C¹, Cheng S¹

¹Taoyuan General Hospital, Taoyuan City, Taiwan

Background: Long-acting therapy with cabotegravir plus rilpivirine (CAB plus RPV LA) has been available in Taiwan for intramuscular administration every two months since May 2024. The objective of this study was to evaluate patient-reported health outcomes (PROs)—specifically treatment satisfaction and acceptability of CAB plus RPV LA—as well as to determine virological effectiveness after switching to CAB plus RPV LA.

Methods: This single-center study included people with HIV (PWH) who received at least one dose of injectable CAB + RPV LA at Taoyuan General Hospital between May 2024 and January 2025. Treatment followed the Taiwan CDC guidelines: all patients had maintained HIV-RNA <50 copies/mL for at least 6 months, tested negative for hepatitis B surface antigen, and had no history of virological failure or resistance-associated mutations with cabotegravir or rilpivirine. Virological outcomes were evaluated every 2–4 months after starting injectable CAB + RPV LA. The PRO questionnaires used in the LANTERN study were administered to assess treatment satisfaction, injection site reactions (ISRs), psychological challenges related to HIV treatment, and acceptability of injections. Treatment satisfaction was measured using a 15-item questionnaire, where the total score could range from 15 (very dissatisfied) to 60 (very satisfied).

Results: A total of 97 PWH received CAB + RPV LA during the study period. Three participants withdrew due to grade 2 adverse effects: two experienced injection-site tenderness and one developed fever. Overall, most participants were male (sex at birth; 97%). Median age was 40 (range: 35–48) years, with 22% aged ≥ 50 years.

There were 12% with a BMI ≥ 30 kg/m², and 73 participants (75%) were positive for anti-hepatitis B surface antibody. Antiretroviral therapy regimens before switching included BIC/FTC/TAF (n=22, 23%), DTG/3TC (n=47, 48%), DTG/RPV (n=6, 6%) and TAF/FTC/RPV (n=22, 23%).

More than 97% of individuals maintained HIV-RNA <50 copies/mL at all visits up to 9 months after receiving injectable CAB plus RPV LA, and no individuals experienced virological failure (HIV-RNA >200 copies/mL). The proportion of individuals with undetectable HIV-RNA (target not detected) was 81.1% (n=60) at Month 1, 62.5% (n=15) at Month 3, 73.0% (n=27) at Month 5, and 100% (n=2) at Month 9.

After receiving their first injection, participants reported high acceptability of CAB plus RPV LA (mean [SD] questionnaire score: 49.2 [0.5]). The majority considered the pain (84%, 81/97) and local reactions (87%, 84/97) to be “totally acceptable” or “very acceptable.” Only a few participants reported a negative impact on vigorous activities (5%, 5/97; e.g., running, lifting heavy objects, participating in strenuous sports) or moderate-intensity activities (2%, 2/97; e.g., moving tables, housework, playing golf).

Conclusions: This is the first report on the effectiveness and patient-reported health outcomes of long-acting cabotegravir plus rilpivirine in Taiwan. Switching to CAB plus RPV LA was associated with improved treatment satisfaction and high acceptance, alongside high rates of virological suppression, with no individuals experiencing virological failure during the observation period. In conclusion, this study suggests that CAB plus RPV LA may be a beneficial treatment option for Taiwanese PWH.

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Incidence and Risk Factors for Drug-Induced Hepatotoxicity in People Living with HIV and Active Tuberculosis

Atuel R¹, Hiranburana N^{2,3}, Apornpong T², Ubolyam S², Avihingsanon A^{2,3}, Gatechompol S⁴, Kerr S^{2,5,6}

¹School of Global Health, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ²HIV-NAT, Thai Red Cross AIDS Research Centre, Bangkok, Thailand, ³Center of Excellence in Tuberculosis, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ⁴Division of Infectious Diseases, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand, ⁵Biostatistics Excellence Centre, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ⁶The Kirby Institute, University of New South Wales, Sydney, Australia

Background: Anti-tuberculosis drug-induced hepatotoxicity (DIH) is a significant concern in people living with HIV (PLWH), as it may lead to treatment interruptions and poorer outcomes. This study aims to determine the incidence and identify risk factors associated with DIH in Thai PLWH receiving tuberculosis (TB) treatment and a group of controls with TB mono-infection.

Material and Methods: We conducted a retrospective cohort study of PLWH who started first line tuberculosis treatment at HIV-NAT, aged ≥ 18 years, and a group of frequency matched non-PLWH with TB mono-infection from King Chulalongkorn Memorial Hospital in Bangkok, Thailand, who initiated standard anti-TB therapy. Eligibility criteria were diagnosed with active TB, taking efavirenz or dolutegravir-based antiretroviral therapy (PLWH only), started TB treatment from year 2000 onwards and having aspartate aminotransferase (AST) and/or alanine aminotransferase (ALT) results available at TB treatment initiation and post TB treatment were included. DIH was defined ALT or AST elevation ≥ 3 times the upper limit of normal regardless of symptoms. Factors associated with DIH in PLWH were assessed using univariable and multivariable logistic regression models. Treatment outcomes in all participants were evaluated between individuals with and without DIH.

Results: A total of 190 participants were enrolled (129 PLWH and 61 controls). Mean (SD) age was 39.9 (11.7) years, BMI was 20.7 (3.6) kg/m² and 70

(36.8%) were male. In PLWH, antiretroviral therapy (ART) regimens were efavirenz (EFV)- dolutegravir (DTG)-based in 55% and 45% respectively. In PLWH, median (IQR) time from ART to anti-TB treatment initiation to was 0 (-3 to 226) weeks. Nineteen (14.7%) PLWH versus eight (13.1%) controls developed DIH ($p=0.82$). Median (IQR) time to developing DIH after TB treatment initiation was 25 (14 – 28) weeks. Factors independently associated with DIH in PLWH were hepatitis C virus (HCV) co-infection (adjusted odds ratio [aOR] 5.8, 95% confidence interval [CI] 1.5–22.3, $p=0.01$) and BMI (aOR 0.78, 95% CI 0.63–0.97 for each kg/m² increase, $p=0.03$). In PLWH on DTG-based regimens, the odds of DIH was reduced by approximately 50% compared to those taking EFV-based regimens, although finding was not statistically significant (aOR 0.52, 95%CI 0.17 - 1.58, $p=0.25$).

In the combined cohort, those who experienced DIH had a similar rates of lost to follow-up (0 vs 0.6%) and mortality (3.7% vs 1.8%), and similar rates of treatment completion (48.15% vs 47.85%) and treatment success (40.7% vs 40.5%) to those without DIH.

Conclusions: HCV co-infection, and lower BMI were found to be independent predictors of DIH in PLWH, although treatment outcomes were similar in this group. Clinicians initiating first-line anti-TB treatment in PLWH should carefully monitor treatment progression in patients with these risk factors to avoid drug toxicity.

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Patterns of Antiretroviral Regimen Following the Introduction of Integrase Inhibitors in the Asia-Pacific Region

Jiamsakul A¹, Kim J², Azwa I³, Joshi K⁴, Wicaksana B⁵, Kumarasamy N, Khusuwan S⁷, Khol V⁸, Somia I⁹, Borse R¹⁰, Uemura H¹¹, Kiertiburanakul S¹², Avihingsanon A¹³, Chen H¹⁴, Chaiwarith R¹⁵, Do C¹⁶, Ditangco R¹⁷, Choy C¹⁸, Gani Y¹⁹, Ross J²⁰, Lee M²¹

¹The Kirby Institute, UNSW Sydney, Sydney, Australia, ²Division of Infectious Diseases, Department of Internal Medicine, Yonsei University College of Medicine, Seoul, South Korea, ³University Malaya Medical Centre, Kuala Lumpur, Malaysia, ⁴Institute of Infectious Diseases, Pune, India, ⁵Faculty of Medicine Universitas Indonesia – Dr. Cipto Mangunkusumo General Hospital, Jakarta, Indonesia, ⁶VHS-Infectious Diseases Medical Centre, Chennai Antiviral Research and Treatment Clinical Research Site (CART CRS), Voluntary Health Services, Chennai, India, ⁷Chiangrai Prachanukroh Hospital, Chiang Rai, Thailand, ⁸National Center for HIV/AIDS, Dermatology & STDs, Cambodia, ⁹Faculty of Medicine Udayana University - Ngoerah Hospital, Bali, Indonesia, ¹⁰BJ Government Medical College and Sassoon General Hospital, Pune, India, ¹¹National Center for Global Health and Medicine, Tokyo, Japan, ¹²Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand, ¹³HIV-NAT/Thai Red Cross AIDS and Infectious Diseases Research Centre and Center of Excellence in Tuberculosis, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ¹⁴Taipei Veterans General Hospital, Taipei, Taiwan, ¹⁵Faculty of Medicine and Research Institute for Health Sciences, Chiang Mai University, Chiang Mai, Thailand, ¹⁶Bach Mai Hospital, Hanoi, Vietnam, ¹⁷Research Institute for Tropical Medicine, Manila, Philippines, ¹⁸Tan Tock Seng Hospital, National Centre for Infectious Diseases, Singapore, ¹⁹Hospital Sungai Buloh, Sungai Buloh, Malaysia, ²⁰TREAT Asia, amfAR - The Foundation for AIDS Research, Bangkok, Thailand, ²¹Queen Elizabeth Hospital, Hong Kong SAR

Background: In 2016, the World Health Organisation (WHO) recommended the inclusion of an integrase inhibitor (INSTI) in first-line antiretroviral therapy (ART). WHO further recommended dolutegravir (DTG) as the preferred antiretroviral in first- and second-line regimens in July 2019. Since then, the use of INSTIs has increased, including in resource-limited settings. TAHOD-CC is an observational cohort of people with HIV from 12 countries in the Asia-Pacific region. This study aimed to assess patterns of ART regimens in people enrolled in TAHOD-CC.

Methods: We included people with HIV from TAHOD-CC who have started ART and were in follow-up from 2016 onwards. ART combinations in a given year were categorised in hierarchical order as (i) INSTI + any ART, (ii) protease inhibitor (PI) -based, (iii) nucleoside reverse transcriptase (NRTI)+ non-NRTI (NNRTI), (iv) other combinations or no ART. If a person received multiple ART combinations in a particular year, the ART combination taken on or closest to the middle of the year was included. Patterns of ART combinations were assessed descriptively across years 2016-2023.

Results: Of the 36288 people with HIV included in this study, 68% were male, median age at ART initiation was 36 years (interquartile range: 30-43 years), and 56% were from lower-middle income countries. In 2016, 73% (95% confidence interval (CI) 72-74) of people were on an NRTI+NNRTI combination, with INSTI accounting for 7% (95%CI 6-7). The proportion of INSTI users increased to 68% (95%CI 68-69) in 2023, while NRTI+NNRTI combinations decreased to 27% (95%CI 27-28). Similarly, PI-based regimens decreased from 17% (95%CI 17-18) to 4% (95%CI 3-4) from 2016 to 2023. High-income countries had the highest proportion of people on INSTI, ranging from 38% (95%CI 36-39) in 2016 to 82% (95%CI 81-83) in 2023. Uptake of INSTI was slower in upper-middle income countries where the proportion only recently increased from 3.5% (95%CI 3.1-3.9) in 2020 to 63% (95%CI 62-64) in 2023. In lower-middle income countries, INSTI use was at 67% (95%CI 66-68) in 2023. For males, the proportion of INSTI users increased from 9% (95%CI 8.5-9.0) in 2016 to 69% (95%CI 68.1-69.7) in 2023. The proportion among females increased from 2% (95%CI 2.0-2.7) to 68% (95%CI 66.4-68.7). Among 13660 people on INSTIs in 2023, 86% (95%CI 86-87) were on DTG.

Conclusions: INSTIs have become the most predominant ART drug class in the Asia-Pacific region, replacing NNRTI-based and PI-based regimens. As more people switch over to INSTIs, it is important to closely monitor treatment effectiveness, evolution of resistance mutations and potential drug adverse effects, such as metabolic complications, known to be associated with this class of antiretrovirals.

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Efficacy Evaluation of the ANV/TDF/3TC Regimen in Treatment-Naïve HIV-1 Infected Patients with High Viral Load: A Real-World Study from Southwest China

Ma S¹, Xie X¹, Fu Y¹, Gan L¹, Yang X¹, Long H¹

¹Guiyang Public Health Clinical Center, Guiyang, China

Introduction: Ainoovirine, Lamivudine, and Tenofovir Disoproxil Fumarate (ANV/3TC/TDF) has been utilized in antiretroviral therapy (ART)-naïve HIV patients, however, concerns persist regarding its therapeutic efficacy in clinical settings for individuals with elevated viral loads ($\geq 5 \times 10^5$ copies/mL). We present a comprehensive evaluation of the feasibility and clinical effectiveness of the ANV/TDF/3TC regimen in newly diagnosed HIV-positive individuals, with particular emphasis on optimizing virological suppression in high baseline viremia populations.

Methods: This single-center, retrospective cohort study evaluated 103 treatment-naïve patients with viral loads $\geq 100,000$ copies/mL between January 2022 and June 2024. The primary endpoint was the proportion of patients achieving virological suppression (HIV RNA < 50 copies/mL) at week 48. Secondary analyses covered immunological, metabolic, hepatic, and renal parameters for efficacy and safety assessment.

Results: The study recruited 103 participants with an age distribution of 46.0 IQR (35.0, 57.0) years old. At week 48, 93.2% (96/103) of patients achieved virological suppression (HIV - 1 RNA < 50 copies/mL). In the subgroup with baseline HIV - 1 RNA $\geq 500,000$ copies/mL, the suppression rate was 92.3% (12/13). Among patients with baseline CD4 counts < 200 cells/ μ L and ≥ 200 cells/ μ L, the virological suppression rates were 90.1% (48/53) and 96.0% (48/50) respectively. For immune restoration, the mean CD4+ T cell count increased by 129 cells/ μ L from baseline ($P < 0.001$), and the CD4/CD8 ratio improved by 0.31 ($P < 0.001$). Regarding safety, after 48 weeks, alanine aminotransferase showed no significant change

compared to baseline, while aspartate decreased by 3.5 (U/L). Body weight, body mass index, and high - density lipoprotein increased by 2 kg, 0.73, and 2 mmol/L respectively ($P < 0.05$). Adverse events were reported by 15.5% (16/103) of participants, and no treatment was discontinued due to lack of efficacy or adverse events.

Conclusions: The ANV/3TC/TDF regimen demonstrated robust virological efficacy in patients with viral loads $\geq 100,000$ copies/mL ($\geq 500,000$ copies/mL) and across CD4 count strata (< 200 cells/ μ L and ≥ 200 cells/ μ L), while exhibiting a positive impact on immune reconstitution. The treatment regimen showed favorable renal and hepatic safety profiles without exerting adverse effects on lipid metabolism.

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Real-World Effectiveness of Doravirine-Containing Antiretroviral Therapy in Chinese Adults Living with HIV-1

Long H¹, Sun L², Yang X³, He S⁴, Li Y⁵, Fu Y⁵, Peebles K⁶, Liu Y⁵, Russell E⁶, Sun F⁵, Liao X⁵, Chen F⁷, Liu J⁸, Zhang R⁹, Zhao H¹⁰, Wu H²

¹Guiyang Public Health Rescue and Treatment Center, Guiyang, Guizhou Province, China, ²Beijing You An Hospital Capital Medical University, Beijing, China, ³Yunnan Provincial Hospital of Infectious Disease, Kunming, Yunnan Province, China, ⁴Public Health Clinical Center of Chengdu, Chengdu, Sichuan Province, China, ⁵MSD R&D (China) Co., Ltd., Beijing, China, ⁶Merck Sharp & Dohme LLC., Rahway, USA, ⁷CO-CRO Medical Development Co., Ltd, Beijing, China, ⁸Kunming Third People's Hospital, Kunming, Yunnan Province, China, ⁹Shanghai Public Health Clinical Center, Shanghai, China, ¹⁰Beijing Ditan Hospital Capital Medical University, Beijing, China

Background: Doravirine (DOR)-containing antiretroviral therapy (ART) has been recommended as first-line ART by China treatment guidelines since 2021. However, real-world data on DOR in China are scarce. We evaluated the effectiveness of DOR-containing ART in Chinese adults living with HIV-1, including treatment-naïve and treatment-experienced people regardless of viral load (VL) at baseline.

Material and Methods: A retrospective, multicenter, observational study using medical chart review was conducted in 7 hospitals for 352 adults living with HIV-1 initiating DOR-containing ART from August 2021 to September 2023. The primary outcome was virologic suppression (VS, HIV-1 RNA <50 copies/mL) at week 48±8. Subgroup analyses were conducted based on treatment-naïve and -experienced people. The secondary objectives were to describe demographic and clinical characteristics and HIV-1 treatment patterns.

Results: Of the 271 participants who had available VL data to confirm the achievement of VS at week 48±8 (271/352), 22.1% (60/271) were naïve and 77.9% (211/271) had prior antiretroviral experience. At baseline, the mean age was 39.8 years, 85.6% of participants were male, and 78.6% were from western regions. Most participants

(98.9%) were administered doravirine/lamivudine/tenofovir disoproxil fumarate (DOR/3TC/TDF) tablets (a fixed-dose combination), and 3 participants (1.1%) were treated with DOR plus two nucleoside reverse transcriptase inhibitors (NRTIs), followed by switching to DOR/3TC/TDF tablets within 48±8 weeks. A total of 9 (2.6%) participants discontinued DOR treatment. Four participants had documented reasons for discontinuation, including poor drug tolerance, financial situation, and participant willingness. The proportion of participants with adherence ≥80% was 91.5% (248/271) during the period of 48±8 weeks. Overall, DOR-containing ART achieved a VS rate of 93.7% (95% CI: 90.8%, 96.6%) among all the participants after 48±8 weeks' treatment. Similar proportions of VS were observed for treatment-naïve and treatment-experienced participants regardless of VL at baseline at week 48±8 (90.0% and 94.8%, respectively). Among all 6 people who were treatment-experienced and were unsuppressed at baseline, 100% of participants were suppressed at week 48±8. Seventeen participants did not achieve VS, of whom 14 participants (82.4%) were confirmed to have VL between 50 copies/mL and 200 copies/mL. Three participants had VL >200 copies/mL (285, 19 959 and 26 500) at week 48±8. Notably, the two participants with VL >1000 copies/mL had adherence rates of 54% and 64% during the 48±8 weeks, which likely contributed to the lack of VS.

Conclusions: As the first real-world study with the largest sample size for assessing effectiveness of DOR in China, with inclusion and exclusion criteria consistent with the approved labels, use of DOR-containing ART resulted in VS among 93.7% of both treatment-naïve and treatment-experienced persons, regardless of VL at baseline. This suggests that DOR-containing ART is an effective treatment for Chinese people living with HIV-1 in real-world settings. The limitations are unlikely to have a big impact on the effectiveness evaluation and the generalizability of the study results.

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Symptom-Related Adverse Events After the Initiation of First-Line ART Using Electronic Patient-Reported Outcomes (ePRO): PROSPECT Study.

Sekine Y¹, Ikegaya K¹, Kawaguchi T², Mashiko T³, Nagashima K⁴, Matsuki K⁵, Tsukiji M⁶, Gohara Y⁷, Takeuchi H¹, Kinai E⁸, Yamaguchi T⁹

¹Department of Pharmacy Tokyo Medical University Hospital, Shinjuku-ku, Japan, ²Department of Clinical Assessment School of Pharmacy Tokyo University of Pharmacy and Life Sciences, Hachioji-shi, Japan, ³Suxac Inc., Minato-ku, Japan, ⁴Department of Pharmacy Center Hospital of the National Center for Global Health and Medicine, Shinjuku-ku, Japan, ⁵Department of Pharmacy National Hospital Organization Nagoya Medical Center, Nagoya, Japan, ⁶Division of Pharmacy Chiba University Hospital, Chuo-ku, Japan, ⁷Department of Pharmacy National Hospital Organization Ureshino Medical Center, Ureshino-shi, Japan, ⁸Department of Laboratory Medicine Tokyo Medical University, Shinjuku-ku, Japan, ⁹Division of Biostatistics Tohoku University Graduate School of Medicine, Sendai, Japan

Background: The aim of this study was to assess symptom-related adverse events experienced by people living with HIV (PLWH) after the initiation of antiretroviral therapy (ART) using electronic Patient-Reported Outcomes (ePRO) with PRO-CTCAE, and to clarify the cumulative incidence proportion. Additionally, the study investigates discrepancies between healthcare providers and PLWH in their assessment of adverse events.

Materials and methods: Participants were PLWH aged 20 years or older who were starting their first-line ART and were registered at 11 institutions between March 2021 and December 2022. After the initiation of treatment, adverse events were assessed weekly for 12 weeks using ePRO and summarized using descriptive statistics. At the 4-week point, the concordance between their reports and those of PLWH was calculated. The study was approved by the Ethics Committee of Tokyo Medical University.

Results: A total of 121 participants were enrolled, with a mean age (standard deviation) of 35.4 (9.2) years, and 100% were male, with 90.1% using BIC/TAF/FTC. The ePRO completion rate was 78.5% at 4 weeks and 64.4% at 12 weeks. The cumulative incidence proportion (over the 12-

week period) of adverse events was highest for Sleepiness (frequency) and Diarrhea (frequency) at 36.7%, Acne/Pimples (severity) at 33.8%, Fatigue (severity) at 33.7%, and Insomnia (severity) at 32.7%. The concordance rate of adverse event reports between healthcare providers and PLWH ranged from 59.5% to 95.7%, with lower concordance rates for Insomnia (severity) at 59.5%, Fatigue (severity) at 60.8%, Rash (presence) at 67.9%, Diarrhea (frequency), and Bloating of Abdomen (severity) at 63.8%.

Conclusion: Participants in the study were predominantly young, and there were no significant issues with the use of ePRO; however, the ePRO completion rate tended to decrease over time. The cumulative incidence proportion of adverse events was generally higher than those in existing reports based on clinician-reported outcomes (ClinRO), and discrepancies were observed between healthcare providers and PLWH in their recognition of adverse events. This suggests that the use of ePRO can help identify ART-related adverse events that may not be fully captured through ClinRO alone. For the further implementation of adverse event management by supplementing ClinRO with PRO, addressing challenges such as integration into routine clinical practice, utilization of alert functions, and protecting personal information is required.

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Changes in Metabolic Profiles After Switching from 3-Drug Regimen to Dolutegravir/Lamivudine Maintenance Therapy Among Thai Adolescent and Young Adults Living with HIV

Seesuksai J^{1,2}, Soonthornchat N³, Songtaweessin W⁴, Assavavongwaikit P³, Auaboonkanok P³, Saisaengjan C², Nadsasarn R², Jupimai T², Puthanakit T^{2,3}

¹King Chulalongkorn Memorial Hospital, The Thai Red Cross Society, Bangkok, Thailand, ²Center of Excellence for Pediatric Infectious Diseases and Vaccines, Chulalongkorn University, Bangkok, Thailand, ³Department of Pediatrics, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ⁴School of Global Health, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: Dual regimen of dolutegravir (DTG) and lamivudine (3TC) is recommended as a standard maintenance regimen for people living with HIV aged 13 years old and above. This study aims to study changes in metabolic profiles and body weight after using the dual dolutegravir/lamivudine regimen among Thai adolescents and young adults (AYA).

Method: A prospective cohort study was conducted at King Chulalongkorn Memorial hospital, Bangkok, Thailand. The inclusion criteria were AYA living with HIV aged 13-24 years, had baseline plasma HIV RNA <50 copies/mL and CD4 lymphocyte >200 cells/mm³. Participants were switched from a fixed dose combination tenofovir disoproxil fumarate/emtricitabine/dolutegravir - TLD (Acriptega, Mylan or Dalavir, Thai GPO, 25 USD/month) to separate pill of DTG and 3TC (Thai GPO, 16 USD/month). The endpoints were changes in renal function (calculated by Thai eGFR equation), lipid profiles (Total cholesterol: HDL ratio and LDL-cholesterol) and body weight. A self-report questionnaire was performed 6 months after the regimen switch to assess acceptability of using the separate-pill of dual regimen. Student paired T-test was used for statistical analysis. (Thai clinical trial registry no. TCTR20240630004)

Result: From May to August 2024, we enrolled 47 AYA with median age of 21.0 (IQR 19.0-23.0) years and CD4 cell count of 624 (IQR 505-861) cell/mm³. After 6 months of therapy, there was no change in eGFR (+0.3 mL/min/1.73m², p=0.88). There was an increase in LDL-cholesterol (+15.7 mg/dL, p<0.01) while TC:HDL ratio remained stable (-0.2, p=0.26), bodyweight (+2.1 kg, p<0.01) and body mass index (+0.7 kg/m², p<0.01). There were 6 participants (12.8%) who reported difficulty taking separate-pill dual regimen.

Conclusion: After switching to the dual DTG/3TC regimen, there was no change in renal function and total cholesterol: HDL ratio. However, increase in LDL-cholesterol, may be explained by removal of TDF, which has LDL lowering effect. Most of participants did not have difficulty of taking separate-pill generic DTG/3TC regimen. The dual regimen is an option for maintenance therapy to reduce costs and potential TDF effect on bone mineral density.

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Association of Adherence to the Antiretroviral Therapy (ART) Regimen with Concomitant Pill Burden: Japanese Claim Database Study

Naito T¹, Taguchi N², Piao Y², Navadeh S³, Harada K², Lee K²

¹Department of General Medicine, Juntendo University, Tokyo, Japan, ²Gilead Sciences K.K., Tokyo, Japan, ³Gilead Sciences Inc., Foster City, USA

Background and Objective: ART has improved life expectancy, and aging people with HIV (PWH) in Japan face increasing comorbidities and medication burdens that may affect ART adherence. This study aims to evaluate the association of pill burden and ART adherence and compare adherence and persistence between single-tablet regimens (STR) and multi-tablet regimens (MTR).

Methods: Using the pharmacy dispensing claims database (IQVIA Rx), treatment episodes of individuals aged 18 years and older who were prescribed a specific ART regimen (STR/MTR) at least once between April 2019 and October 2022 were identified. Treatment episodes of individuals with ART prescription count less than 2 times or no dispensing records in the 6 months before the initial ART prescription date (Index date) were excluded. The pill burden was defined as drugs that prescribed for 60 days or more during 6 months before the index date. The adherence was measured by the Proportion of Days Covered (PDC). The association between the proportion of individual episodes with PDC $\geq$ 90% and pill number burden was evaluated by using the Generalized Linear Model.

Results: The analysis included 5,275 PWH with an average PDC of 97.2 $\pm$ 5.5%. The proportion of PWH with $\geq$ 90% was 91.4%. PWH was classified into the STR group (3,493 cases) and the MTR group (1,782 cases), with median ages of 44.0 (IQR: 36.0-51.0 years) and 45.0 years (IQR: 37.0-52.0 years); 96.5% and 94.6% males in the STR and MTR groups, respectively. The proportion of PWH with ART

treatment experienced was 74.5% in the STR group and 81.0% in the MTR group. The proportion of concomitant pill number in the STR group and MTR group was as follows: 0 pills in 51.0% and 49.4%, 1 pill in 15.3% and 14.1%, 2 pills in 8.3% and 8.0%, 3-4 pills in 8.8% and 9.8%, and 5 or more pills in 16.6% and 18.6%, respectively. The usage rates of hypertension medications were 49.8% in the STR group and 73.1% in the MTR group, dyslipidemia medications were 54.1% in the STR group and 45.7% in the MTR group, and diabetes medications were 26.1% in the STR group and 34.1% in the MTR group.

Discussion and Conclusion: Although treatment medications for major lifestyle-related diseases were frequently prescribed to PWH in Japan, the PDC of ART was maintained at a high level. Analyses to assess the association between pill number burden and PDC, as well as the comparison between STR and MTR, are ongoing, and results will be presented at the conference.

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Real World Outcomes and Acceptance of Long Acting Injectables for HIV Treatment: A Single Centre Experience in Hong Kong

Kwong T¹, Au S¹, Chan K¹, Yeung K¹, Tang H¹, Wu T¹, Chu M¹, Lam K¹, Chan S¹, Yung S¹, Ting W¹, Tung L¹, Lam W¹, Leung W², Chan S¹, Chan S¹, Fong C¹, Chan K¹, Yiu Y¹, Ng S¹, Lee M¹

¹HIV Clinical Service, Department of Medicine, Queen Elizabeth Hospital, , Hong Kong SAR, ²Department of Medicine and Geriatrics, Kwong Wah Hospital, , Hong Kong SAR

Background: Long-acting injectables (LAI) consisting of cabotegravir and rilpivirine were proven effective in maintaining HIV viral suppression. LAI also improved treatment satisfaction as compared with daily oral treatment among people living with HIV (PLWH). While most real-world data came from American and European countries, data describing LAI treatment outcomes and satisfaction among PLWH in Asia settings is scarce.

Methods: A retrospective review was performed among PLWH who had ever received LAI before 31st December 2024 in the HIV Clinic of Queen Elizabeth Hospital, Hong Kong SAR. Baseline characteristics, measurements including CD4 cell count, HIV viral load (VL), serum creatinine (sCr), fasting glucose (FG), low density cholesterol (LDL) and body weight (BW) before and after switching to LAI were retrieved from records. A cross-sectional treatment satisfaction survey, consisting of twelve questions specifically designed for this review (figure 1), was completed by individuals who had completed one year or more of LAI.

Results: Thirty PLWH (all were male and ethnic Chinese) ever received LAI in the clinic. At the time of switching to LAI, the median age was 34.6 years (IQR 31.1-41.6), and the median duration of antiretroviral treatment was six years (IQR 3.8-8.8 years). Twenty-five recipients switched from a three-drug regimen (INSTI-based [20], PI-based [1]; NNRTI-based [4]), and five switched from a dual regimen (DTG+3TC). All were virally suppressed

(VL <20 copies/ml (cpm)) with a median CD4 of 546 (IQR 439-631) before switch.

By 31st December 2024, twenty-six individuals were still receiving LAI (≤ 12 months [9], 13-24 months [16], ≥ 25 months [1]). There was no virologic failure, and collectively there were three episodes of low level viral blips (VL 20-24 cpm). After six and twelve months of LAI-switch, there were improvement in serum creatinine from baseline 90 (82-102) $\mu\text{mol/L}$ to 85.5 (76.2-96.2) $\mu\text{mol/L}$ ($p=0.0053$) and 87 (75.2-91.2) ($p=0.0044$) respectively on univariate analyses; on the other hand, there was no statistically significant change in CD4, FG, LDL and BW (tables 1a & 1b).

Four discontinued LAI due to injection-site pain [1], dizziness [1], recipient's concern for viral blip [1], and inability to follow two-monthly injection schedule [1].

Twenty-one LAI recipients completed the treatment satisfaction survey between month 12-16 injections. Results were shown in figure 2. As compared to daily oral treatments, all recipients were more / much more satisfied with LAI treatment, perceived a better / much better quality of life, and found more / much more convenience; 19/21 (90.5%) perceived a better / much better HIV disease control, and 17/21 (81%) found better / much better flexibility. Regarding LAI injections, side effects were reported in 4/21 (19%) which were mild and tolerated; 36.8%, 47.4%, and 15.8% experienced mild, moderate, and severe pain over injection sites respectively,

Conclusions: LAI was safe and effective in maintaining HIV viral suppression in this cohort of ethnic Chinese individuals, and was associated with high treatment satisfaction.

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Effectiveness of 2 Monthly Long-Acting Injectable Cabotegravir and Rilpivirine in an Australian Community General Practice

Strong B¹, KOH K¹

¹Gladstone Road Medical Centre, Highgate Hill, Australia

Background: Several studies have been conducted on the efficacy of 2 monthly long-acting injectable Cabotegravir 600 mg plus Rilpivirine 900 mg (CABENUVA) under controlled trial conditions. To date, however, little research has been done to assess the effectiveness of CABENUVA in viral load suppression among patients in a community setting. Using a cohort of clients receiving CABENUVA administered intramuscularly every 2-months for HIV-1 infection treatment at Gladstone Road Medical Centre (GRMC), an inner city community based high caseload HIV General Practice, this study aims to examine the effectiveness of CABENUVA in a real-world community setting.

Materials and Methods: Using a 'snapshot' window of 6 months, from 01/07/2024 to 31/12/2024 inclusive, this study collated 'HIV Viral Load (VL)' test results conducted on 36 patients receiving CABENUVA at GRMC to assess treatment effectiveness, with <200 copies/mL viral load boundary for compliance

Results: Of the 36 patients included in this cohort, 33 returned VL results below the level of detection, defined at <20 copies/mL. Three patients had results of ≥20 copies/mL, with the most recent tests for each showing VL of 20, 30, and 65, respectively, at the conclusion of the snapshot. No patient returned a VL result greater than 200 copies/mL during the 6-month snapshot period.

Conclusion: The effectiveness of 2 monthly long-acting injectable Cabotegravir 600 mg plus Rilpivirine 900 mg in a community setting warrants further longitudinal research with larger cohorts. However, with 100% of patients able to consistently maintain a viral load under 200

copies/mL over a six-month period, our study suggests that 2 monthly long-acting Cabotegravir 600 mg plus Rilpivirine 900 mg can achieve a very high maintenance of virological suppression in a general practice/community setting.

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Analysis of Factors Influencing Rapid Initiation of Antiretroviral Therapy Among Men Who Have Sex with Men (MSM) Living with HIV in China

Wang R¹, Chen X¹, Zhai Y¹, Li R¹, Ren Y¹, Sun L¹, Dai L¹

¹Beijing Youan Hospital, Capital Medical University, Beijing, China

Background: In recent years, the proportion of newly diagnosed individuals with HIV transmitted through male-to-male sexual contact in China has increased significantly. This underscores the importance of implementing rapid initiation strategies for antiretroviral therapy (ART) among men who have sex with men (MSM). However, the ART initiation rate among people living with HIV (PLWH) in China remains suboptimal, highlighting the need for scientific research to identify key factors influencing the timely initiation of ART. This study aims to investigate the factors associated with the rapid initiation of ART among MSM newly diagnosed with HIV, with the goal of enhancing the ART initiation rate and optimizing treatment outcomes.

Method: This study retrospectively analyzed the clinical and demographic data of 353 newly diagnosed MSM living with HIV at the Sexually Transmitted Diseases (STD) and HIV/AIDS Clinic of Beijing Youan Hospital between March 2021 and September 2022. Based on whether ART was initiated within 14 days of diagnosis, participants were categorized into the Rapid Initiation group (Rapid group) and the Non-Rapid Initiation group (Non-Rapid group). Demographic characteristics, sociological factors, and awareness of HIV-related knowledge were collected through structured questionnaires, while relevant clinical data were extracted from the medical record system. Univariate analysis (T-test and χ^2 test) was performed to compare differences between the two groups. Subsequently, binary logistic regression analysis was used to assess potential factors hindering the rapid initiation of ART.

Results: A total of 353 HIV-positive individuals were included in the study, with 256 in the Rapid group (72.5%) and 97 in the Non-Rapid group (27.5%). Univariate analysis revealed significant differences in the following four factors: "living alone" ($\chi^2=5.902$, $P=0.015$), "whether actively sought HIV testing" ($\chi^2=4.573$, $P=0.033$), "whether they believed ART was necessary" ($\chi^2=4.709$, $P=0.030$), and "whether they had HIV-positive friends/peers" ($\chi^2=7.037$, $P=0.007$). Multivariate logistic regression analysis further revealed that the main factors promoting rapid initiation of ART were: "actively seeking HIV testing" (OR=2.062, $P=0.047$), "living with family members or peers" (OR=1.970, $P=0.007$), and "having HIV-infected friends/peers" (OR=2.128, $P=0.012$).

Conclusion: This study indicates that HIV-positive individuals in the MSM population who actively seek HIV testing, live with family or peers, and have HIV-positive friends are more likely to rapidly initiate ART after diagnosis. These factors are closely related to the individual's social support network and their level of awareness of the disease. Therefore, in clinical practice, particular attention should be given to MSM individuals lacking these conditions, providing more care and support to enhance their awareness and willingness to rapidly initiate ART, thereby improving treatment adherence and suppression rates, and ultimately improving long-term health outcomes.

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Comparison Effectiveness and Safety of Dolutegravir Plus Lamivudine and Bictegravir/Emtricitabine/Tenofovir Alafenamide in Late-Presenting Patients with HIV Infection

Xie X¹, Yang X¹, Fu Y¹, Gan L¹, Ma S¹, Song Y¹, Song C¹, Long H¹

¹Guiyang Public Health Clinical Center, Guiyang, China

Introduction: Lamivudine plus dolutegravir (3TC/DTG) and bictegravir/emtricitabine/tenofovir alafenamide (B/F/TAF) regimens are commonly used as first-line treatments for people living with human immunodeficiency virus (HIV) (PLWH) worldwide. There are limited comparative data on the antiviral activity and safety between these regimens in late-presenting patients with HIV-1 (PLWH). This study aims to provide real-world evidence comparing the 3TC/DTG regimen to the B/F/TAF regimen in late-presenting PLWH in China.

Methodology: This single-center study was conducted at the Guiyang Public Health Clinical Center, one of the largest southwest infectious disease hospitals in China. This retrospective study enrolled PLWH initiating ART with either 3TC/DTG or B/F/TAF from January 2020 to July 2023. The primary endpoint was virological suppression rate, which was determined based on the proportion of patients with < 50 copies/mL of HIV-1 RNA after 48 weeks of 3TC/DTG or B/F/TAF use. Changes in the immunological, metabolic parameters were evaluated. Late-presenting PLWH were defined as surviving PLWH with a CD4 T lymphocytes (CD4) < 200 cells/ μ L or surviving patients who meet the criteria for acquired immune deficiency syndrome-defining conditions with a CD4 ranging from 200 to 499 cells/ μ L.

Results: A total of 271 eligible, ART-naïve PLWH were included, with 141 patients in the 3TC/DTG group and 130 patients in the B/F/TAF group. Following the initiation of ART, most patients (87.2% and 93.8% for 3TC/DTG and B/F/TAF groups, respectively) achieved viral suppression

(HIV RNA <50 copies/ μ L) at week 48, and there was no statistically significant difference between the two groups. The CD4 cell count significantly increased 132.5 cells/mL at week 48 for the 3TC/DTG group and 129.0 cells/mL at week 48 for the B/F/TAF group. Both groups experienced an increase in blood lipid levels after initiating ART, with higher levels of low-density lipoprotein cholesterol (LDL-C) observed in the B/F/TAF group compared with the 3TC/DTG group. There was no statistically significant difference in body mass index, CD4, CD4/CD8, triglyceride, high-density lipoprotein cholesterol, and total cholesterol levels between the two groups ($p>0.05$).

Conclusions: Both optimization strategies showed high tolerability in antiretroviral therapy-naïve patients, with no differences in virological efficacy; however, B/F/TAF may be related to the risk of LDL-C. Further research is required to evaluate this problem.

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Metabolic Advantages of TDF/3TC/ANV Regimen in ART-Experienced People Living with HIV: A 48-Week Real-World Cohort Study

Gan L¹, Xie X¹, Fu Y¹, Yang X¹, Ma S¹, Long H¹

¹Guiyang Public Health Clinical Center, Guiyang, China

Introduction: AINUOVIRINE (ANV), lamivudine (3TC), and tenofovir disoproxil fumarate (TDF) have demonstrated favorable lipid profiles in prior clinical trials as new-generation NNRTI-based regimens. However, comprehensive data on broader metabolic outcomes remain limited.

Methods: This prospective real-world study enrolled 538 participants switching to TDF/3TC/ANV between August 2022 and January 2024, with 48-week follow-up assessments. We evaluated immunological and metabolic parameters including weight, lipid profile, glucose metabolism, uric acid, and hepatic/renal function before and after regimen transition.

Results: The cohort comprised 372 males (69.14%) and 166 females (30.86%), with a mean age of 42.52 ± 14.13 years. At week 48, significant increases were observed in mean body weight (60.14 ± 11.14 kg to 61.23 ± 10.69 kg, $p < 0.001$), HDL-C (1.01 ± 0.34 mmol/L to 1.07 ± 0.69 mmol/L, $p < 0.001$), CD4⁺ counts (325 ± 232 to 446 ± 258 cells/ μ L, $p < 0.001$), and CD4/CD8 ratio (0.40 ± 0.32 to 0.69 ± 0.40 , $p < 0.001$). Conversely, reductions occurred in total cholesterol (4.23 ± 0.94 to 4.07 ± 0.80 mmol/L), triglycerides (2.12 ± 1.76 to 1.76 ± 1.21 mmol/L), fasting glucose (5.68 ± 1.51 to 5.23 ± 1.12 mmol/L), and uric acid (350 ± 112 to 322 ± 88 μ mol/L) (all $p < 0.001$). Hepatic parameters improved significantly: ALT (33 ± 34 to 25 ± 23 U/L), AST (33 ± 32 to 24 ± 18 U/L), and total bilirubin (11.04 ± 6.70 to 7.83 ± 3.72 μ mol/L) (all $p < 0.001$). Renal function remained stable despite a minor eGFR decline (109.19 ± 16.51 to 104.51 ± 16.65 mL/min/1.73m², $p < 0.001$). No significant changes were observed in LDL-C levels ($p = 0.946$).

Conclusion: This real-world cohort study confirms the favorable metabolic profile of TDF/3TC/ANV in

ART-experienced PLWH, demonstrating concurrent improvements in lipid metabolism, glycemic control, hepatic function, and immunological recovery, coupled with preserved renal safety over 48 weeks.

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Potential Demand for Antiretroviral Therapy in People with HIV Who Have Depressive and Anxiety Symptoms: A Multicenter Cross-Sectional Study in Japan

Tsukiji M¹, Hikasa S², Ishihara M³, Kunitomo Y⁴, Nobori K⁵, Kimura T⁶, Yamamoto Y⁷, Haruta K⁸, Kasiwabara Y⁹, Fujii K¹⁰, Yamazaki S¹, Niitsu T¹¹, Igari H¹², Ishii I¹

¹Division of Pharmacy, Chiba University Hospital, , Japan,

²Department of Pharmacy, Hyogo Medical University Hospital, ,

Japan, ³Department of Pharmacy, Gifu University Hospital, ,

Japan, ⁴Department of Hospital Pharmacy, Sapporo Medical

University Hospital, , Japan, ⁵Department of Pharmacy, Kobe

City Medical Center General Hospital, , Japan, ⁶Department of

Pharmacy, Kobe University Hospital, , Japan, ⁷Division of

Pharmacy, Himeji Medical Center, , Japan, ⁸Department of

Pharmacy, Nara Medical University Hospital, , Japan, ⁹Division

of Pharmacy, Japanese Red Cross Kyoto Daiichi Hospital, ,

Japan, ¹⁰Department of Pharmaceutical Services, Hiroshima

University Hospital, , Japan, ¹¹Department of Psychiatry, Chiba

University Graduate School of Medicine, , Japan, ¹²Department

of Infection Diseases, Chiba University Hospital, , Japan

Background: In addition to achieving high virological suppression, recent antiretroviral therapy (ART) has increasingly emphasized improving the quality of life by maintaining long-term medication adherence while considering patient convenience and preferences. However, there are few reports on treatment satisfaction and medication adherence among Japanese people with HIV (PWH) with depressive and anxiety symptoms. This study aimed to examine the treatment satisfaction and factors affecting medication adherence in Japanese PWH with depressive and anxiety symptoms.

Methods: A questionnaire survey and a retrospective medical record survey were administered to PWH at 11 facilities in Japan from April to December 2021. The survey items included patient background, viral load, CD4 count, Human Immunodeficiency Virus Treatment Satisfaction Questionnaire (HIVTSQ), Patient Health Questionnaire (PHQ-9, ≥ 10 points for depression), Generalized Anxiety Disorder (GAD-7, ≥ 10 points for anxiety symptoms), satisfaction with current medications, medication adherence (number of

missed ART doses in the past month), and desired formulation in future, etc. Statistical analysis was conducted comparing groups with no depressive or anxiety symptoms to those with both. Research ethics committee of the graduate school of medicine, Chiba university (No. 4232) and the Ethics Review Board of each institution approval was obtained.

Results: 679 PWH answered the questionnaire, 16.1% (n=109) had depression, 8.4% (n=57) had anxiety symptoms, and 7.2% (n=49) had both depressive and anxiety symptoms. In PWH with both depressive and anxiety symptoms, 100% (n=49) had HIV-RNA levels < 200 copies/mL, the mean CD4 count was $620/\mu\text{L}$, and 95.9% (n=47) were on integrase inhibitor-based ART. The total HIVTSQ score for PWH with both depressive and anxiety symptoms was significantly lower compared to PWH with neither symptom. Additionally, dissatisfaction was noted regarding the current antiretroviral drugs daily, as well as concerns about pill size and ease of swallowing. After adjustment for confounders such as age and gender, factors commonly associated with depressive and anxiety symptoms were desire for orally disintegrating tablets (OR=3.71, 95%CI[1.67, 8.24]), concomitant of psychotropic medications (1.66, [1.23, 2.24]), younger age (0.96, [0.93, 0.99]), dissatisfaction with daily medications (0.80, [0.64, 1.00]), dissatisfaction with side effects (0.68, [0.51, 0.91]), and copayment (0.41, [0.20, 0.86]). Predictors for nonadherence were anxiety symptoms (3.31, [1.80, 6.08]), female (2.63, [1.12, 6.17]), age (0.97, [0.95, 0.99]), and number of concomitant medications (0.91, [0.84, 0.99]).

Conclusions: In Japanese PWH with depressive and anxiety symptoms, a need for orally disintegrating tablets of antiretroviral drug was suggested. Additionally, due to low satisfaction with the daily medication and side effects, it is considered desirable to design ART prescriptions that consider these factors. This study found that nonadherence in PWH was associated with anxiety symptoms, female, younger age, and fewer concomitant medications. It is considered desirable to provide more detailed medication support to PWH with these factors.

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Dynamic Progression and Risk Factors of Abnormal Glucose Metabolism in People Living with HIV on Antiretroviral Therapy: A 7-Year Retrospective Cohort Study from Chongqing, China

Lu Y¹, Wan Y, Chen Y

¹Chongqing public health medical center, Chongqing, China

Background: People living with HIV (PLWH) receiving antiretroviral therapy (ART) are at increased risk for developing abnormal glucose metabolism (AGM). However, longitudinal data on the progression and risk factors of AGM—particularly in Asian populations—remain limited. This study aimed to delineate the long-term trajectories of impaired fasting glucose (IFG) and diabetes mellitus (DM) and to identify their predictors in a Chinese cohort.

Material and Methods: In this 7-year retrospective cohort study (2018–2024), 317 virologically suppressed PLWH with normal baseline fasting plasma glucose (FPG <5.6 mmol/L) were enrolled from Chongqing Public Health Medical Center. Cumulative incidence and progression of AGM were analyzed using Kaplan-Meier curves, and risk factors were assessed through univariate and multivariable logistic regression analyses adjusted for age, sex, and body mass index (BMI). Subgroup analyses further explored interactions by age, sex, and immune reconstitution.

Results: Over seven years (2018–2024), 86.4% (274/317, IR= 74.5 per 100 person-years) of participants developed AGM. The cumulative incidence of DM was 19.6% (62/317, IR = 14.3 per 100 person-years), while IFG reached 66.9% (212/317, IR = 45.7 per 100 person-years). DM progression occurred via two distinct pathways: a stepwise progression (normal → IFG → DM; median time of 4.7 years to IFG and 3.0 years from IFG to DM) and a direct transition (normal → DM; median time of 5.8 years). The cumulative incidence of IFG increased sharply between 5 and 10 years post-HIV infection (from 25.2% to 77.4%),

while DM incidence rose significantly between 10 and 15 years after ART initiation (from 22.3% to 49.5%). Key independent predictors of DM included older age (adjusted OR [aOR] = 1.5 per 10-year increment, $p=0.006$), a low CD4+ T-cell count (≤ 200 cells/ μ L) at HIV diagnosis (aOR = 2.5, $p=0.008$), and an elevated TG/HDL-C ratio (≥ 1.0 ; aOR = 3.0, $p=0.002$). Additionally, females aged ≥ 50 years exhibited a higher risk of developing IFG (OR = 2.8, $p=0.011$), whereas ART regimens and immune recovery were not significantly associated with AGM.

Conclusions: Our findings reveal a high burden of AGM among virologically suppressed PLWH in China, with nearly universal progression to IFG and a marked increase in DM incidence after a decade of ART. Aging, immunosuppression, and dyslipidemia emerge as key drivers of DM development. The identification of the TG/HDL-C ratio and baseline CD4+ T-cell nadir as novel predictors, together with distinct age-dependent progression pathways, underscores the need for early, targeted metabolic monitoring—particularly in older individuals and those with dyslipidemia. These results advocate for the integration of metabolic care into HIV management protocols, especially in aging cohorts.

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The Prevalence and Risk Factors of Frailty in Japanese People Living with HIV

Nakamura H¹, Minami R², Shirano M³, Ikemiyagi N¹, Takaesu T¹, Yamaniha K¹, Arakaki W¹, Yamamoto K¹

¹First Department of International Medicine, Division of Infectious, Respiratory, and Digestive Medicine, University of the Ryukyus Graduate School of Medicine, Ginowan, Japan,

²National Hospital Organization, Kyushu Medical Center, Fukuoka, Japan, ³Osaka City General Hospital, Osaka, Japan

Objective: Frailty is a condition of physical, mental, and social vulnerability due to aging, negatively impacting life expectancy and quality of life (QOL). Last year, we reported on the prevalence of frailty among people with HIV (PWH) at our hospital. This time, we analyzed the prevalence and risk factors of frailty among Japanese PWH across multiple institutions in Japan. Additionally, we investigated health-related QOL and perceptions of aging.

Methods: We enrolled Japanese PWH aged 40 years or older who had been receiving antiretroviral therapy (ART) for at least one year and had provided written consent. Participants were recruited from three institutions: the University of the Ryukyus Hospital, Kyushu Medical Center, and Osaka City General Hospital. Based on the J-CHS criteria, participants were categorized into three groups: Robust, Prefrail, and Frail. Demographic data were collected through questionnaires. To assess depression, anxiety, cognitive function, and health-related QOL, we administered the PHQ-9, GAD-7, MoCA-J, and SF-12, respectively. Perceptions of aging were evaluated using the Expectation Regarding Aging-12-J (ERA-12-J).

Results: As of December 2024, a total of 231 participants had been enrolled from the three institutions (median age: 53 years; male: 96.7%). The proportions of Robust, Prefrail, and Frail participants were 21.2%, 68.4%, and 10.4%, respectively. The most common frailty component was reduced physical activity (38.9%), followed by weight loss (37.7%), fatigue (22.9%), decreased walking speed (22.1%), and reduced grip strength (7.4%). Frailty was significantly associated with polypharmacy ($p = 0.006$), diabetes ($p = 0.04$), and

moderate-to-severe depression ($\text{PHQ-9} \geq 10$, $p < 0.0001$). Physical (54.6 vs. 42.4, $p < 0.0001$) and mental health scores (57.6 vs. 48.1, $p = 0.003$) on SF-12 were significantly lower in the Frail group. ERA-12-J scores were consistently low across all groups (33.1–36.1/100 points), indicating a pessimistic perception of aging.

Conclusion: Diabetes, depression, and polypharmacy were suggested to contribute to the progression of frailty. Regardless of frailty status, participants exhibited a pessimistic perception of aging-related declines in physical and cognitive function. The Frail group showed a significant decline in health-related QOL. Lifestyle modifications, such as regular exercise, and mental health support are crucial for preventing frailty progression.

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Cardio-Ankle Vascular Index (CAVI) and Its Relationship with Mortality and Cardiovascular Outcomes in People with HIV

Amornritvanich P^{1,2}, Apornpong T², Avihingsanon A², Lwin H²

¹Police General Hospital, Bangkok, Thailand, ²HIV-NAT Research Collaboration center, TRCS, Bangkok, Thailand

Background: People living with HIV (PWH) face an elevated risk of cardiovascular disease (CVD) and mortality. The Cardio-Ankle Vascular Index (CAVI) is a non-invasive marker of arterial stiffness, yet its prognostic value in this population remains uncertain. This study explores the association between CAVI, mortality, and composite CVD outcomes in PWH.

Methods: 307 PWH were categorized based on CAVI <9 and CAVI ≥9. The primary endpoint was all-cause mortality, while the secondary endpoint was a composite of CVD events and mortality. Kaplan-Meier survival analysis with log-rank tests evaluated differences in survival and event rates per 100 person-years were determined.

Results: Individuals with CAVI ≥9 were older (60 vs. 54 years, $p<0.001$) and had a greater prevalence of hypertension (58.9% vs. 39.0%, $p=0.007$) and diabetes (32.1% vs. 14.7%, $p=0.002$). Mortality rates were significantly higher in those with CAVI ≥9 (3.15 vs. 1.18 per 100 person-years, $p=0.0023$). Similarly, the composite outcome of CVD and mortality was more frequent in the CAVI ≥9 group (4.08 vs. 1.72 per 100 person-years, $p=0.003$). Kaplan-Meier analysis indicated a notable decline in survival among individuals with CAVI ≥9 (log-rank $p<0.01$).

Conclusion: CAVI appears to be a strong prognostic marker for mortality and cardiovascular events in PWH. These findings support using CAVI for early cardiovascular risk stratification in PWH, aiding in preventive interventions.

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Blood-Based Biomarkers – Neurofilament Light (NfL) and Glial Fibrillary Acidic Protein (GFAP) – and Cognitive Decline Among Older People with HIV with Undetectable Viral Loads in Thailand

Hiransuthikul A^{1,2}, Thanapornsangsuth P³, Luechaipanit W³, Haethaisong T³, Ubolyam S^{1,4}, Wongvoranet C¹, Apornpong T¹, Han W^{1,5}, Lwin H¹, Hiranburana N¹, Kerr S^{1,5,6}, Avihingsanon A^{1,4}

¹HIV-NAT, Thai Red Cross AIDS and Infectious Diseases Research Centre, Bangkok, Thailand, ²Department of Preventive and Social Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ³Thai Red Cross Emerging Infectious Diseases Health Science Centre, World Health Organization Collaborating Centre for Research and Training on Viral Zoonoses, King Chulalongkorn Memorial Hospital The Thai Red Cross Society, Bangkok, Thailand, ⁴Center of Excellence in Tuberculosis, Department of Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ⁵Kirby Institute, UNSW Sydney, Sydney, Australia, ⁶Biostatistics Excellence Centre, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: We previously reported that blood-based phosphorylated tau 217 (p-tau217) could predict distinct cognitive trajectories in older Thai people with HIV (PWH) with undetectable viral loads. Given the limited data in PWH, this study aimed to assess the potential of neurofilament light (NfL) and glial fibrillary acidic protein (GFAP), emerging biomarkers for cognitive disorders, in predicting cognitive decline in this population.

Methods: Blood samples were collected from Thai PWH aged ≥ 50 years with plasma viral loads < 50 copies/mL, who completed the Montreal Cognitive Assessment (MoCA) at baseline (2015–2017) and a follow-up visit (2021–2024). NfL and GFAP levels were measured at baseline and categorized into quartiles, with a binary comparison between quartile 4 (Q4) and quartiles 1–3 (Q1–Q3). A multivariate linear mixed-effects model, adjusted for sex, education, baseline MoCA score, HIV duration, nadir CD4 levels, and efavirenz exposure, with an interaction term for biomarker quartiles and age, was used to estimate the effect of

baseline NfL and GFAP levels on cognitive performance changes over time.

Results: A total of 255 PWH (63.1% male, median age 54.3 years [IQR: 51.8–59.1]) with a median follow-up of 5.9 years (IQR: 5.6–6.8) were included. The proportion of PWH with cognitive impairment at baseline did not differ significantly between those in the highest quartile (Q4) and lower quartiles (Q1–Q3) of either NfL or GFAP. In the adjusted model, no significant differences in overall MoCA score changes were observed between PWH in Q4 versus Q1–Q3 for either NfL or GFAP. However, PWH in Q4 of GFAP levels showed a significantly greater decline in visuospatial/executive function, with a score decrease of -2.1 (95% CI: -3.0 to -1.2) compared to -0.4 (95% CI: -1.1 to 0.2) for Q1–Q3 from age 50 to 80 years (P-interaction = 0.001).

Conclusion: Baseline NfL and GFAP levels were not associated with overall MoCA performance, but higher GFAP predicted greater visuospatial/executive function decline. Domain-specific neuropsychiatric testing is needed to confirm this finding and explore its clinical utility.



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Neurocognitive Decline and Its Predictors in the Malaysian HIV and Aging Study

Aung H¹, Yap S², Wong P², Chen P³, Faridah S², Hisham S², Loh J², Hasmukharay K², Reuben R⁴, Cysique L^{1,5,6}, Rajasuriar R²

¹Kirby Institute, UNSW, Sydney, Australia, ²Centre of Excellence for Research in AIDS (CERIA), Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia, ³School of Psychology, University of Nottingham, Kuala Lumpur, Malaysia, ⁴HIV Center for Clinical and Behavioral Studies, New York State Psychiatric Institute and Columbia University, New York, United States, ⁵St. Vincent's Hospital Centre for Applied Medical Research, Sydney, Australia, ⁶School of Psychology, UNSW Sydney, Sydney, Australia

Background: Despite early and stable antiretroviral therapy (ART) and sustained viral suppression, neurocognitive impairment (NCI) remains prevalent among people with HIV (PWH), affecting up to 30%. Even mild NCI can significantly impact daily functioning, medication adherence, and quality of life. Early detection of neurocognitive decline is crucial for timely interventions that may help slow progression, optimize management strategies, and improve patient outcomes. This study examines neurocognitive decline among virally suppressed PWH treated early and stable on ART in the Malaysian HIV and Aging (MHIVA) Study and identifies associated risk factors.

Methods: The MHIVA Study is a longitudinal cohort study which followed PWH (n=180) and demographically matched uninfected controls (n=80) across two waves (Wave 1: 2014–2016, Wave 2: 2021–2023, mean follow-up: 6.67 years, SD=0.59). At Wave 1, participants were aged >25 years, had no acute illness, and all PWH were virally suppressed. NCI was assessed using the Montreal Cognitive Assessment (MoCA) and defined using the Global Deficit Score (≥ 0.5). Data on sociodemographic, lifestyle, physical and psychosocial health, and biochemical markers were also collected at both Waves. Neurocognitive change (decline/stable/improvement) was determined using standardized regression-based (SRB) change scores (CS). To examine factors associated with decline among PWH, we conducted two separate multivariable regression models, both using the SRB-CS as the outcome: one with predictors collected at Wave 1 and

another with predictors collected at Wave 2. Variables with $p < 0.1$ in univariate analyses were included in the respective multivariable models.

Results: Wave 1 mean age was 43.5 years (SD=10), most were male (73.9%), Chinese (71.5%), and had at least secondary school education (88.8%). NCI was observed in 13.3% of PWH vs. 11.3% in controls ($p=0.64$). Over time, neurocognitive decline was 9% in PWH vs. 4% in controls ($p=0.11$), whereas improvement was 7% in PWH vs. 5% in controls ($p=0.49$). Wave 1 NCI in PWH was strongly associated with subsequent neurocognitive decline (impaired=25% vs. unimpaired=7.1%, $p < 0.01$). In Wave 1 multivariable analyses, a normal grip strength ($\beta=0.72$, $p < 0.05$) was associated with a higher SRB-CS (i.e., better neurocognition over time). Conversely, a history of palpitations was associated with lower SRB-CS (i.e., worse neurocognition over time; $\beta=-0.69$, $p < 0.05$). In Wave 2 multivariable analyses, female sex ($\beta=-0.67$, $p < 0.05$) was associated with lower SRB-CS. Relative to those with very poor health, those with moderate ($\beta=2.24$, $p < 0.01$) or poor health ($\beta=2.71$, $p < 0.01$) had higher SRB-CS.

Conclusions: Although baseline NCI did not differ by HIV status on the MoCA, PWH experienced a higher rate of neurocognitive decline than uninfected controls. Routine neurocognitive screening may aid in the early detection of neurocognitive decline, particularly in women with HIV and in PWH with loss of muscle strength (frailty), medical comorbidities (particularly cardiac), or very poor perceived health. The ability to detect neurocognitive decline using the MoCA suggests that more sensitive assessment tools may identify greater spread of longitudinal and baseline global and domain neurocognitive performance.

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Tailoring Cardiovascular Risk Predictions for People Living with HIV: Evidence from Malaysia

Teh H², Tay K¹, Yang S², Lim Y², Hwong W², Lee J¹, Baskaran S¹

¹Ministry Of Health, Sungai Buloh, Malaysia, ²Centre for Clinical Epidemiology, Institute for Clinical Research, National Institutes of Health, Ministry of Health Malaysia, Shah Alam, Malaysia

Background: The risk of cardiovascular disease (CVD) is increased in people living with HIV (PLHIV) due to a combination of aging, traditional CVD risk factors, and HIV-related inflammatory mechanisms, along with antiretroviral therapy. Despite the need for effective CVD prevention in this population, clinical accuracy of existing CVD risk prediction models among Asian PLHIV in low and middle-income settings remain unknown. To address this gap, this study aims to compare the performance of available CVD risk prediction models to identify a suitable risk assessment approach for the Malaysian PLHIV population.

Materials and Methods: This retrospective cohort included HIV-positive patients aged 18 and above who were treated in an infectious disease referral hospital between January 1st 2016 and December 31st 2017. Patients with pre-existing CVD and non-Malaysians were excluded. Baseline data were extracted from medical records whereas the occurrence of the first CVD hospitalisation or death within 5 years were ascertained from the national hospital admission database and national death registry. The clinical performance of four CV risk prediction models – the (i) Framingham CV Risk Score (FRS), (ii) ACC/AHA Revised Pooled Cohort Equations (RPCE), (iii) Data Collection on Adverse Effects of Anti-HIV Drugs (D:A:D) full and (iv) D:A:D reduced models were evaluated and compared. Model calibration indices included calibration slopes and observed-to-expected (O/E) ratios whereas discrimination indices were estimated using concordance statistics (C-index/C-statistics).

Results: Among 6,339 HIV-positive patients, the most prevalent cardiovascular risk factor was dyslipidemia at 16.9%, followed by hypertension

(7.5%) and diabetes (4.5%). Within five years, 2.1% (n=136) experienced an incident CVD event. All four CVD risk predictive models had similarly moderate discriminative performance; D:A:D reduced (C-index: 0.77, 95% CI: 0.73–0.81), D:A:D full (C-index: 0.76, 95% CI: 0.72–0.80), FRS (C-index: 0.76, 95% CI: 0.72–0.80), and RPCE (C-statistics: 0.75, 95%CI: 0.71, 0.79). In terms of calibration, the D:A:D reduced (O/E: 1.08, 95% CI: 0.90–1.26) slightly outperformed the D:A:D full (O/E: 0.89, 95% CI: 0.74–1.04). Both the FRS (O/E: 0.56, 95% CI: 0.46–0.65) and RPCE (O/E: 0.72, 95% CI: 0.58–0.90) demonstrated poor to moderate calibration, indicating an overestimation of risk.

Conclusions: While all models showed similar discriminative abilities, the D:A:D reduced provided comparably accurate 5-year CVD risk estimates with fewer variables than the full model, making it a more appropriate choice for risk assessment among PLHIV in Malaysia.

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Impact of Commonly Used Antiretroviral Therapy Regimens on Blood Lipids in People Living with HIV

Liu B¹¹Anshan Infectious Disease Hospital, An Shan, China

Background: Dyslipidemia has been proven to be associated with the occurrence of cardiovascular diseases. The prevalence of dyslipidemia in people living with HIV (PLHIV) is very high and has been shown to be related to the antiretroviral therapy (ART) regimens used. This article aims to analyze the impact of different ART regimens on the blood lipids of PLHIV and explore the improvement of lipid profiles by switching the ART regimens.

Methods: For PLHIV in our hospital who had received ART with DTG/3TC, BIC/TAF/FTC, EFV+TDF+3TC, and LPV/r+AZT+3TC for more than 12 months, information on their gender, age, blood glucose, blood pressure, BMI, ART regimens, and the results of the most recent blood lipid test were collected. Binary logistic regression analysis was used to analyze the impact of different ART regimens and other factors on blood lipids.

Results: A total of 1,000 PLHIV who met the criteria were included, among whom there were 850 males and 150 females, with an average age of 44.56±18.75 years. 200 individuals used DTG/3TC, 200 used BIC/TAF/FTC, 500 used EFV+TDF+3TC, and 100 used LPV/r+AZT+3TC. The overall prevalence of dyslipidemia was 65.5% (655/1,000), among which the prevalence of abnormal TC was 17.8% (178/1,000), the prevalence of abnormal TG was 51.2% (512/1,000), the prevalence of abnormal LDL was 14.9% (149/1,000), and the prevalence of abnormal HDL was 21.7% (217/1,000). The results of univariate analysis showed that the risk of abnormal TC and TG in females was 1.761 (1.433-2.589) and 1.972 (1.576-2.497) times that in males, respectively. The risk of abnormal TC, TG, and LDL in patients with hypertension or hyperglycemia was higher than that in patients with normal blood pressure or normal blood glucose. With the increase of age, the risk of abnormal TC and TG increased. With the increase of BMI value, the risk of abnormal values

in all four blood lipid indices increased. After adjusting for the effects of factors such as gender, age, blood glucose, blood pressure, and BMI, the results of multivariate analysis showed that, compared with the DTG/3TC regimen, LPV/r+AZT+3TC increased the impact on TC (OR=2.552, 95%CI: 1.978-2.832), TG (OR=3.533, 95%CI: 2.481-3.934), and LDL (OR=2.371, 95%CI: 1.815-3.347). EFV+TDF+3TC increased the impact on TC (OR=1.546, 95%CI: 1.211-2.327), TG (OR=2.037, 95%CI: 1.751-2.415), and LDL (OR=2.115, 95%CI: 1.759-3.272). BIC/TAF/FTC increased the impact on TG (OR=1.667, 95%CI: 1.225-2.125) and LDL (OR=1.545, 95%CI: 1.192-2.113).

Conclusion: Dyslipidemia in PLHIV is related to their gender, age, blood glucose, blood pressure, BMI, and ART regimens. Compared with the DTG/3TC, regimens such as BIC/TAF/FTC, EFV+TDF+3TC, and LPV/r+AZT+3TC all increase the risk of dyslipidemia, which may be related to the characteristics of drugs such as AZT, TAF, EFV, and LPV/r (2024 DHHS). For PLHIV with the above risk factors, blood lipid testing should be strengthened, and the ART regimen should be adjusted targeted to reduce the occurrence of hyperlipidemia.

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Social Support and Depressive Symptoms Among People Living with HIV in Cambodia: A Cross-Sectional Study

Chhoun P¹, Khan Z², Nagashima-Hayashi M², Lo Yan Yam E², Samreth S³, Ngauv B³, Ouk V³, Tuot S¹, Yi S¹

¹KHANA Center for Population Health Research, PREK PRA, Cambodia, ²Saw Swee Hock School of Public Health, National University of Singapore and National University Health System, Singapore, ³National Center for HIV, Dermatology, and STD, Cambodia, ⁴Department of Community and Global Health, Graduate School of Medicine, The University of Tokyo, Japan, ⁵Faculty of Social Sciences and Humanity, Royal University of Phnom Penh, Cambodia, ⁶Public Health Program, College of Education and Health Sciences, Touro, University California, Vallejo, USA

Background: People living with HIV often face mental health challenges, including depressive symptoms and limited social support, which can affect their treatment adherence and overall disease progression. This study investigates the prevalence of depressive symptoms, variations in social support, and their association among people living with HIV receiving antiretroviral therapy (ART) in Cambodia.

Methods: This cross-sectional study analyzed baseline data from a quasi-experimental study conducted between 2021 and 2024. A total of 4089 people living with HIV were recruited from 20 ART clinics across the capital and nine provinces. We assessed depressive symptoms using the Center for Epidemiology Studies Depression Scale (CES-D-10) and social support levels using the Berlin Social Support Scale (BSSS). Multivariable logistic regression was used to examine the relationship between social support and depressive symptoms while adjusting for potential confounders, including stigma, discrimination, and quality of life.

Results: The prevalence of depressive symptoms among people living with HIV was 34.3%, while 95.3% of participants reported high levels of social support. Individuals experiencing depressive symptoms were more likely to be younger (mean age=45.5, standard deviation [SD]=10.7), female (62.7%), and less likely to have completed secondary education (68.1%). Low social support

was significantly associated with depressive symptoms after adjusting for demographic factors (AOR 1.52, 95% CI 1.13–2.04) and HIV treatment-related variables (AOR 1.42, 95% CI 1.05–1.91). However, this association lost significance after further adjustment for stigma, discrimination, and quality of life (AOR 0.92, 95% CI 0.66–1.30, $p=0.65$).

Conclusions: These findings highlight the complex relationship between social support and mental health among people living with HIV in Cambodia. While social support may play a role in mitigating depressive symptoms, its protective effect appears to be influenced by broader psychosocial factors such as stigma, discrimination, and overall quality of life. Future research should explore the quality and sources of social support and potential interactions with other social determinants to inform better interventions aimed at improving mental health and ART adherence among people living with HIV.

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Comparative Efficacy of Lipid-Lowering Strategies in HIV Patients: A Network Meta-Analysis

Amornritvanich P¹, Avihingsanon A², Apornpong T², Han W³

¹Police General Hospital, Bangkok, Thailand, ²HIV-NAT Research Collaboration center, TRCS, Bangkok, Thailand, ³Kirby Institute, UNSW Sydney, Sydney, New South Wales, Australia, Sydney, Australia

Background: People living with HIV (PWH) are at an elevated risk of dyslipidemia, including hypercholesterolemia and hypertriglyceridemia, mainly due to ART-related effects. While guidelines for the general population recommend lifestyle modifications and lipid-lowering therapies (LLTs) such as statins, the optimal approach for managing dyslipidemia in PWH remains uncertain.

Method: We conducted a systematic review and network meta-analysis to compare the efficacy of LLT regimens and other modalities in improving lipid profiles in PWH. We searched PubMed and Scopus from inception to March 2024 for randomized controlled trials (RCT). Studies were included if they compared any pair of LLT regimens or modalities in PWH using ART. The primary outcome was the changes in total cholesterol and LDL-C. To evaluate the efficacy of each regimen shown in the Figure, we pooled the mean differences from eligible studies and conducted a two-step network meta-analysis. We ranked the studies based on the minimum mean difference observed for total cholesterol and LDL-C, with more negative values indicating, more significant reductions in lipid profiles.

Result: A total of 10,010 PWH from 27 RCT studies were included. Most PWH were male (58-91%) with a mean age of 46.6 years. All PWH were receiving ART with a mean exposure time of 5.3 years. CD4 cell counts were well-controlled at a mean of 496 cells/ μ L.

We identified six treatment nodes, as shown in the Figure. PCSK9 inhibitors were the most effective LLT in lowering total cholesterol and LDL-C, followed by Ezetimibe+Fibrate. Fibrates and the combination group were less effective. Ezetimibe

showed greater effectiveness than statins in reducing total cholesterol, while statins were more effective in lowering LDL-C.

When comparing Ezetimibe+Fibrate and statins to ezetimibe alone, the mean difference in LDL-C reduction was -2.22 mg/dL (95% CI -39.89-5.45) for statins and -0.78 mg/dL (95% CI -17.55-15.99) for Ezetimibe+Fibrate.

Conclusion: Our findings suggest that PCSK9 inhibitors are the most effective LLT for reducing lipid profiles in PWH. While statins are the first-line LLT in PWH according to current guidelines, PCSK9i and ezetimibe (alone or in combination with fibrate) could be considered for individuals with statin intolerance or those requiring additional LDL-C reduction.

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Five-Year Changes in Antiretroviral Agents and Concomitant Medications Among People Living with HIV at a Regional AIDS Center in Japan

Nakauchi T¹, Yagura H¹, Hirota K¹, Matsumura T¹, Ueji T¹, Nishida Y¹, Uehira T¹, Yoshino M¹, Shirasaka T¹, Watanabe D¹

¹Osaka National Hospital, Osaka, 日本

Background: Polypharmacy is a known risk factor for non-adherence, which in turn increases the likelihood of treatment failure in antiretroviral therapy. Aging-related comorbidities contribute to polypharmacy among people living with HIV (PLWH). This single-center, retrospective study examined 5-year changes in the types and number of antiretroviral agents and concomitant medications prescribed to PLWH.

Methods: The study included PLWH who were prescribed to antiretroviral agents at Osaka National Hospital during both April 2018 - March 2019 (2018) and April 2023 - March 2024 (2023). We analyzed 5-year changes in the number of pills or both antiretroviral and concomitant medications, as well as the therapeutic classification of concomitant medications, categorized by age groups (<30, 30s, 40s, 50s, 60s, and ≥70s), based on their age in 2018. Concomitant medications were defined as those prescribed for at least 30 day, excluding single-dose and topical medications (except for inhaled and self-injectable preparations).

Results: Among the 2,000 patients included in the study (96.9% male), the median age in 2018 was 46 years. Over the 5-year period, the mean number of medications increased significantly (3.9 vs. 4.1, $p<0.05$). However, the mean number of pills or antiretroviral therapy significantly decreased (1.7 vs. 1.4, $p<0.05$). The use of single-tablet regimens significantly increased (36.7% vs. 58.5%, $p<0.05$), with a similar trend observed across all age groups. The most prescribed single-tablet regimens shifted from EVG/cobi/TAF/FTC

(18.1%) to BIC/TAF/FTC (22.1%). The number of concomitant medications increased in 1,183 cases, with increases observed across all age groups except those under 30 years. In terms of therapeutic classification, significant increases were noted in antihypertensives (20.0% vs. 29.7%), hyperlipidemia medications (15.5% vs. 23.0%), and antidiabetic medications (6.8% vs. 10.7%). The use of antihyperlipidemic medications increased significantly across all age groups. Among patients <30 years, cases under 30 years, there was a significant increase in the use of anti-allergy and gout medications. In those aged ≥30 years, the use of antihypertensives and non-benzodiazepine central nervous system medications significantly increased.

Conclusion: Antiretroviral therapy was simplified over the 5-year period, but the total number of medications increased due to the growing need for treatments related to comorbidities. Additionally, the use of concomitant medications related to lifestyle diseases and insomnia increased from the age of 30 years onwards. Continuous comprehensive medical management, including optimization of antiretroviral therapy, is crucial for ensuring long-term treatment success in PLWH.

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Evaluation of the Differences Between Cystatin C and Creatinine Based Estimated Glomerular Filtration Rates Focusing on Integrase Inhibitor Based Single Tablet Regimens in a HIV Clinic in Republic of Korea

Chin B¹, Kim G¹, Kim Y¹, Kim M¹, Lim S²

¹Division of Infectious Diseases, Department of Internal Medicine, National Medical Center, Seoul, Republic of Korea,

²Department of Infectious Diseases, Asan Medical Center, Seoul, Republic of Korea

Background: Chronic kidney disease is becoming prevalent among people living with HIV infection (PLH). While serum creatinine-based estimated glomerular filtration rate (eGFRscr) is standard method of renal function measurement, administration of some antiretroviral drugs including integrase inhibitor (INI)s and boosted protease inhibitor (bPI)s may result in reduction of eGFRscr without impairing actual glomerular filtration. Serum cystatin C is known as a sensitive biomarker for kidney function and cystatin C based measurement (eGFRcys) is suggested as a reliable alternative to eGFRscr. In this study, difference between eGFRcys and eGFRscr was investigated focusing on the PLH taking INI based single tablet regimen (STR)s at a HIV clinic in Republic of Korea.

Methods: Retrospective electrical medical record database was reviewed among HIV clinic outpatient department visitors and a cohort was constructed whose serum creatinine and cystatin C assay results were available performed on a same day. Age, sex, and antiretroviral drugs taken more than six months were reviewed and eGFRcys and eGFRscr were calculated with the 2021 CKD-EPI creatinine equation recommended by National Kidney Foundation and American Society of Nephrology. Difference between eGFRcys and eGFRscr was expressed as eGFRcys-scr which represents eGFRcys minus eGFRscr.

Results: Eligible cases were available between 2021 and 2024 and 156 were included for analysis.

151 were male and median age was 49 (IQR 39-59). 151 were taking INI containing regimens while four were on cobicistat-bPI based regimen and one was on unboosted atazanavir. Focusing on INI based STRs, dolutegravir+3TC (DTG+3TC, n=68) and bictegravir+emtricitabine+tenofovir alafenamide (BIC+FTC+TAF, n=72) were further analyzed. Mean $\pm$ standard deviation of eGFRcys/eGFRscr of DTG+3TC vs. BIC+FTC+TAF were $82.28 \pm 21.81/74.37 \pm 13.28$ vs. $84.21 \pm 21.75/75.71 \pm 11.93$, respectively. While eGFRcys was higher than eGFRscr in both STR groups ($P < 0.001$), mean eGFRcys-scr were not different between two STR groups (7.91 ± 17.76 vs. 8.50 ± 19.28 , $P = 0.825$). Additionally, another group of five PLH taking cobicistat-bPI containing regimen revealed higher eGFRcys than eGFRscr ($83.40 \pm 34.77/69.80 \pm 6.06$), but the difference was not significant ($P = 0.411$).

Conclusions: eGFRscr was significantly lower than eGFRcys among PLH taking INI based STR regimens. While cobicistat-bPI revealed similar trend, it was not significant in this study.

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Cardiovascular Risk and Statin Use in Women with HIV: Gaps in Management from a Malaysian Cohort

Kho H¹, Salleh A², [Kukreja A](#)^{1,2}

¹UNIVERSITI MALAYA, FACULTY OF MEDICINE, KUALA LUMPUR, MALAYSIA, ²UNIVERSITI MALAYA, CENTRE OF EXCELLENCE FOR RESEARCH IN AIDS (CERIA), KUALA LUMPUR, MALAYSIA

Background: Women with HIV face an increased risk of atherosclerotic cardiovascular disease (ASCVD) due to chronic HIV-related inflammation, dyslipidaemia, and antiretroviral therapy (ART) effects, further exacerbated by oestrogen loss with aging. The REPRIEVE trial led to guideline changes recommending earlier statin use, with alternative options where pitavastatin is unavailable. This study evaluates the prevalence of dyslipidaemia, ASCVD risk, and the appropriateness of statin prescriptions based on current international guidelines in a cohort of women with HIV.

Methods: We conducted a retrospective review of electronic medical records for all women with HIV attending the Infectious Diseases Clinic, Universiti Malaya Medical Centre, between July and December 2024. Data collected included demographics, HIV-related parameters, clinical data for ASCVD risk stratification, laboratory results, and statin prescriptions. Dyslipidaemia and BMI were defined based on Malaysian Clinical Practice Guidelines. Women aged 40–75 years without prior cardiovascular events were stratified into low, low-intermediate, and high ASCVD risk categories. We assessed whether their prescribed statin type and dose aligned with the 2024 International Antiviral Society Guidelines. Descriptive statistical analyses were performed.

Results: A total of 169 women with HIV were included (median age 50 years [IQR: 44, 56]), with the majority being of Chinese ethnicity (47.9%), followed by Indians (23.7%), Malays (19.5%) and others (8.9%). The median duration since HIV diagnosis was 15 years [IQR: 8, 20], with 96.5% achieving viral suppression on antiretroviral therapy (ART). Dyslipidaemia was present in 116 women (68.6%), predominantly in those aged ≥40 years (n=102, 87.9%), a prevalence notably higher

than the national prevalence of 33.3% reported in the National Health and Morbidity Survey 2023. Many of these women remained on ART regimens associated with dyslipidaemia, including efavirenz (65.5%) and zidovudine/lamivudine (12.1%). More than half (60.3%) had a BMI classified as overweight (BMI >23.0). Among 128 women aged 40–75 years without prior cardiovascular events, 26 (20.3%) were classified as low-intermediate ASCVD risk and 4 (3.1%) as high risk. Of those in the low-intermediate group, 22 (84.6%) were on statins; however, only 6 (27.3%) received appropriate therapy. Among the 16 on inappropriate regimens, 13 received the correct statin type but incorrect dose (9 at excessive doses, 3 at suboptimal doses), while 3 were prescribed an incorrect statin. Among high-risk individuals, 2 were on statins, but both received suboptimal doses.

Conclusion: Dyslipidaemia was highly prevalent in this cohort, yet many remained on ART regimens known to contribute to lipid abnormalities. As these women age, prolonged HIV infection, ART exposure, and oestrogen loss further compound their cardiovascular risk. Despite this, statin therapy was frequently inappropriate, particularly in those at higher ASCVD risk. Optimizing lipid management in aging women with HIV is critical to reducing their long-term cardiovascular burden.

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Favorable Lipid Profile in People with HIV-1 Switching to Ainaovirine-Based Antiretroviral Regimen: Week 96 Results from SPRINT, a Randomized Phase 3 Trial

Ma P¹, Wu H², Zhang F³, Cai W⁴, Zhao Q⁵, Wei H⁶, Lu H⁷, Wang H⁷, He S⁸, Chen Z⁸, Chen Y⁹, Wang M¹⁰, Yun X¹¹, Fu H¹¹, Wang Y¹¹

¹Tianjin Second People's Hospital, Tianjin, China, ²Beijing Youan Hospital, Capital Medical University, Beijing, China, ³Beijing Ditan Hospital Capital Medical University, Beijing, China, ⁴Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China, ⁵The Sixth People's Hospital of Zhengzhou, Zhengzhou, China, ⁶The Second Hospital of Nanjing, Nanjing, China, ⁷Shenzhen Third People's Hospital, Shenzhen, China, ⁸Public Health Clinical Medical Center of Chengdu, Chengdu, China, ⁹Chongqing Public Health Medical Center, Chongqing, China, ¹⁰The First Hospital of Changsha, Changsha, China, ¹¹Jiangsu Aidea Pharmaceutical Co., Ltd, Yangzhou, China

Background: In the SPRINT study, switch to ainaovirine, a novel non-nucleoside reverse transcriptase inhibitor, combined with lamivudine and tenofovir DF (ANV/3TC/TDF), resulted in favorable changes in body weight and serum lipids, compared to that to cobicistat-boosted elvitegravir with emtricitabine and tenofovir alafenamide (E/C/F/TAF), in virologically suppressed (VS) people with HIV-1 (PWH). In the extensional study, PWH continued or switched to ANV/3TC/TDF until 96 weeks. This secondary analysis aimed to evaluate the lipid profile of PWH switching to ANV/3TC/TDF through 48 to 96 weeks.

Material and Methods: Out of 762 randomized participants, 376 participants originally assigned to ANV/3TC/TDF (376/381, 98.7%) and 371 participants originally to E/C/F/TAF (371/381, 97.4%) completed the extensional study, respectively. The safety outcomes of special interest were absolute changes from 48 wk in LDL-C, non-HDL-C, total cholesterol (TC), triglyceride (TG), and HDL-C at 72 and 96 wk. Dyslipidemia severity was evaluated using the atherosclerotic cardiovascular disease (ASCVD) risk stratification as per the primary prevention target for Chinese low-risk adults.

Results: Serum LDL-C remained unchanged in ANV/3TC/TDF arm from 48 wk, while a marked reduction was seen in E/C/F/TAF→ANV/3TC/TDF arm at both 72 wk (mean, -0.07 vs. -0.47 mmol/L) and 96 wk (0.01 vs. -0.37 mmol/L). Similar trends were seen in the changes in non-HDL-C, TC, and TG: 72 wk, -0.04 vs. -0.71 mmol/L, -0.06 vs. -0.87 mmol/L, and 0.06 vs. -0.79 mmol/L, respectively; 96 wk, 0.08 vs. -0.60 mmol/L, 0.05 vs. -0.77 mmol/L, and 0.09 vs. -0.85 mmol/L, respectively. Modest decline was not observed in ANV/3TC/TDF arm but E/C/F/TAF→ANV/3TC/TDF arm (72 wk, -0.02 vs. -0.16 mmol/L; 96 wk, -0.03 vs. -0.17 mmol/L). ASCVD risk-associated dyslipidemia stratifications showed comparable profiles between these two arms regarding LDL-C, non-HDL-C, TC, TG, an HDL-C. Marked improvement in LDL-C stratification was seen at both 72 wk and 96 wk for E/C/F/TAF→ANV/3TC/TDF arm.

Conclusion: Switch to ANV/3TC/TDF from E/C/F/TAF is favored for improved serum lipid profile and ASCVD risk-associated dyslipidemia in VS PWH.



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Factors Associated with Late Confirmation Among Individuals with Positive HIV Screening Test in a Medical Center in Taiwan

Tang Y¹, Lin Y¹, Li C²

¹Center of Infection Control, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan, ²Division of Infectious Diseases, Department of Internal Medicine, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan

Background: Timely confirmation of persons with positive HIV screening test followed by prompt linkage to care is a fundamental step to help end the HIV epidemic. This study aimed to evaluate factors associated with late confirmation among individuals with positive HIV screening test.

Methods: We analyzed the electronic health records at a tertiary medical center over a 5-year period, spanning from 2020 to 2024, to identify individuals whose initial fourth-generation HIV antigen/antibody screening was positive. Demographic characteristics, including age, gender, patient source, clinical indication for testing, final confirmation, days to confirmation, and the location of prescribed testing, were collected. The study population was divided into two groups: early confirmation, referring to the interval between the positive screening test and final confirmation being within 3 days, and late confirmation, wherein the duration was greater than 3 days. Multivariate analyses were conducted to evaluate factors associated with the two groups.

Results: A total of 330 individuals initially tested positive for HIV screening. Among them, 52 cases that had previously obtained the final status of HIV infection and 2 cases that did not undergo confirmatory testing were excluded, leaving 276 cases included in the final analysis. The median age of participants was 32 years (interquartile range: 26-41), with 250 (91%) of them being male. There were 74 (27%) false positives out of 276 results, whereas 19 out of 202 true-positive cases were found to reflect acute HIV infection. Of all,

143 (52%) underwent testing as part of routine or mandatory screenings, 71 (26%) for illness with infectious symptoms, 23 (8%) for illness without infectious symptoms, and 23 (8%) were tested due to evaluation for sexually transmitted diseases (STIs). There were 212 (77%) out of 276 tests prescribed in outpatient settings, 21 (8%) in the emergency department and 43 (16%) in inpatient settings. Among 276 participants, 221 (80%) received confirmation within 3 days, while 55 (20%) had late confirmation.

Multivariable analysis revealed that individuals tested for STIs were more likely to have late confirmation compared to those tested through routine or mandatory situations (adjusted odds ratio [aOR] 4.13, 95% confidence interval [95% CI] 1.61-10.78, $p=0.003$). Regarding the location of prescribed testing, individuals tested in inpatient settings were significantly more likely to experience late confirmation than those tested in outpatient departments (aOR 3.09, 95% CI 1.27-7.60, $p=0.013$). Furthermore, patients with false-positive results were significantly more likely to have late confirmation compared to those with true-positive results (aOR 6.00, 95% CI 2.87-13.33, $p<0.001$).

Conclusions: Over the five-year period, the majority of patients with positive HIV screening tests received final confirmation within 3 days. However, patients with STIs, tested in inpatient settings, and those with false-positive results experienced late confirmation. Late confirmation of HIV infection would cause delays in initiating treatment or increase anxiety during the waiting period. Utilizing up-to-date and precise confirmation methods could help streamline diagnostic efficacy and improve clinical processes. Also, implementing efficient testing protocols can also reduce unnecessary delays, ensuring that patients receive prompt and appropriate medical interventions.

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Risk of Hepatitis B Reactivation in People with Prior Hepatitis B Exposure Switched to Dolutegravir and Lamivudine for HIV-1 Treatment - A Single-Centre Retrospective Study

Sng E¹, Lee A¹, Ismail F¹, Lee W¹

¹Changi General Hospital, Singapore, Singapore

Background: Hepatitis B virus (HBV) reactivation has been reported in people with HIV and prior exposure to HBV (defined as positive hepatitis B core antibody, negative hepatitis B surface antigen and HBV DNA) when HBV-active agents are withdrawn from the anti-retroviral regimen [1, 2]. Since the SALSA and TANGO trials [3, 4], the two-drug regimen, dolutegravir and lamivudine (DTG/3TC), is increasingly in HIV-1 treatment. When tenofovir is discontinued, treatment guideline suggests that HBV reactivation should be monitored for [5], but the optimal monitoring strategy remains uncertain.

Methods: This single-centre retrospective study was conducted at Changi General Hospital, a 1000-bed tertiary hospital and HIV treatment centre in Singapore. Patients with prior HBV exposure who were switched from any regimens to DTG/3TC for HIV-1 treatment between February 2022 and November 2024 were identified through a review of the electronic medical records. Relevant clinical information was collected.

Results: Over the 34-month study period, 22 patients with prior HBV exposure were switched to DTG/3TC. The mean age of the patients was 54.0 years old (SD=15.6). All except one were male. Half (11/22, 50%) were switched from tenofovir-containing regimens, while the other half were switched abacavir-containing regimens. All patients were virologically-suppressed (defined as HIV-1 RNA <200 copies/ml) at time of switch. Just three out of the 22 patients had hepatitis B surface antibody (HBsAb) < 10 mIU/ml.

As of 19 Feb 2025, 21 of the 22 patients attended a follow-up visit and underwent laboratory tests as

per routine clinical practice after ARV switch. The mean duration of follow-up from time of switch was 12 months (SD=4.9). Serum transaminases were monitored for all patients, of which four patients had abnormal transaminases. HBV DNA were monitored in less than half (10/21, 47.6%) of the patients, while HBsAg were monitored in one-third (7/21, 33.3%) of the patients. There was no case of hepatitis B reactivation.

Conclusion: The monitoring strategy for HBV reactivation among virologically suppressed patients with prior HBV exposure who were switched to DTG/3TC for HIV-1 treatment differs between clinicians at our institution. The risk of HBV reactivation appears to be low. However, the majority of our patients have HBsAb > 10 mIU/ml, and HBV DNA monitoring was performed in less than half of the patients. As HBV reactivation may be asymptomatic, further study with systematic HBV DNA monitoring may more accurately assess the risk to guide clinical management.

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Patterns of Tobacco Exposure and Urine Cotinine Positivity Among People Living with HIV in Pune, India

Borse R¹, Nimkar S², Mundhe S¹, Salvi S¹, Surwase S², Zarekar K², Kulkarni V¹, Deshpande P¹, Lele G¹, Potphode V¹, Mave V^{1,3}, Marbaniang I^{1,4}

¹BJGMC Department of General Medicine, Pune, India, ²BJGMC - JHU CRS, Pune, India, ³Johns Hopkins University, Baltimore, USA, ⁴McGill University, Montreal, Canada

Background: Tobacco use is higher among people living with HIV (PLHIV) than in the general population, contributing to conditions like cardiovascular disease and cancer in this population. Most tobacco research on PLHIV focuses on smoking, yet in South Asia, tobacco exposure includes smoked (firsthand and secondhand [SHS]) and smokeless tobacco (SLT). Urine cotinine is often used to validate self-reported tobacco exposure, but over-reliance on biomarkers may assume self-reports are unreliable. In low-resource settings, these tests may be costly relative to other clinical priorities and of variable validity. We examined self-reported tobacco exposure, use patterns, and their association with urine cotinine positivity among PLHIV in Pune, India.

Materials and Methods: We analyzed baseline data from 638 PLHIV participants (January 2023–February 2025) in an ongoing lung health cohort study at BJ Government Medical College, with available urine cotinine measurements. Urine cotinine positivity (≥ 200 ng/mL) was assessed using a qualitative rapid assay (INSIGHT-COT, Tulip Diagnostics costing US\$2.31/test). Hierarchical clustering identified tobacco exposure patterns based on self-reported smoking (never, former, current), SLT (never, former, current), and SHS exposure (yes, no); a dendrogram guided cluster selection. Logistic regression was used to assess associations between clusters and cotinine positivity, adjusting for age, sex, socioeconomic indicators, depressive symptoms (PHQ-9), alcohol use, and CD4 count.

Results: Overall, the mean age was 45 years (SD:12); 51% (n=323) were cisgender women, and

40% (n=254) earned $\leq$ US\$114/month. Ten percent (n=66) were current smokers, 37% (n=236) were current SLT users, and 18% (n=113) reported SHS exposure. Hierarchical clustering identified four tobacco exposure patterns: Cluster1 (No Exposure) (n=255) included individuals with no smoking, SLT, or SHS exposure; Cluster2 (SLT Dominant) (n=159) included 79% current and 21% former SLT users with no smoking or SHS exposure; Cluster3 (High Dual Use) (n=78) included 36% current and 64% former smokers, along with 88% current and 12% former SLT users, with no SHS exposure; and Cluster4 (Mixed Use & SHS) (n=146) included individuals with SHS exposure, 26% current and 32% former smokers, and 28% current and 4% former SLT users. Relative to Cluster1 (reference), the adjusted odds ratios (OR) for urine cotinine positivity were 27.13 (95% CI: 15.14, 48.67) for Cluster2; 21.19 (95% CI: 9.50, 47.27) for Cluster3; and 6.65 (95% CI: 3.79, 11.69) for Cluster4.

Conclusion: Among PLHIV in Pune, SLT was the predominant form of tobacco exposure, with participants clustering into distinct patterns reflecting diverse tobacco exposure and use behaviors. Strong associations between clusters and cotinine positivity suggest self-reported tobacco exposures remain reliable. While cotinine testing may be useful in specific contexts, its routine use in resource-limited settings should be weighed against cost and necessity. The SLT Dominant and High Dual Use clusters had significantly greater odds of urine cotinine positivity relative to No Exposure, while the Mixed Use & SHS cluster, where direct tobacco exposures were lower, showed a weaker association. This suggests that SHS played a lesser role in cotinine positivity among PLHIV, though more sensitive assays or improved SHS measures may be needed.

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Diagnostic Specificity of Human Immunodeficiency Virus (HIV) Screening Immunoassays – HIV Duo and HIV Combi-PT

Gan A^{1,2}, Li B², Lee A², Teo H², Hawkins R²

¹Ministry Of Health Holdings, Singapore, Singapore, ²Tan Tock Seng Hospital, Singapore, Singapore

Introduction: High sensitivity and specificity are essential requirements for HIV screening. 4th generation immunoassays detect HIV-1 p24 antigen and HIV-1/2 antibodies. Our laboratory offers HIV screening for the Singapore National Centre for Infectious Disease, as well as our 2,000 bed inpatient and outpatient population. This study examined the diagnostic specificity of the HIV Duo assay (Roche cobas e801) with the HIV combi-PT assay (Roche cobas e601) presently used by our laboratory.

Methods: 51 serum samples received for HIV screening were tested using both assays. Samples were selected to represent cut-off indices (COI) across the measuring range, with a higher proportion in the grey zone/cutoff region for the HIV combi-PT assay. Results with COI <0.90 for HIV combi-PT or COI <1.00 for HIV Duo were considered to be non-reactive in line with manufacturer recommendations. All other samples underwent repeat duplicate testing after re-centrifugation for 10 minutes at 10,000g. Results were considered repeatedly reactive if ≥ 1 duplicate COI ≥ 0.90 on HIV combi-PT and were sent to the national HIV reference laboratory for confirmatory testing. The final confirmation results were compared against initial COI values and diagnostic specificity of the 2 screening assays calculated. For this purpose, cases were classified as either HIV negative (COI < above cutoffs or negative confirmation results) or HIV non-negative (confirmation results of positive, indeterminate or inconclusive). The practical impact of replacing the HIV combi-PT assay with the HIV Duo assay was modelled using local historical test volumes and COI results data. Statistical analysis was performed using Excel with Analyse-IT.

Results: Of the 51 samples, 16 samples tested non-reactive and 27 samples tested reactive on both HIV immunoassays. 8 remaining samples tested reactive on combi-PT but were non-reactive on Duo assay. These discordant results represent 73% of the samples with grey zone/cutoff COIs of 0.90-3.10 on the combi-PT assay. Of these 8 samples, 7 were HIV negative and 1 was indeterminate on confirmatory testing. Specificity estimates for the 2 assays were: HIV combi-PT 55% (95% confidence interval 38-72%); HIV Duo 79% (62-90%). Based on our historical data, of the >40,000 HIV screening tests performed from 2020-24, 351 samples required confirmatory testing. We estimate that the total volume of samples sent for confirmatory testing could be reduced by 15% (from 351 to 299).

Conclusions: The HIV Duo assay on Roche cobas e801 displayed superior specificity over the HIV combi-PT assay. The selection of borderline cases used in this study may underestimate diagnostic specificities of the 2 assays but nevertheless illustrate the difference in performance. Implementation of a higher specificity assay reduces unnecessary referral work for laboratory staff and shortens turnaround time of negative results, alleviating patient anxiety and providing earlier diagnostic clarity for clinicians.

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Efficacy, and Safety of AINUOVIRINE Plus Lamivudine, and Tenofovir DF in Middle-Aged People with HIV-1: Pooled Analyses of RACER, and SPRINT Studies, Two Randomized, Active-Controlled Phase 3 Trials

Chen Z¹, Wu H², Cai W³, Ma P⁴, Zhao Q⁵, Wei H⁶, Lu H⁷, Wang H⁸, He S⁹, Chen Y¹⁰, Wang M¹¹, Zhang F¹², Fu H¹³, Yun X¹³, Wang Y¹³

¹Drug Clinical Trial Institution, Public Health Clinical Medical Center of Chengdu, Chengdu, China, ²Clinical and Research Center for Infectious Diseases, Beijing Youan Hospital, Capital Medical University, Beijing, China, ³Infectious Disease Center, Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China, ⁴Department of Infectious Diseases, Tianjin Second People's Hospital, Tianjin, China, ⁵Department of Infectious Diseases, The Sixth People's Hospital of Zhengzhou, Zhengzhou, China, ⁶Department of Infectious Diseases, The Second Hospital of Nanjing, Nanjing, China, ⁷National Clinical Research Centre for Infectious Diseases, The Third People's Hospital of Shenzhen, The Second Affiliated Hospital of Southern University of Science and Technology, Shenzhen, China, ⁸Department of Infectious Diseases, Shenzhen Third People's Hospital, Shenzhen, China, ⁹Department of Infectious Diseases, Public Health Clinical Medical Center of Chengdu, Chengdu, China, ¹⁰Division of Infectious Diseases, Chongqing Public Health Medical Center, Chongqing, China, ¹¹Institute of HIV/AIDS, The First Hospital of Changsha, Changsha, China, ¹²Clinical and Research Center for Infectious Diseases, Beijing Ditan Hospital Capital Medical University, Beijing, China, ¹³Clinical Research & Development, Jiangsu Aidea Pharmaceutical Co., Ltd, Yangzhou, China

Background: People with human immunodeficiency virus type 1 (HIV-1; PWH) and aged 50 years or above are susceptible to cardiometabolic comorbidities, especially atherosclerotic cardiovascular disease. AINUOVIRINE (ANV) is a next-generation non-nucleoside reverse transcriptase inhibitor that has demonstrated non-inferior virological efficacy compared to efavirenz (EFV), and boosted elvitegravir (E/C) when combined with a dual-nucleoside reverse transcriptase inhibitor backbone. These efficacy results with an improved safety profile have been validated in randomized phase 3 trials among both treatment-naïve (TN), and virologically suppressed (VS) PWH. This study aims to evaluate the efficacy and safety of ANV-based antiretroviral (ARV)

regimens compared to approved active controls in middle-aged (50 to 65 years, inclusive) PWH (MPWH).

Material and Methods: In the RACER study, TN MPWH (N=39) were randomized to receive ANV (N=27) or EFV (N=12), both plus lamivudine (3TC), and tenofovir DF (TDF), for 48 weeks. In the SPRINT study, VS MPWH (N=48) were randomized to receive ANV plus 3TC-TDF (N=22) or E/C plus emtricitabine, and tenofovir alafenamide (E/C/F/TAF, N=26) for 48 weeks. The primary or key secondary efficacy endpoint was the proportion of participants with HIV-1 RNA titer below 50 copies/mL at week 48 in the intention-to-treat-exposed population as per the US FDA snapshot algorithm. Safety outcomes of primary interest included changes from baseline (CFBs) in body weight, fasting serum lipids, and estimated glomerular filtration rate (eGFR) at week 48, if applicable.

Results: The two arms were well balanced in demographic, and baseline characteristics for either subpopulation. At week 48, the proportions of participants with HIV-1 RNA titer below 50 copies/mL were statistically comparable between the two arms for both subpopulations. In both subpopulations, the increases in CD4 cell absolute count were similar between the two arms, with no statistically significant difference (mean±SEM, 128.9±64.9 vs. 130.9±79.0 cells/mm³, p=0.955; 17.2±73.0 vs. -7.4±69.8 cells/mm³, p=0.564). The safety, and tolerability profiles were also similar between the two arms for both subpopulations. Among VS MPWH, weight gain showed no statistically significant difference between the two arms (0.6±2.7 vs. 1.4±2.2 kg, p=0.230). In the TN subpopulation, LDL-C level in the ANV arm showed a significantly greater decline at week 48 (-0.40±0.13 vs. 0.43±0.14 mmol/L, p<0.001), and total cholesterol level was also significantly reduced in the ANV arm, in contrast to a marked increase observed in the EFV arm (-0.25±0.16 vs. 0.86±0.14 mmol/L, p<0.001). These differences were even more pronounced in the VS subpopulation: -0.23±0.24 vs. 0.39±0.27 mmol/L, p=0.001; -0.54±0.30 vs. 0.39±0.31 mmol/L, p<0.001. CFBs in eGFR (CKD-EPI) were similar between the two arms for both subpopulations, with clinically insignificant differences (-7.4±1.9 vs. -4.0±4.5 mL/min/1.73 m², p>0.05; and -1.7±3.1 vs. -2.7±3.4 mL/min/1.73 m², p>0.05).

Conclusions: ANV-based ARV regimen was comparable to approved active comparators in viral suppression for MPWH. The additional

benefits included pronounced lipid metabolism improvement in both TN, and VS subpopulations.

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Prevalence, Risk Factors and Outcomes Associated with Sarcopenia Among Aging People with HIV on Antiretroviral Therapy in Malaysia

Hisham S¹, Yap S¹, Loh J¹, Lim J¹, Ho W¹, Cheong J¹, Chong M^{1,2}, Wong P^{1,2}, Neelamegam M³, Rajasuriar R^{1,2}

¹Centre of Excellence for Research in AIDS (CERIA), Kuala Lumpur, Malaysia, ²Department of Medicine, Faculty of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia, ³Department of Population & Community Health, School of Public Health, The University of North Texas, North Texas, United States

Background: With the advancement of antiretroviral therapy (ART), life expectancy of people with HIV (PWH) approximates that of the general population. PWH experience an earlier onset of sarcopenia due to a combination of risks including aging, HIV-associated immune activation, ART toxicity and poor lifestyle. We aimed to explore the prevalence of sarcopenia among PWH on stable antiretroviral therapy and identify associated risk factors and health outcomes.

Materials and Methods: Participants were from the Malaysia HIV and Aging (MHIVA) cohort (wave 2: 2021-2023). PWH (n=213) were those attending routine HIV care in Universiti Malaya Medical Centre, Malaysia while HIV negative controls (n=106) were recruited from the community. The inclusion criteria were ≥35 years old, no acute illness at recruitment and on antiretroviral therapy for PWH. All participants underwent performance-based assessments, responded to validated questionnaires and provided blood samples for biochemical laboratory tests. Sarcopenia was defined as low muscle mass (bioimpedance measurement <7.0kg/m² for male and <5.7kg/m² for female), low muscle strength (grip strength <26kg for male and <18kg for female) and/or low physical performance (gait speed <0.8m/s). Health outcomes assessed included frailty (Frailty Phenotype), cognitive impairment (demographically adjusted MoCA score), mortality risk (VACS 2.0 Index), mental health (DASS21),

quality of life (CASP19) and functional impairment (WHODAS 2.0). Multivariate logistic regression (forward method) was used to identify the risk factors associated with sarcopenia while health outcomes associated with sarcopenia were assessed using linear regression.

Results: The median age in both PWH and HIV-groups were 51 years (IQR: 44-47 in PWH and 39-49 in controls). There was a higher prevalence of sarcopenia in PWH vs controls (6.6% vs 1.9%, p=0.071). Compared to PWH without sarcopenia, PWH with sarcopenia had poorer nutritional status (p<0.001), lower body mass index (BMI) (p<0.001), lower lean and muscle mass (p<0.001), higher fat mass (p=0.017), lower haemoglobin (p=0.004), higher high-density lipoprotein (HDL) (p=0.004) and lower total protein (p=0.007). After adjusting for covariates significant in univariate analysis (age, gender, employment status, alcohol intake, nutrition status, whole skeletal muscle mass, fat mass, hyperlipidemia status, haemoglobin level, HDL, albumin level and inflammatory markers such as sCD163 and sCD14), risk factors independently associated with sarcopenia in PWH were low BMI (OR: 0.55, 95% CI: 0.37-0.82, p=0.003), low lean body mass (OR: 0.90, 95% CI: 0.82-0.99, p=0.035) and low total protein (OR: 0.85, 95% CI: 0.74-0.97, p=0.016). Sarcopenia were also associated with poorer health outcomes including frailty (B=0.704, p=0.014) and mortality risk (VACS 2.0 score) (B=16.932, p<0.001) but not with cognitive impairment, quality of life, mental health status and functional ability.

Conclusions: Despite well-controlled HIV, sarcopenia was more common among PWH compared to age-matched controls. Good nutrition and regular exercise are important to optimize physical health and potentially slow the progression of sarcopenia in PWH as they age to improve their health span.

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Comparison of Dolutegravir+ Lamivudine and Bictegravir/Emtricitabine/Tenofovir Application of Alafenamide in Antiretroviral Therapy: A Preliminary Study on the Elderly Patients with HIV Infection Results of Clinical Practice

Ma S¹¹Hospital, Guiyang, 中国

Background: The efficacy and safety of bictegravir/emtricitabine/tenofovir alafenamide (BIC/FTC/TAF) and dolutegravir+lamivudine (DTG + 3TC) have been well-established in clinical trials for treatment-naïve people living with HIV (PLWH). However, real-world data, particularly in older adults aged 50 years and above, remain limited. This population often presents with unique challenges, including comorbidities, polypharmacy, and age-related physiological changes, which may influence treatment outcomes. Therefore, we aimed to compare the virological efficacy, safety, and metabolic outcomes of BIC/FTC/TAF and DTG + 3TC in this demographic.

Research Design and Methods: We conducted a retrospective cohort analysis of PLWH aged 50 years and older who were naïve to antiretroviral therapy and initiated treatment with either BIC/FTC/TAF or DTG + 3TC between January 2020 and March 2022. Virological effectiveness was defined as achieving viral suppression (viral load < 50 copies/mL) at 48 weeks. Additionally, we evaluated changes in immunological markers (CD4+ T-cell counts), metabolic parameters (lipid profiles, glucose levels), and renal and hepatic function after 48 weeks of treatment. Safety profiles, including adverse events and weight changes, were also assessed.

Results: In this study, a total of 290 elderly patients meeting the inclusion and exclusion criteria were enrolled in a 1:1 ratio, with 145 patients in each treatment group. At week 48,

both treatment regimens demonstrated high rates of viral suppression. In the BIC/FTC/TAF group, 90.3% (131/145) of patients achieved viral suppression, compared to 93.7% (136/145) in the DTG+3TC group ($P > 0.05$). There was no significant difference in CD4+ T-cell count recovery between the two groups. CD4+ T-cell counts increased significantly from baseline by 102.0 cells in the BIC/FTC/TAF group and 97.0 cells in the DTG+3TC group. Metabolic parameters, including liver function and glucose levels, remained stable in both cohorts, with no clinically significant changes. Regarding renal parameters and lipid metabolism, serum creatinine levels increased by 13.0 $\mu\text{mol/L}$ in the BIC/FTC/TAF group, and an increase in high-density lipoprotein (HDL) was observed in both treatment groups, with no statistically significant differences between the groups ($P > 0.05$). However, patients in the BIC/FTC/TAF group experienced a greater mean weight gain of 4.0 kg compared to 2.0 kg in the DTG+3TC group ($P > 0.05$). Adverse events were rare in both treatment groups, and no treatment discontinuations due to toxicity were reported.

Conclusions: Both BIC/FTC/TAF and DTG+3TC demonstrated high virological efficacy and tolerability in treatment-naïve PLWH aged 50 years and older. While no significant differences were observed in immunological, metabolic, or organ function outcomes, BIC/FTC/TAF was associated with greater weight gain, which may be a consideration for older adults at risk of metabolic syndrome or cardiovascular disease. Further research is needed to explore the long-term implications of weight gain and its impact on overall health in this population. These findings support the use of both regimens as effective first-line therapies for older adults living with HIV, with individualized treatment decisions based on patient-specific factors.

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Prevalence of Menopausal Symptoms and Gaps in Care Engagement Among Women with HIV: A Cross-Sectional Study in a Malaysian Tertiary Hospital

Cheong T¹, Kukreja A², Lee H¹, Damodaran P³, Woo Y⁴, Rajasuriar R²

¹Department of Clinical Pharmacy & Pharmacy Practice, Faculty of Pharmacy, Universiti Malaya, Kuala Lumpur, Malaysia,

²Department of Medicine, Faculty of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia, ³Pantai Hospital Kuala Lumpur, Kuala Lumpur, Malaysia, ⁴Department of Obstetric and Gynaecology, Faculty of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia

Background: Advances in antiretroviral therapy have led to increased life expectancy and a growing population of women with HIV (WWH) reaching midlife. Consequently, many WWH are encountering age-related comorbidities and menopause. Despite evidence suggesting early menopause in WWH, data on menopausal symptoms and care engagement remain limited in Malaysia. This study aims to explore the prevalence of menopausal symptoms, menopausal care engagement and treatment among women undergoing routine HIV care at Universiti Malaya Medical Centre (UMMC), Malaysia.

Method: A cross-sectional study was conducted among WWH attending the Infectious Disease Clinic at UMMC. Eligible participants were aged 35-60 years, while those with surgical menopause, recent pregnancy or breastfeeding (≤ 12 months), or recent chemotherapy/radiotherapy (≤ 6 months) were excluded. Data on sociodemographics, menopausal symptoms, sources of menopause-related information and management strategies were collected via questionnaires. Menopausal status was self-reported using STRAW+10 criteria: pre-menopause (regular cycles), perimenopause (irregular cycles with ≥ 2 skipped or ≥ 60 -day gaps), and menopause (no menstruation for ≥ 12 months). Menopausal symptoms were assessed using the 11-item Menopause Rating Scale (MRS), which evaluates somatic, psychological, and urogenital symptoms on a 0–4 Likert scale, with severity categorized as 'no/few', 'mild', 'moderate'

or 'severe'. Participant medical records were reviewed for HIV-related clinical data and documentation of menopausal care engagement or treatment. Descriptive statistics and comparative analyses were performed using SPSS version 26.

Results: A total of 40 WWH were recruited over six months, representing 27.8% of study eligible women attending the HIV clinic. The median age was 46.5 years (IQR: 42.3–51.8), with the majority being ethnic Chinese (42.5%), followed by Malay (32.5%) and Indian (10.0%). The median duration since HIV diagnosis was 14.1 years and 95.0% achieved viral suppression on ART (<200 copies/ml).

In terms of menopausal stage, 50.0% were premenopausal, 30.0% perimenopausal and 20.0% postmenopausal. Menopausal symptoms were reported by 75.0% of participants, ranging from mild to severe. The most prevalent menopausal symptoms were physical and mental exhaustion (75.0%), joint pain (57.5%) and sleep disturbance (57.5%). Perimenopausal women reported significantly higher prevalence of somatic symptoms compared to premenopausal women (83.3% vs 35.0%, $p=0.005$). Urogenital symptoms were also common, with 66.7% of perimenopausal women reporting urinary complaints. Despite the high prevalence of symptoms, menopausal care engagement was suboptimal. Only 25.0% of participants discussed menopausal symptoms with their HIV care providers. While 40% sought information about managing symptoms, most relied on online resources (55.0%) and family/friends (35.0%), rather than healthcare providers (25.0%). Menopausal hormone therapy (MHT) use was low (5.0%), with lifestyle modifications being the preferred management strategy (30.0%), including dietary changes (50.0%), exercise (25.0%) and other approaches.

Conclusion: This ongoing study highlights significant gaps in menopausal care among WWH attending routine HIV services at UMMC. Despite experiencing a high prevalence of menopausal symptoms, many WWH sought information from non-expert sources rather than healthcare providers. The integration of menopausal care into routine HIV services could potentially address these gaps and should be explored in future studies.

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Building Capacity for HIV and Aging Care in the Asia-Pacific: Lessons Learned from Project ECHO: Age Positively

Chong N^{1,2,3}, Wong P^{1,3}, Rajasuriar R^{1,3}, Hamzah Anwar J¹, Hasmukharay K³, Chung-Yan Lui G⁴, Hoy J⁵

¹Center of Excellence for Research In Infectious Diseases and AIDS (CERIA), Kuala Lumpur, Malaysia, ²Kirby Institute, University of New South Wales, Sydney, Australia, ³Department of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia, ⁴Department of Medicine & Therapeutics, The Chinese University of Hong Kong, Hong Kong, Hong Kong, ⁵Monash University, Melbourne, Australia

Background: Older people with HIV (PWH) are disproportionately affected by an earlier onset of functional decline, and increased burden of comorbidities, compared to individuals without HIV. Yet, in the Asia-Pacific region, where 30% of PWH are predicted to be over 50 years old, expertise in managing HIV and aging-related conditions is lacking. We piloted a tele-training program, Project ECHO: Age Positively aimed to strengthen and build a regional network of HIV and aging care expertise in the Asia-Pacific.

Description: Project ECHO (Extension for Community Healthcare Outcomes) is a structured program that connects non-specialist clinicians with specialists encouraging the sharing of best evidence-based practices to improve patient care. We appointed a team of specialists from clinical and paraclinical disciplines in aging care. Specialists (n=12) include physicians (infectious diseases, geriatrics, rehabilitation medicine, primary care), psychologists, pharmacist, a nurse practitioner, and a physiotherapist from Malaysia, Hong Kong, Australia, Thailand and Singapore. The training, which is planned to run for a year, commenced in September 2024, with monthly sessions lasting 1.5 hours. Each session consists of a didactic lecture (focused on common geriatric concepts in HIV) from an invited expert in the field and a clinical case discussion. We promoted the program through existing HIV networks in the region. We evaluated the acceptability, feasibility, and appropriateness as well as the preliminary impacts of the training at midline.

Lessons learned: To date, we received 452 registrations, spanning 20 countries. Of these, 242 (73.56%) are from low- and middle-income countries, including Thailand, the Philippines, Malaysia, Kenya, and Botswana, while high-income country participants are from Hong Kong, Taiwan, Australia, and Singapore. 331 participants have access to the resources on our learning platform, while we have 187 active participants cumulatively. Our participants range from healthcare providers (clinicians, allied health workers, clinical administrators) to community members who provide care for older PWH. In the midline report (43 responses, with a maximum score of 5 per domain), the acceptability, appropriateness and feasibility scores were 4.30, 4.20 and 3.62 respectively. Each session had 70 attendees on average, excluding the specialists. Post-session feedback from six sessions showed that 88.85% found the content relevant to their practice, and 90.66% found it applicable to multidisciplinary teamwork.

Delivering a program of this scale required building new and leveraging existing regional networks, particularly key opinion leaders and organizations with broad local reach. With participants from multiple countries and backgrounds, addressing individual learning needs, competing priorities, and timing preferences was difficult. Although few participants volunteered to present cases for discussion, discussions were engaging and often required more time due to the complexity of the issues raised. To encourage ongoing participation, we regularly promoted the program, which can be resource-intensive.

Conclusion/next steps: Midline assessments suggest there is a growing interest in learning more about care for older PWH and that the program is acceptable and appropriate for our participants, but there may be challenges in feasibility. Future training programs could benefit from offering self-paced modules with diverse content formats, including recorded lectures and interactive learning tools.

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Breaking Barriers: Evaluating Online vs. Onsite HIV Pre-Test Counseling in Enhancing ART Uptake and Retention in Care

Pondet C¹, Pipattaweepon T¹, Suksom C¹, Manmon E¹, Leabchan T¹, Tantawichien T¹, Putcharoen O^{1,2,3}, Chumpa N²

¹Thai Red Cross Aids And Infectious Diseases Research Centre (anonymous Clinic), Bangkok, Thailand, ²Thai Red Cross Emerging Infectious Diseases Clinical Center, King Chulalongkorn Memorial Hospital, Bangkok, Thailand, ³Division of Infectious Diseases, Department of Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: Pre-test HIV counseling plays a crucial role in linking newly diagnosed individuals to care. While traditional onsite counseling ensures direct engagement, online pre-test counseling offers a scalable, time-efficient alternative, particularly in resource-limited settings. The analysis of the data aims to address concerns about the lack of expert counseling and demonstrate the potential for developing innovative tools and improving the effectiveness of counseling methods. This study evaluates the effectiveness of online versus onsite pre-test counseling in facilitating ART initiation and long-term retention among newly diagnosed individuals at the Anonymous Clinic, Thai Red Cross.

Methods: A retrospective observational study (2022–2024) compared outcomes between individuals who underwent online (self-guided) vs. onsite (counselor-led) pre-test counseling before HIV testing. Key outcomes included post-test counseling attendance, ART initiation, loss to follow-up, and viral load suppression at 12 months. Statistical analyses were performed to assess differences between groups.

Results: Among 2,338 newly diagnosed individuals, The cohort included 1,994 males and 344 females, with a median age of 32 years for both genders, 403 (17.2%) received online pre-test counseling, while 1,935 (82.8%) underwent onsite counseling. No significant difference was observed in ART initiation rates (339/403)84.1% online vs. 1,694/1,935 87.6% onsite, $P = 0.063$). However, the online group had a lower rate of post-test counseling non-attendance (38/403) 9.4% vs.

(252/1,935)13.0%, $P = 0.046$), suggesting potential benefits in reducing dropouts. At 12 months, viral load suppression was significantly lower in the online group (69.6% vs. 75.8%, $P = 0.029$).

Conclusion: Online pre-test counseling is a viable alternative to onsite counseling, with comparable ART initiation rates and fewer post-test dropouts. However, lower viral suppression in the online group highlights potential adherence challenges. Strengthening online counseling with enhanced follow-up and support mechanisms could optimize long-term outcomes. Future strategies should integrate digital support tools to improve retention and adherence among PLWH opting for online counseling.

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Association Between Menopausal Symptoms, Quality of Life, and Social Support in Women with HIV: A Cross-Sectional Study in a Malaysian Tertiary Hospital

Cheong T¹, Kukreja A², Lee H¹, Damodaran P³, Woo Y⁴, Rajasuriar R²

¹Department of Clinical Pharmacy & Pharmacy Practice, Faculty of Pharmacy, Universiti Malaya, Kuala Lumpur, Malaysia,

²Department of Medicine, Faculty of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia, ³Pantai Hospital Kuala Lumpur, Kuala Lumpur, Malaysia, ⁴Department of Obstetric and Gynaecology, Faculty of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia

Background: Menopause is a significant transition phase in a woman's life, often accompanied by symptoms that can impact quality of life (QoL). However, there is limited understanding of how menopause impacts QoL among women with HIV (WWH) in Malaysia. This study explores the prevalence of menopausal symptoms and their association with QoL and social support in WWH at Universiti Malaya Medical Centre (UMMC), Malaysia.

Method: A cross-sectional study was conducted among WWH aged 35-60 years attending the Infectious Disease Clinic at UMMC. Individuals with surgical menopause, recent pregnancy or breastfeeding (≤ 12 months), or recent chemotherapy/radiotherapy (≤ 6 months) were excluded. Standardized questionnaires were used to collect data on sociodemographic, menopausal symptoms (Menopause Rating Scale, MRS), QoL (WHOQOL-BREF) and social support (8-item Medical Outcome Study-Social Support Study, MOS-SSS). Menopausal status was self-reported using STRAW +10 criteria: pre-menopause (regular cycles), perimenopause (irregular cycles with ≥ 2 skipped or ≥ 60 -day gaps), and menopause (no menstruation for ≥ 12 months). The 11-item Menopause Rating Scale (MRS) evaluates somatic, psychological, and urogenital symptoms on a 0-4 Likert scale, with severity categorized as 'no/few', 'mild', 'moderate' or 'severe'. The WHOQOL-BREF evaluates quality of life across four domains: physical health, mental health, social relationships

and environment, on a scale from 0-100. Emotional and instrumental social support was measured using MOS-SSS, on a scale from 0-100, with higher scores denoting better social support. Descriptive statistics and comparative analyses were performed using SPSS version 26.

Results: A total of 40 WWH were recruited over six months, representing 27.8% of study eligible women attending the HIV clinic. The median age was 46.5 years (IQR: 42.3-51.8), with 50.0% premenopausal, 30.0% perimenopausal and 20.0% postmenopausal.

The most prevalent menopausal symptoms were physical and mental exhaustion (75.0%), joint pain (57.5%) and sleep disturbance (57.5%). Perimenopausal women reported significantly higher prevalence of somatic symptoms than premenopausal women (83.3% vs 35.0%, $p=0.005$). Overall QoL scores were highest in premenopausal women (median: 80.0) compared to perimenopausal (70.0) and postmenopausal women (70.0), ($p=0.300$). Significant differences in QoL scores were observed in the domains of environment across menopausal stages ($p=0.041$), with premenopausal women reporting the highest scores (75.0) and postmenopausal women the lowest (59.5). WWH reporting moderate to severe symptoms also had significantly lower QoL scores compared to those with no or mild symptoms, particularly in physical ($p=0.044$) and psychological ($p=0.039$) domains.

Social support scores varied, with perimenopausal WWH having the lowest median overall score (54.7) compared to premenopausal (62.5) and postmenopausal (87.5) women. QoL scores were better among premenopausal women with better social support ($r=0.489$, $p=0.029$), but this was not observed among perimenopausal ($r=-0.035$, $p=0.913$) or postmenopausal women ($r=0.246$, $p=0.558$).

Conclusion: Menopausal symptoms are highly prevalent among WWH and significantly associated with poorer QoL. Routine screening for menopausal symptoms should be incorporated into HIV care to ensure timely identification and needed support. Further research is needed to explore effective strategies to improve the well-being of WWH during menopause.

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Predicted Additional Life Expectancy of Youth with Perinatally Acquired HIV in Thailand

Teeraananchai S^{1,2}, Kerr S^{3,4,5}, Puthanakit T⁶, Chottanapund S⁷, Suwanlerk T⁸, Sohn A⁸

¹Department of Statistics, Faculty of Science, Kasetsart University, Bangkok, Thailand, ²Master of Biomedical Data Science Program, Faculty of Science, Bangkok, Thailand, ³HIV-NAT, Thai Red Cross AIDS Research Centre, Bangkok, Thailand, ⁴Biostatistics Excellence Centre, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ⁵Kirby Institute, University of New South Wales, Sydney, Australia, ⁶Department of Pediatrics, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ⁷Bureau of AIDS and STIs, Department of Disease Control, Ministry of Public Health, Nonthaburi, Thailand, ⁸TREAT Asia/amfAR – The Foundation for AIDS Research, Bangkok, Thailand

Background: Despite advancements in antiretroviral therapy (ART) and care, the estimated life expectancy (LE) of Thai youth with perinatally acquired HIV (PHIV) who survived to 18 years remains uncertain. We aimed to predict their additional LE beyond age 18 years using the Thai National AIDS Program (NAP) database.

Material and Methods: Thai children living with HIV who initiated ART from 2008 onwards when aged <15 years, survived to at least 18 years of age, and were followed under the NAP were included. Updated data were available until August 2024. Vital status was confirmed through contemporaneous linkage with the national death registry. Additional LE was defined as the average years of life from age 18 and compared to LE of the general Thai population. Flexible parametric survival models were used to estimate additional LE adjusting for period of ART initiation (2008–2013, 2014 onwards), sex, and CD4 cell count and HIV viral load (VL) at age 18, as well as assess factors associated with mortality.

Results: A total of 2,917 youth with PHIV were included; 1,695 (58%) were female, median current age was 22 years (IQR 20–25), and median lifetime ART duration was 12.7 years (IQR 9.6–14.8). Fourteen percent died from age 18 to the end of data collection, representing a crude mortality of 2.9 (95%CI 2.6–3.2) per 100 person-years. At age 18, the median CD4 count was 513

cells/mm³ (IQR 288–697), and 68% (1432/2108 tested) had a VL <50 copies/mL. Overall, youth with PHIV at age 18 had a projected additional LE of 37.0 years (95% CI 28.3–45.7); females 37.6 years (95% CI 29.0–45.3), males 36.2 years (95% CI 27.1–45.3). After adjusting for the period of ART initiation, additional LE increased from 31.7 years (95% CI 23.1–40.2) for those initiating ART between 2008–2013 to 36.8 years (95% CI 27.4–46.2) for those starting ART from 2014. After adjusting for sex and period of ART initiation, predicted additional LE for youth with PHIV with a CD4 count ≥350 cells/mm³ at age 18 was 47.5 years (95%CI 42.1–52.9) and 20.4 years (95%CI 10.5–30.3) for those with CD4 count <350 cells/mm³. When adjusted by sex and period of ART initiation, additional LE for youth with a VL <50 copies/mL at age 18 was 48.3 years (95%CI 43.3–53.3) and 24.3 years (95%CI 13.9–34.7) for those with VL ≥50 copies/mL (Figure). Among Thai youth in the general population, the estimated additional LE at age 18 was 63.7 years (95% CI 63.5–63.9). In a multivariable model, PHIV youth with CD4 count <350 cells/mm³, VL ≥50 copies/mL, and opportunistic infections at age 18 were at highest mortality risk.

Conclusions: Projected differences in additional LE at age 18 among Thai youth with PHIV versus the general population were narrower among those who had higher CD4 counts or suppressed VL. Efforts to enhance HIV care throughout the life course are essential to improve LE of children and youth with PHIV in Thailand.

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High Rates of Syphilis Infection and Re-Infection Among Adolescent Men Who Have Sex with Men Attending a Sexual Health Clinic in Thailand

Assavavongwaikit P¹, Prueksakaew K², Seesuksai J^{2,3}, Khamthi S², Moonwong J², Songtaweessin W^{2,4}, Puthanakit T^{1,2}

¹Department Of Pediatrics, Faculty Of Medicine, Chulalongkorn University, Bangkok, Thailand, ²Center of Excellence for Pediatric Infectious Diseases and Vaccines, Bangkok, Thailand, ³King Chulalongkorn Memorial hospital, The Thai Red Cross Society, Bangkok, Thailand, ⁴School of Global Health, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: Globally, the prevalence of syphilis is increasing among adolescents and young adults (AYA). Syphilis is associated with increased risk of HIV acquisition. Concurrently, HIV co-infection can alter syphilis manifestations and complicate syphilis management. This study aimed to find the prevalence of syphilis infection and re-infection among AYA in Thailand.

Material and Methods: A retrospective study was conducted in AYA aged 15-24 years attending an adolescent-focused sexual health clinic in Bangkok between January 2022 to December 2024. Syphilis was tested using either a treponemal test; electrochemiluminescence assay, or point-of-care Bioline™ HIV/syphilis combo test at first visit and every 6 months thereafter as per Thai National HIV and STDs Guidelines. Symptoms of sexually transmitted diseases (STDs) were collected at all visits and routine screening every 6 months. Rapid Plasma Reagin (RPR) was used for staging of syphilis (primary, secondary, early, and latent syphilis). Early latent syphilis was defined as infection within 1 year or syphilis with RPR titer >1:32). Response to treatment defined as > 4-fold decline of RPR titer after 6 months of treatment. Endpoints included prevalence of syphilis and incidence rate of syphilis re-infection.

Results: There were 753 AYA clients (54% HIV PrEP users, 22% STI services, 24% living with HIV,) included in this analysis. Among the 50 clients who were diagnosed with syphilis infection, median (IQR) age was 20.8 (18.3 to 22.8) years, and most

were men who have sex with men (88%). Overall syphilis prevalence was 6.6% (95% CI 5.0 to 8.7). The lowest prevalence was among PrEP users (4.0%), compared with clients attending STD services (8.2%) and AYA living with HIV (11.1%) respectively ($p=0.004$). Among the 66 with a first diagnosis HIV infection in the clinic, prevalence of syphilis co-infection is as high as 13.6% (95% CI 5.3 to 21.9). Syphilis staging included 5 primary, 8 secondary, 11 early latent and 26 late latent. Forty-one clients with syphilis infection had documented treatment response within 6 months, 9 clients were lost to follow-up. During follow-up, 11 (27%) had reinfection, with an incidence of 17.8 per 100-person years (95% CI 14.2 to 42.9); presenting as secondary syphilis (N=3) and latent syphilis (N=8).

Conclusions: We observed the lowest prevalence of syphilis among clients taking HIV PrEP compared with AYA living with HIV, possibly reflecting effective behavioral interventions. One-fourth of clients had subsequent syphilis re-infection, perhaps by low coverage of condom use and expedited partner treatment. Routine syphilis screening in sexual health clinics is important to early detection and prompt treatment.

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Effects of Music and Counseling Programs on Mental Health and Antiretroviral Treatment Adherence of Adolescents and Young Adults Living with HIV in Northern Thailand

Khamrong C^{1,2}, Aupibul L², Kosashunhanan N^{1,2}, Klaphajone J³, Teerapong T⁴, Kotchawat K⁵, Khamrong N⁶, Thammalangka R², Maneerat N²

¹School of Health Sciences Research, Research Institute For Health Sciences, Chiang Mai University, Muang, Thailand,

²Research Institute For Health Sciences, Chiang Mai University, Muang, Thailand, ³Department of Rehabilitation Medicine, Faculty of Medicine, Chiang Mai University, Muang, Thailand,

⁴Department of Psychology, Faculty of Humanities, Chiang Mai University, Muang, Thailand, ⁵Embrace Counseling Service & Psychological, Muang, Thailand, ⁶Western music department, Faculty of Architecture and Fine Art, University of Phayao, Muang, Thailand

Background: Mental health is a significant health determinant in adolescents and young adult with perinatal HIV (AYA-PHIV) in Thailand. It was associated with antiretroviral treatment (ART) adherence and always challenging to healthcare providers to detect and manage. This study investigated the effects of music and counseling programs on mental health and antiretroviral treatment adherence of AYA-PHIV in Northern Thailand.

Methods: This randomized controlled study was conducted at Chiang Mai University from July 2023 to June 2024. Inclusion criteria were 1) age between 15-24 years, 2) documented perinatal HIV infection, 3) receiving ART and willing to join the study. Participants were recruited from HIV clinics in Chiang Mai and neighboring provinces. They underwent mental health screening and HIV-1 RNA testing. Twenty-four AYA-PHIV were randomly selected from the mental health scores and viral load (VL) testing and stratified into 4 groups of six participants. Arm 1: Integrated Music and Counseling Program, Arm 2: Music Program, Arm 3: Counseling Program, and Arm 4: Control. The study interventions were conducted by trained psychological counselors using Trotzer's concept group counseling, and a university music

instructor. It composed of 10 weekly sessions of 90-minute long. ART adherence and mental health questionnaires (Depression Anxiety Stress Scale (DASS-21), Self-esteem scale -10 (SES-10), Thai Internalized HIV-related Stigma Scale (Thai-IHSS) were completed before and after the end of the study intervention. Saliva samples for cortisol hormone testing and hair samples for hair Dolutegravir (DTG) concentration were collected.

Results: Of the 57 APHIV enrolled, 18 (31.6%) were male, 9 (15.8%) were university-graduated, 24 (42.1%) was studying, and 24 (42.1%) were working. Their mean age was 20.96 years (SD=2.34). Twenty-four participants (42.1%) were virologic suppressed (VL < 50 copies/mL). We found that 21.1%, 31.6% and 7.0% of participants had mild to moderate depressive symptoms, anxiety, and stress, respectively. Low self-esteem was evidenced in 43 (75.44%), and high level of HIV-related stigma was seen in 38 (66.67%). APHIV with virologic non-suppression had a significantly higher mean HIV-related stigma score than those with virologic suppression (33.20 vs. 23.23, $p < 0.01$), but no difference in the demographic characteristics, depression, anxiety, stress, and self-esteem scores. APHIV in Arm 1 had significantly higher median scores on self-esteem after the experiment (17 vs. 25, $p = 0.05$). After the intervention, a significantly decrease in mean Thai-IHSS scores were observed in Arm 1 and 3, and a significantly increase mean DTG hair level was observed in Arm 3. All three arms had significantly increased VL at the end of the study, while no significant change in depression, anxiety, saliva cortisol level, and CD4 were observed.

Conclusions: This study demonstrated that the music and/or counseling program could increase self-esteem and decrease HIV-related stigma in AYA-PHIV. The group counseling program could decrease HIV-related stigma, increase the feelings of security, safety, and self-acceptance. Both integrated music and group counseling and group counseling only led to decreased depression, anxiety, and stress; and increased self-esteem.

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A Cost-Utility Analysis of an Integrated Mental Health Collaborative Care Model for Adolescents and Young Adults Living with HIV or at Risk of HIV in Thailand

Thomas F^{1,2}, Songtaweasin W^{1,2}, Laohavinij W^{3,4}, Witvorapong N⁵, Saisaengjan C¹, Wongharn P¹, Thisayakorn P⁶, Assawamasbunlue N¹, Puthanakit T¹

¹Center of Excellence for Pediatric Infectious Diseases and Vaccines, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ²School of Global Health, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ³Department of Preventive and Social Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ⁴Department of Data and Digital Resource, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ⁵Center of Excellence for Health Economics, Faculty of Economics, Chulalongkorn University, Bangkok, Thailand, ⁶Department of Psychiatry, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: Mental health disorders (MHDs) are common amongst youth affected by HIV and are associated with poor clinical outcomes. Integrating psychological support into HIV services can improve access to mental healthcare and is a UNAIDS priority action. The collaborative care model (CoCM) is a form of integrated care whereby non-specialists are guided by psychiatrists to deliver referral-level services. We conducted a cost-utility analysis of a CoCM versus standard care (i.e., referral directly to a psychiatrist) for adolescents and young adults (AYA) affected by HIV and with coexisting mental health issues who were under the care of a youth sexual health clinic at King Chulalongkorn Memorial Hospital (KCMH) in Bangkok, Thailand.

Methods: Data were collected from clients aged 15-24 years living with or at risk of HIV, who were managed for depression, anxiety or mixed anxiety-depressive disorder using either CoCM or standard care (SC). Resource use and mental health severity data (PHQ-9, GAD-7, and Clinical Global Impression-Severity scores) were collected from the medical records over 12 months, starting at the point of MHD diagnosis. Unit costs sourced from KCMH and the Thai Health Intervention and

Technology Assessment Programme (HITAP) were used to convert resource use data into healthcare provider costs (labour, medication, and training), patient out-of-pocket expenditures (transport, food, and private healthcare), and opportunity costs of time. All costs were expressed in 2023 United States dollars (US\$). MHD severity data were converted to utility weights used to calculate quality-adjusted life years (QALYs) using age- and sex-specific 'Recovering Quality of Life-Utility Index' (ReQoL-UI) and 'Euroqol 5-Dimension 5-Level' (EQ-5D-5L) mapping models. Statistical analyses were conducted using Stata.

Results: Data from 63 AYA were analysed: 36 from CoCM (diagnosed with a MHD between 2020 and 2023) and 27 from SC (diagnosed between 2016 and 2020). Clients whose MHD was diagnosed elsewhere, or whose diagnosis or diagnostic date were uncertain, were excluded. Fifty-seven percent of clients included identified as men who have sex with men, and 63% were diagnosed with depression. Median ages were 21 years (range: 16-24) for CoCM and 19 (15-23) for SC. The cohorts were matched for gender identity, key population group, MHD type, and baseline utility weight at MHD diagnosis. CoCM cost significantly less per patient per year than SC: US\$142 (95% CI: US\$70-215) less from the provider perspective, US\$41 (US\$23-60) less from the patient perspective, and US\$318 (US\$87-550) less from the societal perspective ($P < 0.01$). Both CoCM and SC were associated with a statistically significant mean QALY gain per client: 12% and 8% respectively using ReQoL-UI-based weights, and 14% and 10% using EQ-5D-5L weights ($P < 0.001$). There were no statistically significant differences in QALY gains between arms.

Conclusions: CoCM was less costly and at least as clinically effective as SC in our context, suggesting that CoCM would be a cost-effective way for the Thai health system to provide mental healthcare to youth living with or at risk of HIV.



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Health-Related Quality of Life Outcomes in Hospitalized Patients with Advanced HIV Disease: A Multi-Center Longitudinal Prospective Study in Vietnam.

Trinh Thi M¹, Nguyen Hong K¹, Phan Thi Hong D¹, Nguyen Quang D¹, Ha Xuan N¹, Nguyen Thi H¹, Vo Trieu L^{2,3}, Nguyen Thanh D², Pham Ngoc T⁴, Do Duy C⁵, Nguyen Sy Anh H¹, Vu Quoc D⁶, van Doorn R^{1,7}, Le T^{8,9}

¹Wellcome Africa Asia Programme, Oxford University Clinical Research Unit, Ho Chi Minh City/Hanoi, Viet Nam, Viet Nam,

²Hospital for Tropical Diseases, Ho Chi Minh City, Viet Nam, Ho Chi Minh, Vietnam, ³University of Medicine and Pharmacy at Ho Chi Minh City, Viet Nam, Ho Chi Minh, Vietnam, ⁴National Hospital for Tropical Diseases, Ha Noi, Viet Nam, Hà Nội, Vietnam, ⁵Bach Mai Hospital, Ha Noi, Viet Nam, Ha Noi, Vietnam, ⁶Hanoi Medical University, Ha Noi, Viet Nam, Ha Noi, Vietnam, ⁷Nuffield Department of Medicine, University of Oxford, Oxford, United Kingdom, Oxford, United Kingdom, ⁸Division of Infectious Diseases and International Health, Duke University School of Medicine, Durham, NC, USA, Durham, USA, ⁹Tropical Medicine Research Center for Talaromycosis in Vietnam at Pham Ngoc Thach University of Medicine, Ho Chi Minh City, Vietnam, Ho Chi Minh, Vietnam

Background: Mycobacteria infections (tuberculosis and non-tuberculosis mycobacteria, NTM) and invasive mycoses collectively account for more than half of hospitalizations and mortality in advanced HIV disease (AHD). While morbidity and mortality are important outcomes from the healthcare perspective, they do not necessarily reflect the patient's perspective about disease. This study investigated health-related quality of life (HrQoL) in patients affected by mycobacteria and fungal infections, and examined key factors associated with poor HrQoL to improve the well-being of AHD patients.

Methods: We conducted a prospective longitudinal study recruiting 901 AHD patients hospitalized at three hospitals in Vietnam and followed patients monthly over 6 months. Patients ≥ 18 years with a CD4 count ≤ 100 cells/ μ L or WHO stage III/IV disease; not on ART or on ART ≤ 3 months were eligible for enrolment. HrQoL was assessed longitudinally at enrollment, week 12, and week 24 using the validated EQ-5D-5L (five

domains: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression, utility score range: -0.5115 to 1), and the Visual Analogue Scale (EQ-VAS, range: 0 to 100). Linear and logistic mixed-effects models were used to identify demographic and clinical variables associated with longitudinal HrQoL.

Results: Among the 901 participants, 83% (748) were male, with a median age of 36 years (IQR: 30-44). Mycobacterial infections were identified in 49.8% of patients (TB 44.3%, NTM 6.9%), while invasive mycoses were identified in 26.2% (talaromycosis 19.5%, cryptococcosis 4.7%, and histoplasmosis 3%). A smaller subset had mycobacterial and fungal co-infections (7.4%), and the remaining 31.4% had other opportunistic infections (OIs).

On average, EQ-5D utility and EQ-VAS score at week 24 were 0.30 points ($P < 0.001$) and 13 points ($P < 0.001$) higher than at baseline for the whole cohort. At week 24, patients with mycobacterial infections exhibited substantially lower EQ-5D utility and EQ-VAS score (0.62, SD=0.45 and 55, SD=38) compared to those with fungal infections (0.81, SD=0.37 and 74, SD=34); and compared to other OIs (0.73, SD=0.41 and 67, SD=37), all P values < 0.001 , Kruskal-Wallis tests. On average, patients with higher education and those who were employed had significantly better EQ-5D utility and EQ-VAS score than those with lower educational backgrounds and those being unemployed. The average changes of EQ-5D utility and EQ-VAS score of patients with mycobacterial infection decreased by 0.12 and 10 points in comparison to other OIs, respectively ($P < 0.001$). The logistic mixed-effects model demonstrated significantly reduced odds ratio of experiencing problems across all five EQ-5D domains at weeks 12 and 24 compared to baseline (all P values < 0.001). Females were substantially more likely to report difficulties in usual activities (OR=2.92, $P=0.026$), pain/discomfort (OR=1.83, $P < 0.001$), and anxiety/depression (OR=3.13, $P < 0.001$). Mycobacterial infections were substantially associated with poorer HrQoL, with the most significant impact on usual daily activities (OR=3.58, $P < 0.001$) and mobility (OR=3.29, $P < 0.001$).

Conclusion: Although HrQoL improved over time, it remained significantly suboptimal for individuals with lower education, unemployment, and mycobacterial infections. These findings emphasize the need for comprehensive care approaches that integrate psychosocial support with clinical management, particularly for those

with mycobacterial infections, to improve the overall outcomes of patients with advanced HIV disease.

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Associations Between Country of Birth, Migration Status and Engagement in HIV Care Among Gay and Bisexual Men Living with HIV in Australia, 2019-22

Yu S¹, MacGibbon J¹, Bavinton B², Smith A¹, Rule J³, Mao L¹, Broady T¹, Holt M¹

¹Centre for Social Research in Health, University of New South Wales, Sydney, Australia, ²The Kirby Institute, University of New South Wales, Sydney, Australia, ³National Association of People with HIV Australia, Sydney, Australia

Background: In the last decade, HIV diagnoses have declined among Australian-born gay, bisexual and other men who have sex with men (GBM). However, this decline has not been seen among migrant GBM, with recently-arrived migrants facing particular challenges, such as access to HIV treatment. This study assessed HIV treatment and care cascade outcomes among GBM living with HIV in Australia by migration status.

Methods: Data were collected in national cross-sectional behavioural surveillance surveys during 2019-22. HIV cascade outcomes were stratified by country of birth and length of residency in Australia, examining HIV clinical appointments in the previous year, being on antiretroviral treatment (ART), and achieving an undetectable viral load. Percentages were calculated with the previous cascade step as the corresponding denominator.

Results: Between 2019-22, 32,236 GBM completed surveys including 2,533 (7.9%) people living with HIV (PLWH). Among 2,188 PLWH reporting migration/residency status, 1,579 (72.2%) were Australian-born, 292 (13.3%) were from high-income English-speaking countries, 284 (13.0%) were non-recently-arrived migrants from other countries, and 33 (1.5%) were recently-arrived in Australia (had lived in Australia for less than 2 years). Median ages for the four groups were 50, 51, 41 and 34 years, respectively. Recently-arrived PLWH were the most likely to be recently diagnosed (had been diagnosed for less than 2 years, 15.2% vs. <5% in the other groups). The HIV

cascade of care, treatment, and viral suppression differed by migration status ($p < 0.001$): Australian-born 92.5%-96.9%-94.6%; born in high-income English-speaking countries 91.8%-97.4%-98.9%; non-recently-arrived 93.7%-95.1%-96.8%; and recently-arrived 90.9%-90.0%-100%.

Conclusion: Recently-arrived PLWH were slightly less likely to be in HIV care, and less likely to be on treatment than other PLWH in Australia. However, all recently-arrived PLWH who were on treatment achieved viral suppression. Engaging and supporting recently-arrived PLWH in Australia to access ART and re-linking PLWH disengaged from care remains crucial to achieving HIV cascade targets in Australia.

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Impact of Point-of-Care Pharmacist Counseling at Late Refills of Antiretroviral Therapy: A Study Following the Early Warning Indicators of World Health Organization Recommendations

Raghavan P¹

¹Hospital Sungai Buloh, Malaysia, Sungai Buloh, Malaysia

Introduction/Aim: With increasing global use of antiretroviral therapy (ART), World Health Organization (WHO) has developed HIV drug resistance (HIVDR) Early Warning Indicators (EWIs) to optimize prevention of HIVDR. Recent studies have reported on time pharmacy refills, the fourth EWI, to be the strongest predictor of clinic-level viral load suppression. The primary objective of this study was to assess the impact of pharmacist counseling at the point of late ART refill and identify modifiable predictors for refill non-adherence. We also sought to determine the percentage of patients with on-time ART drug pick-up as described by WHO.

Methodology: A cross-sectional study was conducted among 751 Malaysian HIV-infected individuals receiving ART from November 2017 until February 2018. Patients with late refills were actively absorbed for a comprehensive counseling session. Follow-up pharmacy refills after the counselling was then evaluated using medication possession ratio (MPR) for duration of 6 months. MPR of more than 90% was categorized as optimal refill adherence according to published conventions. Paired T-test was used to test the effectiveness of counselling at late refills whilst multivariate regression models were used to examine predictors of late refills.

Results: Of 751 HIV-infected patients, 91% had on time refills. Patients with late refills (n=65) were predominantly male (85%), of Malay ethnicity (45%) and age 35 years old and above (65%). Mean duration on ART was 4 years. Being outstation accounted for the highest reasons for late refills (32%) followed by 23% due to work commitments.

Identifying patients with late refills and providing concurrent counseling increases MPR or refill adherence significantly in patients who had previously poor MPR scores (MD=14.76; SD=18.04; p=0.001). Multivariate binary logistic regression analysis found history of self-reported non-adherence (AOR= 4.506; 95% CI[1.822-11.143]; P=0.001) and travelling more than 20km to the hospital (AOR= 4.749; 95% CI[1.966-11.474]; P=0.001) were significant predictors of late refills.

Discussion: A simple and routine cost-effective monitoring of adherence is necessary to identify patients at risk of poor outcomes especially in resource-limited settings. In the global effort of preventing HIV drug resistant, pharmacist plays a pivotal role in adherence support in line with WHO's recommendation of adherence assessment to ART with every patient contact. Numerous studies have shown pharmacy adherence measures to be superior to self-reported adherence which is usually affected by recall or social bias. Although the proportion of patients with on-time drug pick up was desirable according to WHO, our study has found that identifying and counseling patients with late refills as part of the dispensing process increases pharmacy refill adherence significantly. This targeted intervention could serve as an early proxy of retention in care especially in resource-limited settings.

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Survival Analysis of People Living with HIV with Comorbid Cancers: A Retrospective Cohort Study

Wang Z¹, Wu X², Chen J³, Shen Y³, Zou H²

¹Shanghai Institute of Infectious Disease and Biosecurity, Fudan University, Shanghai, China, ²School of Public Health, Fudan University, Shanghai, China, ³Department of Infection and Immunity, Shanghai Public Health Clinical Center, Fudan University, Shanghai, China

Background: HIV infection impairs the human immune system, leading to an increased risk of certain cancers. Understanding the characteristics of people living with HIV (PLWH) with various types of comorbid cancers is conducive to targeted prevention and management, ultimately improving the survival outcomes of them.

Methods: This study conducted a retrospective analysis of PLWH with comorbid cancers who were hospitalized at the Shanghai Public Health Clinical Center from 2013 to 2022. The fatality rate of PLWH with different types of comorbid cancers was calculated, with the initiation of antiretroviral therapy (ART) as the starting point for observation; survival curves for different conditions were fitted using the Kaplan-Meier method; the factors influencing fatality rate in PLWH with comorbid cancers were analyzed using the Cox regression model.

Results: The study included a total of 475 inpatient cases of PLWH with comorbid cancers from 2013 to 2022, of which 397 (83.6%) were male, with a median baseline age of 50 (38-59) years. The most common cancers included lymphoma (110, 23.2%), lung cancer (68, 14.3%), colorectal cancer (38, 8.0%), Kaposi's sarcoma (29, 6.1%), cervical cancer (28, 5.9%), malignant liver tumors (28, 5.9%), anal cancer (23, 4.8%), and thyroid cancer (22, 4.6%). 161 cases (33.9%) were AIDS-defining cancers (Kaposi's sarcoma, non-Hodgkin lymphoma, and cervical cancer). The median survival time of the 475 PLWH was 11.5 years. 168 PLWH died during 2,905.8 person-years of follow-up, that the overall fatality rate is 57.8 per 1,000 person-years (95% confidence interval [CI]: 49.3–66.3 per 1,000 person-years). This rate is significantly higher than

the all-cause fatality rate of 10.0 per 1,000 person-years reported for the general PLWH in existing study in China. The fatality rate for non-AIDS-defining cancers was 63.6 per 1,000 person-years (95% CI: 52.9–74.3 per 1,000 person-years), while 45.4 per 1,000 person-years for AIDS-defining cancers (95% CI: 32.0–58.8 per 1,000 person-years). The results of the multivariate Cox regression model showed that for every 5-year increase in baseline age for PLWH, the risk of death increased by 21.8%; compared to PLWH with an initial CD4 count of ≥ 500 cells/ μ L, those with an initial CD4 count of ≥ 200 to < 500 cells/ μ L and < 200 cells/ μ L had hazard ratios (HR) of 2.237 (95% CI: 1.281-3.904) and 3.317 (95% CI: 1.855-5.932), respectively.

Conclusion: Lymphoma, lung cancer, colorectal cancer, Kaposi's sarcoma, and cervical cancer remain the primary types of cancers afflicting PLWH. PLWH with comorbid cancers face a high risk of death, with increased baseline age and low CD4 count being important risk factors. It is essential to strengthen routine cancer screening for PLWH, aiming for early diagnosis and treatment to prolong the lifespan of these PLWH.

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Determinants of Mental Health Among Stable People Living with HIV in Cambodia: A Cross Sectional Survey

Tuot S¹, Chhoun P, Yap K, Tep S, Yi S

¹KHANA, Phnom Penh, Cambodia, ²The Royal University of Phnom Penh, Phnom Penh, Cambodia, ³The University of Tokyo, Japan

Introduction: Understanding context-specific mental health determinants is necessary to better the health outcomes of stable people living with HIV (PLHIV). This research investigated depression prevalence and the factors linked to depression among stable PLHIV in Cambodia.

Material and Methods: The study used baseline data from an 18-month quasi-experimental research by the national HIV program and Khmer HIV/AIDS NGO Alliance. The data was collected from July to November 2021. The main aim of the parent investigation was to analyze the viability and effectiveness of a community-based ART delivery (CAD) model in providing ART services nearer to PLHIV. Bivariate and multivariate logistic regressions were conducted to find the sociodemographic, health, and psychosocial factors affecting mental health.

Results: Overall, 19.5% of the 4089 participants had depression. Factors with increased adjusted odds of depression included being aged 30-39 years (AOR 1.73, 95% CI [1.10, 2.74]), 40-49 years (AOR 1.77, 95% CI [1.12, 2.81]) and 50-59 years (AOR 1.73, 95% CI [1.07, 2.80]), being female (AOR 1.71, 95% CI [1.37, 2.14]), having hypertension (AOR 1.57, 95% CI [1.22, 2.02]), experiencing more stigma and discrimination (AOR 2.23, 95% CI [1.85, 2.69]), having greater internal stigma (AOR 2.97, 95% CI [2.46, 3.58]) and fear of stigma and discrimination (AOR 1.69, 95% CI [1.40, 2.03]), being non-ART adherent (AOR 1.52, 95% CI [1.21, 1.91]), and possessing poorer self-efficacies in physical activities (AOR 1.29, 95% CI [1.02, 1.62]) and stress management (AOR 2.44, 95% CI [1.78, 3.35]). Decreased adjusted odds of depression were observed among participants married and living together (AOR 0.57, 95% CI [0.37, 0.88]), employed as farmers or fishermen (AOR 0.75, 95%

CI [0.57, 0.97]), earning US\$1000-US\$1999 monthly (AOR 0.81, 95% CI [0.66, 0.10]), and receiving higher social support (AOR 0.30, 95% CI [0.14, 0.68]).

Conclusion: Social isolation, perceptions of stigma and discrimination, which fall under psychosocial factors, were significantly associated with depression; therefore, appropriate psychological treatment is likely to be needed to reduce the prevalence of depression.

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Enhanced Adherence Counseling to Improve Retention and Address Barriers Among People Living with HIV Initiating Antiretroviral Therapy: A Pharmacist-Led Intervention at Hospital Sungai Buloh, Malaysia

Raghavan P¹

¹Hospital Sungai Buloh, Malaysia, Sungai Buloh, Malaysia

Background: At the National Infectious Disease Center of Malaysia, Hospital Sungai Buloh, a review of antiretroviral therapy (ART) initiation revealed that approximately 12% of patients disengaged from care within the first year, with the highest risk occurring early in treatment. Although default rates declined over time, early disengagement posed a critical challenge to long-term HIV management. The World Health Organization (WHO) recommends Enhanced Adherence Counseling (EAC) for individuals with high viral loads and at risk of treatment failure. EAC is a client-centered approach that identifies and addresses adherence barriers through targeted interventions. This study aimed to adapt and implement a pharmacist-led EAC program for newly initiated ART patients—particularly those within their first three months of treatment and first year on ART—to enhance adherence, improve retention, and optimize long-term engagement in care.

Methodology: A qualitative study was conducted at Hospital Sungai Buloh, focusing on newly initiated ART patients. To facilitate targeted monitoring, all first-year ART patients were electronically grouped as First-Year Program. Starting in the third month of treatment, patients participated in structured Enhanced Adherence Counseling (EAC) sessions led by a pharmacist. The EAC framework, adapted from ICAP (Columbia University) in collaboration with PEPFAR, also integrated the PHQ-9 depression screening tool to identify and address mental health barriers affecting adherence. During these

sessions, pharmacists systematically assessed adherence challenges, evaluated patient's motivation and proactively identified unreported adherence barriers. Based on these assessments, individualized adherence intervention plans were developed. Patients requiring more complex management or regimen modifications were referred to an Infectious Disease Consultant. All interventions, laboratory findings and referrals were documented in the hospital's electronic prescribing system to ensure continuity of care. The program was further supported by comprehensive clinical and counseling data, tracking patient demographics, ART regimens, adherence patterns, missed pharmacy pickups, adherence barriers, and intervention outcomes.

Results: A total of 142 patients were enrolled in the First-Year Program and received EAC. The cohort was predominantly male (92%), with 54.8% aged between 20 and 29 years. The mean CD4 count at initiation was 375 cells/ μ L. The majority of patients (73%) initiated Tenofovir-Emtricitabine and Efavirenz regimen, while 20% started Tenofovir-Emtricitabine and Dolutegravir. Seventy percent of participants reported multiple adherence barriers, with transportation difficulties (52%), depression (39%), and forgetfulness (32%) being the most prevalent. PHQ-9 screening identified 16% of patients with moderately severe to severe depression, warranting referral. Additionally, 18% of patients required early regimen modifications based on issues identified during EAC sessions. Approximately 23% had missed medication pickups, which were promptly addressed through targeted interventions. The pharmacist-led EAC program resulted in a significant reduction in first-year default rates from 12% to 3%, achieving a 97% retention rate.

Conclusion: The pharmacist-led EAC program improved ART adherence and retention among newly diagnosed PLHIV at our care. This proves that EAC may be used not only for patients with suspected treatment failure but also to prevent disengagement from care. By addressing behavioral, psychosocial, and structural barriers, it significantly reduced attrition during the critical first year. These findings support scaling EAC programs in similar settings to enhance ART outcomes and long-term retention.

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Integrated HIV Care on the Same Day of Diagnosis: The First Civil Society Clinic in Thailand as a National Health Security Provider

Patpeerapong P^{1,2}, Sangthong S^{1,2}, Apiputthipun R¹, Pokum R¹

¹MPLUS Foundation, 142, Village Number 1, Chom Chan Alley, Chiang Mai - Hot Road Pa Daet Sub-District, Mueang Chiang Mai District, Thailand, ²MPLUS Polyclinic, 142, Village Number 1, Chom Chan Alley, Chiang Mai - Hot Road Pa Daet Sub-District, Mueang Chiang Mai District, Thailand

This presentation explores the innovative approach of the first civil society-run clinic in Thailand, MPLUS Polyclinic, which offers same-day HIV treatment initiation. As the first facility to be registered under the National Health Security Office (NHSO), MPLUS Polyclinic exemplifies how prompt and integrated care can significantly improve health outcomes for people living with HIV (PLHIV). Prior to this model, the majority of HIV-positive individuals in Thailand faced delays in treatment initiation due to the necessity of referrals to hospitals, which often led to significant gaps in care. The MPLUS model breaks down these barriers by combining HIV testing, counseling, and the immediate initiation of antiretroviral therapy (ART) all within a single visit, which greatly enhances patient adherence, minimizes the risk of onward transmission, and improves health outcomes.

The MPLUS Foundation, a pioneering community-based organization in Thailand, is committed to addressing health disparities and improving the quality of care for individuals affected by HIV. By registering as an HIV testing and treatment facility under the NHSO, MPLUS Polyclinic has been able to enhance access to comprehensive HIV care, making it more accessible, affordable, and timely for people living with HIV. Since the registration of MPLUS Polyclinic in April 2023, the clinic has significantly expanded access to HIV care, reducing the time between diagnosis and treatment initiation.

Before the clinic's registration, fewer than 5% of individuals diagnosed with HIV were able to

initiate ART on the same day. This was primarily due to delays in obtaining referrals for treatment under the health insurance system. The new model at MPLUS has changed this dynamic, with 59% of HIV-positive individuals now beginning treatment on the same day as their diagnosis. This shift demonstrates the impact of integrated care in reducing delays, improving treatment uptake, and supporting better health outcomes for people living with HIV.

The success of the "one-stop service" model at MPLUS Polyclinic highlights the importance of efficient, accessible healthcare services in bridging gaps in the healthcare system. The results underscore the value of integrated services in reducing delays and improving care access. This experience provides a valuable lesson in how community-based, civil society-run clinics can play a pivotal role in expanding HIV treatment access and advancing national efforts to reduce the HIV epidemic's impact. Scaling this model to other regions of Thailand, optimizing service delivery, and continuing collaboration with national health systems will be key to ensuring the sustainability of these efforts and further reducing disparities in HIV care.

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Evaluating ART Outcomes in Mobile Clients: Insights from AHF Nepal's Collaborative Clinic (2016–2023)

Pant M¹, Joshi D, Pagnaroat M, Shrestha U, Rai A, Poudyal A, Bhandari D, Kamar S, Paneru L

¹Aids Healthcare Foundation Nepal, Lalitpur, Nepal, ²Seti Provincial Hospital, Dhangadhi, Nepal

Introduction: Retention in antiretroviral therapy (ART) programs is a critical determinant of successful HIV treatment outcomes and epidemic control. Migrant populations experience distinct structural and socio-behavioral barriers that impact their continuity of care and adherence to ART. This study analyzes retention trajectories and associated determinants among Nepalese migrants enrolled in an AHF-supported ART clinic in Seti, Nepal, providing evidence to inform targeted interventions for improving ART adherence and long-term treatment success.

Methods: A retrospective cohort study was conducted using clinical data from 631 Nepalese migrants who initiated antiretroviral therapy (ART) between 2016 and 2023. Retention in ART was defined as being actively on treatment at the time of the most recent follow-up. Descriptive statistical analyses were performed, with stratification by demographic and clinical characteristics, to identify potential predictors of retention. Additionally, multivariable analyses were employed to assess the independent associations between various factors and retention outcomes, adjusting for potential confounders.

Findings: A total of 631 clients were enrolled, including 342 (54%) males, 253 (40%) females, and 36 (6%) MSM/TG individuals, with ages ranging from 22 to 74 years. As of the current analysis, 420 (66.6%) clients remain active in care, while 3% were lost to follow-up (LFU), 18% transferred out, and 12% succumbed to mortality. Tuberculosis was the leading cause of death, accounting for 26% of fatalities, followed by advanced AIDS complications at 14%. Retention trends demonstrated better adherence among younger clients and those enrolled in family-supported ART dispensing models compared to self-managed

treatment. Nearly all active clients (97%) received multi-month dispensing (MMD) of antiretroviral therapy (ARV), with supply intervals of 2–3 months. A total of 333 (52%) clients received a 2-month ARV supply. Long-term retention varied, with 70 clients (16%) remaining engaged for up to five years and 30 clients (7%) sustaining adherence for eight years. These findings highlight the impact of differentiated service delivery models in enhancing treatment adherence and continuity of care.

Conclusions: This analysis highlights significant challenges among older individuals and those relying on self-dispensing methods, suggesting they encounter more pronounced barriers to long-term ART retention. The findings reinforce the need to expand family-supported ART delivery models and optimize multi-month dispensing strategies to better serve this vulnerable population. Moving forward, further research is needed to explore additional factors—such as psychosocial barriers, mobility patterns, and systemic healthcare challenges—that might impact retention. Incorporating qualitative insights from patient experiences could also provide a richer understanding of the barriers to care. This research is critical not only for enhancing individual health outcomes but also for informing public health policies aimed at controlling HIV in high-risk, mobile populations.

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Beyond the Numbers: Psychosocial Profiles and Support Systems of People Living with HIV in SHIP Clinic

Simpauco E¹, Salanio G, Yamsuan L

¹SHIP Clinic, Mandaluyong City, Philippines

Background: HIV care recognizes that effective management extends beyond virological and immunological markers, necessitating a comprehensive understanding of the psychosocial factors influencing the health and well-being of people living with HIV (PLWH). This study investigates the psychosocial profiles and support networks of PLWH accessing care at SHIP Clinic, a primary care clinic serving a key population in Metro Manila, Philippines. The objective is to generate data-driven insights that can inform the development of targeted interventions and enhance the provision of holistic, patient-centered care.

Methods: This descriptive study utilized retrospective data from SHIP Clinic's social work intake assessments which started in October 2023. The sample comprised 623 PLWH. Data extracted included demographics (age, sex at birth, gender identity, civil status, education, occupation), HIV disclosure status, family/support system details (relationship, age, sex at birth, gender identity, educational attainment, occupation, and disclosure status), mental health indicators (depression diagnosis, reported anxiety), and social determinants of health (employment status, income level, and housing situation). Quantitative data were analyzed using descriptive statistics, t-tests and ANOVA to assess the relationship between disclosure status, social support, and mental health scores. Qualitative data from the background information and initial assessment sections of the intake forms were subjected to thematic analysis to identify prevalent psychosocial themes.

Results: Preliminary analysis indicates the following:

- The sample consisted of 618 male and 5 female patients.

- A substantial proportion of the sample possessed higher education, with 72.71% having attained a college degree. However, employment status varied, with 82.18 % indicating current employment.
- Non-disclosure of HIV status to family members was observed in 56.18 % of participants.
- Thematic analysis revealed key psychosocial challenges, including:
 - o the persistent impact of stigma and fear of disclosure,
 - o a high prevalence of mental health concerns
 - o financial precarity and employment insecurity, and difficulties in establishing and maintaining supportive relationships.
- Importantly, statistical analysis revealed that participants who reported strong social support exhibited significantly lower scores on the GAD-7 and PHQ-9, indicating lower levels of anxiety and depression, respectively.

Discussion: These findings underscore the diverse psychosocial needs of PLWH at SHIP Clinic. The enduring influence of stigma and non-disclosure highlights the need for interventions designed to promote social acceptance and combat discriminatory practices. The observed prevalence of mental health comorbidities reinforces the importance of integrating mental health services within the continuum of HIV care. The significant association between disclosure, social support, and improved mental health outcomes suggests that interventions aimed at facilitating safe disclosure and strengthening social networks may be particularly beneficial.

Conclusion: This study provides valuable insights into the psychosocial landscape of PLWH in SHIP Clinic. By elucidating the challenges and support systems relevant to this population, SHIP Clinic can better tailor its services to provide patient-centered, holistic care, ultimately contributing to improved health outcomes and enhanced quality of life. Future research should focus on evaluating the effectiveness of specific interventions targeting identified psychosocial needs, particularly those aimed at promoting disclosure and strengthening social support.

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Depression and Sexual Addiction Among Transgender Women in China

Lu J¹, Wu X¹, Wu G¹, Cai², Zou H¹

¹Fudan university, Shanghai, China, ²Tongren Hospital, Shnaghai Jiao Tong University, School of Medicine, Shanghai, China

Objective: Depression is prevalent among transgender women, leading to various negative consequences. Sexual addiction can lead to interpersonal conflict, social and occupational issues, psychological distress, and financial problems. Our study aimed to investigate the relationship between depression and sexual addiction in transgender women.

Methods: This cross-sectional study was conducted from October 2017 to December 2019 in Shenyang, China. Sexual addiction was measured using the Sexual Compulsivity Scale (SCS), and depression severity was assessed using the Patient Health Questionnaire (PHQ-9). Multiple linear regression analysis was used to assess the association between depression and sexual addiction in transgender women. Model 1 did not adjust for any variables; Model 2 adjusted for sociodemographic variables (age, education level, marital status, income, residence, smoking); Model 3 further adjusted for sexual characteristic variables (sexual orientation, alcohol consumption frequency before sexual behavior, drug use, verbal violence, sexual violence, willingness for VCT, HIV status).

Results: Our study included 423 transgender women, of whom 60.05% reported varying degrees of depression (34.52% had mild depression, 15.84% had moderate depression, and 9.69% had severe depression.) The average score for sexual addiction among transgender women was 21.57 ± 5.90 . The study found a positive correlation between different levels of depression and sexual addiction. Compared to transgender women without depression, those reporting mild ($\beta = 3.16$; 95% CI: 1.96-4.37; $P < 0.001$), moderate ($\beta = 4.12$; 95% CI: 2.58-5.67; $P < 0.001$), and severe ($\beta = 7.46$; 95% CI: 5.59-9.32; $P < 0.001$) depression had higher sexual addiction scores. The association remained significant after adjusting for Model 2

and Model 3, although the effect size decreased and was consistent across all depression levels.

Conclusion: A statistically significant positive correlation is found between depression severity and sexual addiction. The worsening of depressive symptoms is closely associated with an increase in sexual addictive behaviors, with transgender women reporting mild to severe depression showing higher levels of sexual addiction. After adjusting for sociodemographic and sexual characteristic factors, this relationship remains significant, although the effect size is reduced. These findings suggest that mental health issues in transgender women may be an important factor influencing sexual addiction. Future research should emphasize the integrated consideration of mental health interventions and sexual behavior management in transgender women.



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Comparative Effectiveness of 250 mg vs 500 mg Ceftriaxone in Treating Uncomplicated Gonorrhea in a Country of a Low Prevalence of Ceftriaxone-Resistant *Neisseria Gonorrhoeae*

Wu T¹, Lin K², Sun H², Huang Y², Liu W^{2,3}, Huang S⁴, Chen G^{2,5}, Chen K⁴, Lin C¹, Tsai M¹, Su L², Lin P², Liu W², Su Y², Hung C^{1,2}

¹National Taiwan University Hospital Yunlin Branch, , Taiwan,

²National Taiwan University Hospital, , Taiwan, ³National Taiwan University Cancer Centre, , Taiwan, ⁴National Taiwan University Hospital Hsin-Chu Branch, , Taiwan, ⁵Min-Sheng General Hospital, , Taiwan

Objectives: According to the national surveillance data in Taiwan, the rate of *Neisseria gonorrhoeae* with decreased susceptibility to ceftriaxone (ceftriaxone MIC $\geq$ 0.125 mg/L) remained low, though at an increasing trend (ranging from 0.89% in 2021 to 1.85% in 2024), and Taiwan CDC guidelines recommended ceftriaxone monotherapy at a 500-mg dose for the treatment of uncomplicated gonorrhea infections (UGIs) in 2023. We aimed to compare the treatment responses of UGIs to two different doses (250 mg vs 500 mg) of ceftriaxone and to examine the prevalence of *N. gonorrhoeae* strains with mutations associated with resistance to extended-spectrum cephalosporins.

Methods: From September 2021 to December 2024, adults seeking care for bacterial sexually transmitted infections (STIs) and HIV prevention underwent multiplex polymerase-chain-reaction (PCR) testing for bacterial STIs using specimens from oral rinses, rectal swabs, and urethral swabs. Individuals who tested positive for *N. gonorrhoeae* and received ceftriaxone were retrospectively included. The dose administered for treatment of gonorrhea was at the discretion of treating physician. Samples tested positive for *N. gonorrhoeae* with a CT value <28 were subject to gene mutation assays to identify resistance-associated mutations to extended-spectrum cephalosporins using in-house PCR assays. The microbiologic response, defined as the clearance

of *N. gonorrhoeae* from all specimens, was compared between patients receiving different doses of ceftriaxone and those with and without gene mutations.

Results: During the study period, there were 4259 clinic visits for STI and HIV care and PrEP. Among these visits, *N. gonorrhoeae* was identified in 447 visits (10.5%). A total of 288 treatment episodes (64.4%) were administered with either a 250-mg dose (n=102) or a 500-mg dose (n=186) of ceftriaxone, followed by test-of-cure assessments. All included episodes of UGIs occurred in men who have sex with men who had a median age of 31 years and 39.9% were people with HIV. The median interval between ceftriaxone administration and test-of-cure assessment was 49 days (IQR, 28-79 days). The overall microbiologic response rate was 88.9% (256/288), with 86.3% (88/102) for 250-mg dose group and 90.3% (168/186) for 500-mg dose group (P=0.296). No statistically significant differences in microbiologic response rates were observed between the 250-mg and 500-mg dose groups across the different intervals for test-of-cure assessments. Among the participants who did not achieve a microbiologic response, the oropharynx was the most common site of infection (54.5% [18/33]). Microbiologic response rates for oropharyngeal gonorrhea were similar between those receiving 250-mg and 500-mg doses (90.3% [65/72] vs 88.4% [114/129]). Mutations in the PorB region were identified in 15.8% (6/38) of UGI episodes, while mutations in the PenA region were observed in 6.9% (5/73) of episodes. Strains with the PorB mutation showed a low microbiologic response rate to ceftriaxone (50.0% [3/6]). In univariable analysis, a lower microbiologic response was associated with HCV infection (OR, 0.33; 95% CI, 0.13-0.80) and PorB mutations (OR, 0.07; 95% CI, 0.01-0.57).

Conclusions: Treatment responses of UGIs to 250-mg vs 500-mg ceftriaxone were not significantly different in Taiwan with a low rate of ceftriaxone resistance. A randomized controlled trial is warranted to confirm our finding.

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Understanding the Epidemiology, Clinical Characteristics and Infection Severity of Mpox Cases in 2024 Outbreaks in Victoria, Australia

Aung E^{1,2}, Low S^{3,4}, Towns J^{1,2}, Fairley C^{1,2}, Lim C^{3,4}, Chow E^{1,2}

¹Melbourne Sexual Health Centre, Alfred Health, Melbourne, Australia, ²School of Translational Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia, ³Victorian Infectious Diseases Reference Laboratory, Royal Melbourne Hospital, Doherty Institute for Infection and Immunity, Melbourne, Australia, ⁴Department of Infectious Diseases, Doherty Institute of Infection and Immunity, The University of Melbourne, Melbourne, Australia, ⁵ Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia

Background: Following the global mpox outbreak in 2022, clusters of clade II mpox cases have continued to emerge in 2024 in many countries, including Australia. This study describes the epidemiology, characteristics, and severity of mpox cases presented to a public sexual health clinic in Victoria during the 2024 outbreaks.

Methods: We conducted a retrospective cross-sectional study of mpox-confirmed cases using mpox polymerase chain reaction test at the Melbourne Sexual Health Centre, Australia between January and September 2024. We collected data on demographic characteristics, sexual behavioural data, and vaccination history, clinical characteristics, and infection severity. We examined the factors associated with mpox clinical severity (mild, moderate, severe) using ordered logistic regression.

Results: We included 156 mpox confirmed cases (155 men and 1 woman) with the median age of 35 (IQR: 31-40), and most were MSM (98%, n=153). More than half (59%, n=91) had at least one mpox vaccine. Mpox vaccination was highest in PrEP users (74%, n=67), followed by persons living with HIV (PLHIV) (19%, n=17), and HIV-negative non-PrEP users (8%, n=7). One person had a previous mpox infection in 2022.

Most (94%, n=147) had mild or moderate symptoms, and 5% (n=8) had severe symptoms requiring hospitalisations. One was lost to follow-up. The median of lesions per case was 3 (IQR: 1-9). Vaccinated group (n=91) had lower odds of severe disease than unvaccinated group (n=64) (odds ratio[OR]: 0.32, 95%confidence interval [CI]:0.15-0.67, p=0.002). An increase in the number of lesions was associated with more severe disease (OR: 1.07, 95% CI: 1.01-1.13, p=0.02). PrEP use, HIV status, and age were not associated with clinical severity.

Conclusion: Our findings suggest mpox vaccination reduces disease severity. However, the notable number of unvaccinated PLHIV and non-PrEP users highlighted the need for increased awareness and public health campaigns to boost vaccine uptake among MSM to protect the community.

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Novel Genotype B Chlamydia Trachomatis Sequence Types: From Trachoma-Associated to Sexually Transmitted Lineages in Taiwan

Tsai C¹, Hung C², Tsai B³, Huang H¹, Lin C², Lin Y¹, Tsai H¹, Ko W¹

¹National Cheng Kung University Hospital, Tainan City, Taiwan,

²National Taiwan University Hospital, Taipei City, Taiwan,

³National Cheng Kung University, Tainan City, Taiwan

Background: The typing of Chlamydia trachomatis has evolved from serotyping to genotyping, with a focus on ompA sequencing. While genotypes A to C have traditionally been associated with trachoma, recent studies reveal that genotype B, once linked to trachoma, is now emerging in trachoma-free countries including Taiwan as a cause of sexually transmitted infections (STIs). In Taiwan, the proportion of genotype B in urogenital chlamydia was below 5% in 2006 but has recently surged to about 20% in rectal chlamydia cases, among high-risk populations, including people with HIV (PWH), pre-exposure prophylaxis (PrEP) users, and men who have sex with men (MSM).

Material & methods: A laboratory-based surveillance study was conducted from 2020 to 2023 to investigate this trend, analyzing samples from PrEP users, PWH, and individuals undergoing STI screening. Chlamydia-positive samples were genotyped using ompA sequencing, and genotype B strains underwent further analysis through multi-locus sequence typing (MLST).

Results: The study identified four new sequence types (ST-72, ST-83, ST-107, and ST-113) within genotype B, forming a unique phylogenetic cluster, suggesting clonal spread in Taiwan. These strains showed close genetic similarity of ompA to the Ba/D3 strain from China and a Japanese strain. Phylogenetic analysis revealed that the newly identified STs are closely related and close to common STs such as ST-108 found in MSM populations in Western countries and genovariant L2b strains previously identified in Taiwan, indicating a potential ancestral type.

Conclusion: The emergence of these genotype B strains, possibly through microevolution or recombination, highlights the need for continued surveillance to monitor their spread and potential changes in tissue tropism.

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Integrating Syphilis Screening within HIV Care to Address Co-Infection: A Five-Year Trend Analysis from AHF-Supported Clinics in Cambodia

Men P¹, Chan P¹, Hang S¹

¹Aids Healthcare Foundation (ahf), Phnom Penh, Cambodia

Background: Syphilis is a co-infection happening frequently among people living with HIV (PLHIV) and contributing to adverse health outcomes if left undiagnosed and untreated. In 2020, the AIDS Healthcare Foundation (AHF) together with its local health partners initiated efforts to enhance syphilis screening across 42 AHF-supported antiretroviral therapy (ART) clinics in Cambodia. This study highlights the trends and outcomes of syphilis screening among newly-enrolled HIV positive clients over a five-year period, emphasizing the importance of advocacy and support as a strategy to enhance syphilis screening efforts.

Methods: AHF supported and advocated for routine syphilis screening in newly-enrolled HIV positive clients, beginning in 2020. Data on the number of new enrollments, syphilis screening coverage, and positivity rates were collected as part of routine quality improvement monitoring and were analyzed from 2020 to 2024 to assess progress and co-infection trends.

Results: From 2020 to 2024, the number of newly-enrolled HIV positive clients fluctuated from 2,440 in 2020 to 2,125 in 2021, 3,254 in 2022, 3,446 in 2023, and 2,959 in 2024. Syphilis screening coverage increased substantially, from 0% in 2020 to 24.9% in 2021, 50.2% in 2022, 75.9% in 2023, and 85.6% in 2024. Despite this achievement, the syphilis positivity rate among those clients tested remained concerningly high, peaking at 37.0% in 2022 before declining to 28.7% in 2023 and 28.3% in 2024.

Conclusions: AHF's advocacy and support have significantly improved syphilis screening coverage among newly-enrolled HIV positive clients in Cambodia. However, the persistently high

positivity rates emphasize the need for intensified prevention strategies, enhanced access to treatment, and community education. Our findings demonstrate the importance of integrating syphilis screening within HIV care to improve health outcomes and address co-infections effectively.

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Syphilis Prevalence Among People Living with HIV in Nepal and Its Association with Sociodemographic and Sexual Behaviors

Sapkota Y¹, Shrestha U¹, Rijal S¹, Sedhai N¹, Shrestha B¹, Thakur P², Cassell M², Kariuki M²

¹FHI360 Nepal, Kathmandu, Nepal, ²FHI360, 359 Blackwell Street, Suite 200, United State of America

Background: Syphilis is a sexually transmitted infection (STI) that frequently co-occurs with HIV, posing significant health challenges for people living with HIV (PLHIV). Despite its importance, the prevalence of syphilis co-infection among PLHIV in Nepal has not been well-documented. This study, funded by PEPFAR and USAID under the EpiC project, aimed to determine the prevalence of syphilis and its correlation with sexual risk behaviors among PLHIV who are receiving community care through outreach workers in 37 districts in Nepal.

Methods: This descriptive study was conducted using secondary data from the DHIS2 system, among PLHIV who received community care services from outreach workers between October 2023 and September 2024. The study included information on STI screenings, as well as sociodemographic and behavioral data collected from EpiC Nepal-supported clinics and antiretroviral therapy (ART) sites. To analyze the correlation between syphilis prevalence and various factors, we used chi-square tests and logistic regression models. Syphilis prevalence was determined using results from syndromic STI screenings and rapid plasma regain (RPR) tests.

Results: Among the 17,261 PLHIV reached through EpiC community care services, 1,496 (9%) were screened for STIs. Among the STI screened, 206 individuals (14.0%) had a history of syphilis diagnosis (95% CI: 12.1%–15.6%). The prevalence of active syphilis was found to be 8.4% (95% CI: 7.1%–9.8%). The average age of PLHIV who had ever been diagnosed with syphilis was 31 years, with a standard deviation of 12 years.

The prevalence of active syphilis was notably higher among specific key populations: men who have sex with men (20.0%), transgender individuals (17.7%), female sex workers (11.3%), and priority populations who had not disclosed their risk behaviors (3.6%). The odds of acquiring syphilis were 1.7 times higher among individuals engaged in commercial sexual activities compared to those not involved in such activities ($p < 0.05$). Additionally, the odds of acquiring syphilis were 30% higher among illiterate individuals compared to their literate counterparts (AOR: 1.3, $p < 0.05$). Although variables such as sex, marital status, and employment status were statistically significant ($p < 0.05$) in the occurrence of syphilis, their effects were relatively minor.

Conclusion/Next steps: The study highlights a high prevalence of syphilis among key populations of PLHIV in Nepal. This underscores the urgent need for regular counseling and comprehensive STI services at both community and facility levels. Such measures are crucial for the early diagnosis and treatment of STIs among PLHIV, which in turn can help prevent the transmission of syphilis and other STIs. Moving forward, targeted interventions and continuous monitoring are essential to address this public health concern effectively.

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Anal HPV Epidemiology in Chinese Men Who Have Sex with Men: Converging Evidence from Meta-Analysis and Clinical Research

He J¹, Zhao Y², Huang X¹

¹Clinical and Research Center for Infectious Diseases, Beijing Youan Hospital, Capital Medical University, Fengtai District, China, ²Shunyi Maternal and Children's Hospital of Beijing Children's Hospital, Shunyi District, China

Human papillomavirus (HPV) is one of the most common sexually transmitted infections (STIs). Persistent HPV infection may lead to diseases such as cervical cancer, anal cancer, oropharyngeal cancer, etc. Men who have sex with men (MSM) are one of the populations with the heaviest HPV burden due to their frequent high - risk sexual behaviors. Given the limited research on HPV in MSM, especially those who are HIV - negative, we aimed to comprehensively understand the HPV infection situation in this population.

Our first study employed a meta - analysis. We systematically retrieved 31 studies (15 in English and 16 in Chinese) published from January 1, 2010, to June 1, 2024. These studies reported the anal HPV infection rate in the Chinese MSM population, each with a sample size of over 200. The results indicated that the overall anal HPV infection rate among Chinese MSM was 65.4% (95%CI: 59.6% - 71.0%). Genotypes such as HPV 6, 11, 16, 18, 52, and 58 were commonly detected. HIV - positive MSM had a significantly higher HPV infection rate compared to HIV - negative MSM. The anal HPV infection rate was 85.1% in HIV - positive individuals, 53.6% in HIV - negative individuals, and 59.2% in those with unknown HIV status. Among HIV - negative MSM, the HPV infection rate increased with age, 40.5% in those < 20 years old and 57.2% in those ≥ 40 years old. The high - risk HPV infection rate was 38.98%, higher than that of low - risk HPV (23.86%), and the single - infection rate was higher than the multiple - infection rate (28.84% vs. 19.23%). Additionally, multiple factors, including sexual behavior patterns, history of drug use, and sexually transmitted diseases, influenced the HPV infection rate.

In the second study, we tested HPV genotyping and common sexually transmitted infections (STIs) in 263 HIV - negative MSM from Beijing Youan Hospital. We also investigated their sexual behavior characteristics. The anal HPV infection rate in this group was 59%. Infection with Mycoplasma and/or Chlamydia was associated with increased risks of HPV infection (OR = 1.972, P = 0.041, 95% CI: 1.028, 3.781), high - risk HPV infection (OR = 2.354, P = 0.030, 95% CI: 1.085 - 5.110), and multiple HPV infection (OR = 1.961, P = 0.030, 95%CI: 1.066, 3.607). Those taking the insertive role in sex had a lower risk of HPV (OR = 0.473, P = 0.037, 95% CI: 0.234, 0.955) and high - risk HPV infection (OR = 0.443, P = 0.034, 95% CI: 0.208, 0.941) compared to the receptive role.

In conclusion, both HIV - positive and HIV - negative MSM are at high risk of HPV infection. For HIV - negative MSM, strengthening screening for HPV and nongonococcal infections and promoting HPV vaccination are crucial. Our integrated research provides comprehensive insights into the HPV infection in MSM, which is essential for formulating effective prevention strategies.

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Awareness, Attitudes and Beliefs Towards Doxycycline as Post-Exposure Prophylaxis Among Men Having Sex with Men and Transgender Women in the Philippines

Velasco A¹, Catolico G¹

¹Sustained Health Initiatives Of The Philippines, Mandaluyong City, Philippines

Background: Doxycycline has been shown to be a useful tool in preventing the spread sexually-transmitted infection (STI), particularly Syphilis and Chlamydia. The IPREGAY trial in France demonstrated a lower incidence of these two STIs among men having sex with men (MSM) and transgender women (TGW) who have been given doxycycline as post-exposure prophylaxis (Doxy-PEP). However, the success of Doxy-PEP in preventing the spread of syphilis and chlamydia, heavily depends on how its intended users (MSMs and TGWs) perceive it.

Objectives: We sought to evaluate the awareness, attitudes and beliefs towards Doxy-PEP among MSM and TGW in the Philippines.

Materials and Methods: We conducted a cross-sectional, online, anonymous survey among MSMs and TGWs in the Philippines, between January and February 2025. The survey was organized in three parts: (1) demographics, (2) sexual practices and history of sexually transmitted infections, and (3) Doxy-PEP awareness, attitudes and beliefs.

Results: A total of 356 respondents completed the survey. Among the respondents, 98.9% (n=352) identified as MSM, while 1.1% (n=4) identified as TGW. 74.2% (n=264) reported to be non-reactive with HIV, 21.3% (n=76) were reactive with PLHIV and currently on ARVs and 4.2% (n=15) reported to have never been screened for HIV. 41.2% (n=146) are currently on HIV PREP. The mean age among the respondents was 32.7 years. 72.8% (n=269) of respondents reside in the National Capital Region. Awareness towards Doxy-PEP was fairly high, with 66.9% (n=238) of respondents reporting to have heard of / or have been prescribed with

doxycycline as PEP. Willingness to use Doxy-PEP was found to be even higher, with 93.5% (n=333) of respondents saying they would either definitely or probably take Doxy-PEP if their healthcare provider prescribes it. The most common concern towards Doxy-PEP use is the risk of antimicrobial resistance with 91.29% (n=325) being at least slightly concerned about it. This is followed by possible drug adverse events, 82.87% (n=295), not being 100% effective in preventing syphilis or chlamydia transmission, 76.12% (n=271), cost of the drug, 66.29% (n=236) and having to obtain the drug within 72 hours after sexual activity, 58.99% (n=210).

Conclusions: We found that among MSMs and TGWs in the Philippines, awareness (66.9%) and willingness to use Doxy-PEP (93.5%) were high. This demonstrates a good opportunity in limiting the spread of syphilis and chlamydia among MSMs and TGWs in the Philippines. Other concerns revealed in the survey: possible antimicrobial resistance, other adverse drug events, not being 100% effective, cost of the drug and having to obtain the drug within 72 hours after sexual activity, represents potential areas of discussion between healthcare providers and patients.

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Awareness and Perception of Doxycycline Prophylaxis for Bacterial Sexually Transmitted Infection Prevention Among Men Who Have Sex with Men Using HIV PrEP in Vietnam

Bui H¹, Adamson P², Klausner J³, Le G¹, Gorbach P⁴

¹Center for Training and Research on Substance Abuse-HIV, Hanoi Medical University, Hanoi, Vietnam, ²Division of Infectious Diseases, School of Medicine, University of California, Los Angeles, USA, ³Department of Population and Public Health Sciences, Keck School of Medicine, University of Southern California, Los Angeles, USA, ⁴Department of Epidemiology, Fielding School of Public Health, University of California, Los Angeles, USA

Background: Doxycycline prophylaxis is a promising strategy for bacterial sexually transmitted infection (STI) prevention. In low- and middle-income countries, limited data exist on its perceived risks, benefits, and user preferences, which might hinder its implementation. This study explores awareness and perceptions of doxycycline prophylaxis use for STI prevention among men who have sex with men (MSM) using HIV PrEP in Vietnam.

Materials and Methods: We conducted in-depth interviews with 20 HIV PrEP clients from ten clinics - five in Hanoi and five in Ho Chi Minh City in late 2023 and 2024. Eligible participants were cisgender men or transgender women, aged 18 years or older, who reported sex with men. We collected information on HIV PrEP experience, sexual practices, and history of STI diagnosis and treatment of participants, as well as their awareness and perceptions of doxycycline prophylaxis.

Interviews were audio-recorded, transcribed verbatim, and thematically analyzed to identify key themes. The first author and a colleague independently reviewed the first three transcripts to reach consensus and develop a coding framework for extracting main themes, phrases, and meanings from the data. Interview transcriptions were imported into Atlas.ti for data management and analysis.

Results: Participants (ages 20–44) included 15 cisgender men and five transgender women. Time

on HIV PrEP ranged from two months to seven years, with 40% having a history of bacterial STIs. While some were familiar with doxycycline for STI treatment or acne control, none had prior knowledge of its use as an STI prophylaxis. All participants expressed their interest in using doxycycline prophylaxis as an additional layer of protection against multiple bacterial STIs. Regimen's preference of participants were varied, considering their risk behaviors and circumstances. Some preferred doxyPEP, using it after condomless sex with casual partners, while others favored doxyPrEP for consistent daily protection, aligning with their HIV PrEP routine.

Two participants with prior doxycycline use reported experiencing gastrointestinal issues and skin irritation. They were worried about side effects of frequent use, including aforementioned symptoms, antibiotic resistance, pill fatigue and medication interactions (particularly among transgender women using both HIV PrEP and hormone therapy). Concerns were also raised regarding accessibility, including the absence guidelines on doxycycline prophylaxis and its affordability in Vietnam.

Conclusions: While awareness of doxycycline prophylaxis for STI prevention was low, participants recognized its potential benefits and expressed high willingness to use it. Addressing concerns about safety, effectiveness, and accessibility will be crucial for future implementation efforts in Vietnam.

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Prevalence of Anal HPV Infection Among MSM in Western India Using Point-of-Care Assay

Gilada P¹, Gilada T, Chougale S, Singh L, Gilada I

¹Unison Medicare and Research Centre, Mumbai, India, ²Masina Hospital Trust, Mumbai, India, ³Punyashlok Ahilyabai Holkar, Head and Neck Cancer Institute of India, Mumbai, India

Background: With global prevalence of over 30% among men, HPV infection is one of the most widespread viral STI. While the burden of HPV-related diseases is well-documented in various populations elsewhere, in India, there is a significant gap in understanding the epidemiology of anal HPV infection among MSM. Increased footfall of MSM at healthcare facilities recently, may be attributed to their coming out of closet following the decriminalization of homosexuality in India.

Methods: We included 105 MSM from western India, all underwent anal HPV testing at a comprehensive infectious diseases centre in Mumbai, between August 2022 and December 2024. Their demographics, sexual orientation and information of other STIs was evaluated. Anal swabs were collected using broom-like device and collection medium. Testing was conducted using Xpert HPV platform.

Results: Among 105 MSM, 73 were HIV-positive, with median age of 31 years (range 17-58).

Table 1: HPV prevalence in MSM PLHIV

Parameter	HIV reactive	HIV non-reactive	Total
HPV positive	50	15	65
HPV negative	23	17	40
Total	73	32	105

Overall, HPV positivity was 62%. HPV positivity was 68.5% in PLHIV and 47% among the HIV-negative MSM.

Table 2: Type-specific prevalence of HPV

Parameter	HPV positive	HPV16	HPV18/45
Other HPV			
HIV reactive	50	20	9
	39		
HIV non-reactive	15	3	0
	15		

Among PLHIV, 58% of HPV infections were attributed to HPV16/18/45, with 40% being HPV16. In contrast, among HIV-negative individuals, 20% of HPV infections were associated with HPV16 and none HPV18/45.

The prevalence of other hrHPV (31,33,35,52,58,51,59,39,56,66,68) was 78% among PLHIV and 100% among HIV-negative individuals.

Conclusions: This is the first study from India that has looked into anal HPV prevalence in MSM using point-of-care assay. The HPV prevalence among the MSM in India is high, with oncogenic strains HPV16/18/45 being over 30%. Our study emphasises importance of HPV vaccination in men, with prioritisation among key populations such as MSM, in addition to the government's decision to provide HPV vaccination to girls below 15. HPV screening among MSM using point care assays should be done routinely. Additionally high-resolution anoscopy (HRA) should be made available in India to detect high-grade lesions that can be treated to prevent anal cancers.

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Evaluation of Artificial Intelligence (AI) Chatbots for Providing Sexual Health Information: A Consensus Study Using Real-World Clinical Queries

Latt P^{1,2}, Aung E^{1,2}, Htaik K^{1,2}, Soe N^{1,2}, Lee D², King A^{1,2}, Fortune R², Ong J^{1,2,3}, Chow E^{1,2,4}, Bradshaw C^{1,2}, Rahman R², Deneen M⁵, Dobinson S², Randall C², Zhang L^{1,2,6}, Fairley C^{1,2}

¹Monash University, Melbourne, Australia, ²Melbourne Sexual Health Centre, Melbourne, Australia, ³Department of Clinical Research, London School of Hygiene and Tropical Medicine, London, United Kingdom, ⁴Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia, ⁵Alfred Health, Melbourne, Australia, ⁶Clinical Medical Research Centre, Children's Hospital of Nanjing Medical University, Nanjing, China

Introduction: Artificial Intelligence (AI) chatbots could provide information on sensitive topics, including sexual health, to the public. However, their performance in sexual health compared to human clinicians and across different AI chatbots remains understudied. This study evaluated the performance of three AI chatbots - two prompt-tuned (Alice and Azure) and one standard chatbot (ChatGPT by OpenAI) - in providing sexual health information, compared to human clinicians.

Methods: We analysed 195 anonymised sexual health questions received by the Melbourne Sexual Health Centre phone line. Using a consensus-based approach, a panel of experts evaluated responses to these questions generated by the three AI chatbots in a blinded order. Performance was assessed based on overall correctness and five specific measures: guidance, accuracy, safety, ease of access, and provision of necessary information. We conducted subgroup analyses for clinic-specific and general sexual health questions and a sensitivity analysis excluding questions that Azure could not answer.

Results: Alice demonstrated the highest overall correctness (85.2%; 95% confidence interval (CI), 82.1%-88.0%), followed by Azure (69.3%; 95% CI, 65.3%-73.0%) and ChatGPT (64.8%; 95% CI, 60.7%-

68.7%). Prompt-tuned chatbots outperformed the base ChatGPT across all measures. Azure achieved the highest safety score (97.9%; 95% CI, 96.4%-98.9%), indicating the lowest risk of providing potentially harmful advice. In subgroup analysis, all chatbots performed better on general sexual health questions compared to clinic-specific queries. Sensitivity analysis showed a narrower performance gap between Alice and Azure when excluding questions Azure could not answer.

Conclusions: Prompt-tuned AI chatbots demonstrated superior performance in providing sexual health information compared to base ChatGPT, with high safety scores particularly noteworthy. However, all AI chatbots showed susceptibility to generating incorrect information. These findings suggest the potential for AI chatbots as adjuncts to human healthcare providers while highlighting the need for continued refinement and human oversight. Future research should focus on larger-scale evaluations and real-world implementation.

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Exploring Linkage to HIV Care in a Digital Self-Testing Initiative for Youth: Insights from the 'Stand By You' Program

Sripaidkulchai K¹, Rungmaitree S², Khumcha B², Urujchutchairut P², Maleesatharn A^{2,3}, Durier Y², Chokephaibulkit K^{2,3}

¹Department of Preventive and Social Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand, ²Division of Infectious Diseases, Department of Paediatrics, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand, ³Siriraj Institute of Clinical Research (SICRES), Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Introduction: The “Stand By You” (SBY) initiative is a digital platform targeting underserved young people at risk of HIV, offering HIV risk assessments, free self-testing kits, and instant chat-based counseling. This approach aims to increase HIV testing accessibility and early detection without requiring personal identification, with effective linkage to care being crucial for epidemic control. This study evaluates the linkage to care among online clients who tested positive using HIV self-testing (HIVST) kits and identifies barriers to effective linkage.

Methods: Adolescents and young adults were targeted through Tiktok ads, directing them to complete a self-assessment and receive free HIVST kits by mail. Participants were encouraged to voluntarily report results, and instant chat counseling was available for HIV testing, STI concerns, and post-testing support. Linkage to care was categorized as: (1) Linkage to Care, which included rapid linkage (within 7 days), delayed linkage (7 days to 3 months), and late linkage (after 3 months); and (2) Non-linkage, where participants did not link to care by the study's end (February 14, 2025). Data from August 25, 2022, to February 14, 2025, were analyzed to assess linkage gaps and factors influencing rapid linkage.

Results: Among 341 individuals who self-reported positive HIVST results, 70.7% successfully linked to care and underwent confirmatory testing. The median time to linkage to care was 5 days. Among

those retested at healthcare facilities, 42.7% linked within 7 days (rapid linkage), 26.1% between 7 days and 3 months (delayed linkage), 10.4% after 3 months (late linkage), and 20.8% did not report a specific date. Of the confirmatory tests, 88.4% were HIV-positive, and 93.4% of these individuals initiated antiretroviral therapy (ART). Among those who retested, 11.6% confirmed negative and had faint HIVST bars compared to control bars. Additionally, 29.3% were not linked to care. Nearly half of these individuals reported their HIVST results within 3 months prior to the study's conclusion, indicating that follow-up processes are ongoing. A total of 40 individuals (11.7%) dropped out of the program. Factors associated with successful rapid linkage to care included completion of a single -screening assessment, which had the highest linkage rate.

Conclusion: While the “Stand By You” initiative successfully reached at-risk youth, significant barriers to timely linkage to care remain. Addressing these barriers, including enhancing follow-up and support, is crucial for improving linkage outcomes and reducing the impact of HIV among young populations. Continued efforts to streamline the linkage process are essential for effective HIV epidemic control.

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Machine Learning Algorithms to Predict the Risk of Hyperlipidemia in People Living with HIV After Starting HAART for 6 Months

Ding Y¹, Li J¹, Gao C¹, Guo Y¹, Li Q¹, Zhao Y¹, Xiao J¹, Zhang F¹

¹Beijing Ditan Hospital, Capital Medical University, Beijing, China

Objective: The purpose of this study was to use machine learning models to predict the risk of hyperlipidemia in PLWHs for 6 months after starting HAART treatment, to help doctors intervene early and prevent further progression to cardiovascular and cerebrovascular diseases.

Methods: The classification prediction model was established based on RF, KNN, SVM, XGBoost, and LightGBM to predict the risk of hyperlipidemia through accuracy, PPV, NPV, sensitivity, specificity, and kappa coefficient. ROC curve, PR curve, and decision curve analysis were used to visually evaluate the model.

Results: The LightGBM model performed the best among all models in both training sets and testing sets. In the training set, accuracy = 0.7219, PPV = 0.7539, NPV = 0.7004, sensitivity = 0.6289, specificity = 0.8087, kappa = 0.44, AUROC = 0.780. In the testing set, accuracy = 0.6119, PPV = 0.6862, NPV = 0.5866, sensitivity = 0.3602, specificity = 0.8464, kappa = 0.2101, AUROC = 0.885. This model performed well in decision curve analysis. Through SHAP analysis, we concluded that Baseline HDL-C, baseline TG, baseline viral load, age, albumin, monocyte, baseline CD4 cell count, uric acid, lymphocyte, and gender were the top ten predictive risk factors for hyperlipidemia in PLWHs who have started HAART treatment for 6 months.

Conclusion: This study demonstrated that the LightGBM model can effectively predict the risk of hyperlipidemia in PLWHs. Based on the predictive model, a medical prediction application can be developed to predict the risk of hyperlipidemia and intervene in advance to prevent the

occurrence and progression of cardiovascular and cerebrovascular diseases.

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Impact of Result Displays in an Anogenital Symptom Checker App on Health-seeking Behaviours: A Cross-sectional, Vignette-based Study

Soe N^{1,2}, Latt P^{1,2}, Lee D¹, Towns J^{1,2}, King A^{1,2},
Chow E^{1,2,3}, Ong J^{1,2}, Zhang L^{1,2,4}, Fairley C^{1,2}

¹Melbourne Sexual Health Centre, Melbourne, Australia, ²School of Translational Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia, ³Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia, ⁴Clinical Medical Research Center, Children's Hospital of Nanjing Medical University, Nanjing, China

Background: The Melbourne Sexual Health Centre (MSHC) developed an AI-powered app called AiSTI to help the public identify potential STI-related anogenital lesions. This research sought to explore how individuals respond to the application's result displays and recommendations and how this might affect their health-seeking behaviour.

Methods: From April to July 2024, participants completed an anonymous online survey, responding to hypothetical scenarios related to STI and non-STI conditions before and after viewing the randomised AiSTI application's result displays. They were asked how soon they would seek health care and how concerned they would be about each scenario. We reported descriptive statistics and used logistic regression analyses to explore associations between result displays and health-seeking behaviours.

Results: Our study included 512 participants (median age of 32 years, IQR: 25-40.5). Approximately 65% (n=330) were assigned male at birth. For the STI scenario, intention to seek care within 24 hours increased from 75% to over 90% after viewing probable STI diagnosis displays ($p<0.001$). For the non-STI scenario, 46% initially intended to seek urgent care, but this was significantly reduced to below 25% after viewing non-STI result displays ($p<0.001$). All result displays (concise text, full text, and meter) significantly increased the likelihood of seeking care within 24 hours for the STI scenario (Adjusted ORs: 3.6-4.0,

$p<0.001$) and within a week for the non-STI scenario (Adjusted ORs: 2.4-2.5, $p<0.001$).

Conclusion: Our study found that digital health interventions with effective result displays could encourage urgent care-seeking for STI cases.

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Development of a Local Symptom/Risk Prediction Score to Target Acute HIV Infection Testing Among Men Who Have Sex with Men in Indonesia: The INTERACT Prospective Study

Lazarus G¹, Kawi N², Luis H³, Rahmawati D¹, Sihotang E², Oktaviani M¹, Januraga P⁴, Suwarti S¹, Sukmaningrum E⁵, Yuniastuti E⁶, Dijkstra M⁷, Sanders E^{8,9}, Wignall F^{1,2}, Gedela K¹⁰, Irwanto I⁵, Hamers R^{1,11}

¹Oxford University Clinical Research Unit Indonesia, Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia, ²Klinik Utama Globalindo, Jakarta, Indonesia, ³Yayasan Bali Peduli, Denpasar, Indonesia, ⁴Center for Public Health Innovation, Udayana University, Denpasar, Indonesia, ⁵HIV/AIDS Research Centre, Atma Jaya Catholic University, Jakarta, Indonesia, ⁶Dr Cipto Mangunkusumo Hospital, Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia, ⁷Department of Internal Medicine, Amsterdam University Medical Centers, University of Amsterdam, Amsterdam, The Netherlands, ⁸The Aurum Institute, Johannesburg, South Africa, ⁹Sir William Dunn School of Pathology, University of Oxford, Oxford, United Kingdom, ¹⁰56 Dean Street Clinic, Chelsea & Westminster Hospital NHS Trust, London, United Kingdom, ¹¹Centre for Tropical Medicine and Global Health, Nuffield Dept of Medicine, University of Oxford, Oxford, United Kingdom

Background: Indonesia has an escalating HIV epidemic concentrated among key populations. Acute HIV infection (AHI; pre-seroconversion), is the phase of highest transmission risk, and requires expensive HIV-PCR testing which is often not available for routine use. AHI risk score algorithms can improve efficiency by identifying persons at highest risk for prioritised HIV-PCR testing. We developed an AHI risk score algorithm for men who have sex with men (MSM) presenting at sexual health clinics, and estimated the incidence of AHI acquisition.

Material and Methods: This study includes a prospective cohort of MSM (≥ 16 yrs) who presented for HIV testing at three sexual health clinics in Jakarta and Bali (May 2023–November 2024). The study provided add-on GeneXpert HIV-PCR if antibody rapid testing (RDT) was negative or inconclusive. We analysed data from all participants ($n=1893$) to develop an AHI

symptom/risk score, using generalized estimating equations, with each variable weighted as the beta-coefficient in the multivariable model. Results were expressed as receiver operating characteristic curve with an area under the curve (AUC), sensitivity and specificity. We also analysed data from participants who had ≥ 1 return test visit ($n=673$) to estimate incidence of AHI (defined as antibody-negative/discordant RDTs, positive HIV-PCR) and acute/early HIV (AEHI; defined as AHI or confirmed antibody-positive RDTs following a negative HIV test < 6 months prior) incidence, expressed per 100 person-years (100PY).

Results: Based on 19 individuals with AHI and 3077 test-negative visits, the optimal AHI risk score included one symptom (fever < 2 weeks prior [$\beta=2.0$]) and three risk factors (condomless receptive anal intercourse < 6 months prior [$\beta=2.7$]; age < 30 years [$\beta=2.3$]; and not having completed secondary school [$\beta=2.0$]), yielding good performance with AUC 0.886, sensitivity 94.7% (95%CI 71.2–100) and specificity 64.8% (95%CI 39.4–90.7) for a cutoff value of ≥ 4.5 (Youden-index). Among 7 individuals who acquired AHI during follow-up and 1895 test-negative visits (median follow-up 7 months [IQR 7–11], total time-at-risk 5490 months), AHI incidence was 1.53 per 100PY (95%CI 0.73–3.21). Among 15 individuals who acquired AEHI (comprising 7 AHI+8 EHI) and 1887 test-negative visits, AEHI incidence was 3.28 per 100PY (95%CI 1.98–5.44).

Conclusion: AHI incidence was very high among Indonesian MSM, with young and less educated individuals particularly vulnerable. Implementing efficient detection strategies for AHI by using practical AHI risk score algorithms in high-yield settings, integrated with prompt HIV-PCR-based diagnosis and ART for persons with AHI, assisted partner notification and targeted PrEP for partners who are HIV-negative, present promising pathways to strengthen efforts to prevent onward HIV transmission and end AIDS as a public health threat.

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Building Communities of Care: Incentivized, Digitalized, and Prevention-Oriented Social and Sexual Network Testing (SSNT) Amplifies HIV Testing Service Acquisition and PrEP Initiation in the Manila Social Hygiene Clinic

Dogillo A^{1,2}, Andaya A¹, Pestaño M¹, Salinas R, Pahang R, Dela Cruz M, Vasquez B

¹Manila Social Hygiene Clinic, Manila, Philippines, ²Positive Action Foundation Philippines Incorporated, Manila, Philippines, ³FHI 360-EpiC HIV Philippines, Makati, Philippines

Background: In 2019, the World Health Organization recommended Social and Sexual Network Testing (SSNT) for expanding HIV testing services (HTS). As a principle, SSNT maximizes behavior and risk similarities within networks to broaden HTS reach while protecting privacy and improving acceptability. This is conducted by identifying people living with HIV or those with ongoing transmission risk who can encourage their social networks to avail HTS. In early 2023, development partners introduced full SSNT operationalization in Greater Manila Area (GMA), Philippines. This included non-incentivized SSNT, which produced positive outcomes including a maximal 75% of testing through SSNT referrals. However, critical gaps were revealed – particularly tapered availed service from network saturation. Building on 2023 experiences, Manila Social Hygiene Clinic (Manila SHC) was assisted with an enhanced SSNT pipeline — that is, an incentivized SSNT, coupled with in-depth recruiter engagement, and PrEP servicing coursed digitally through QuickRes.org, an online booking platform for HIV-related services.

Methods: In December 2023, the Manila SHC began SSNT preparation by identifying primary recruiters with 3 key metrics to maximize client reach: (1) key population status; (2) age group; and (3) array of HIV services availed. By January 2024, 4 recruiters were registered with automated generation of unique QuickRes tokens. Learning sessions on HIV fundamentals, treatment, U=U,

and PrEP were provided for the recruiters. They were then encouraged to engage individuals in their communities to pursue HIV services through QuickRes.org. Secondary client profiles were evaluated after Manila SHC's 12-month implementation to determine client key population status, age groups, and obtained services. During SSNT-derived arrivals, on the spot PrEP offer was secured for non-reactive clients.

Results: Since the QuickRes-SSNT implementation in January 2024, the Manila SHC reached 152 unique clients, translating to 145 arrivals (95% show rate) with 2.8% positivity rate. Among the 4 peer recruiters, the recruiter who works at a business process outsourcing had the highest positivity rate – 6.1% among their 33 recruited peers.

Among non-reactive clients, 64 (45%) initiated PrEP. Among the 4 recruiters, the PrEP-user recruiter contributed the highest PrEP percentage – where 14 were initiated among their 29 non-reactive peers.

The majority (64%) of clients reached through modified SSNT pipeline were clients aged 18-24, followed by 25-34 (27%). This order was also observed across all 4 recruiters. Most (61%) clients reached were men who have sex with men, while 33% were unspecified males, 3% were trans women, and 1% categorized as sex workers. Among recruiters, the trans woman recruiter who also avails gender-affirming care reached the most trans women clients.

In previous iterations, development partner-supported GMA facilities showed a peak client:recruiter ratio (CtR) of 18:1. In contrast, the enhanced Manila SHC SSNT pipeline demonstrated a 36:1 CtR.

Conclusion: Incentivized, digitalized, and prevention-oriented SSNT with in-depth recruiter engagement proves to be effective and cost-efficient for expanding HIV services, with clientele expanding 36-fold from primary recruitment as demonstrated by the Manila SHC. Learning from both shortcomings and best practices in GMA facilities, this method can be replicated in other regions to rapidly expand HTS reach.

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Trust and Test: Building a User Trust-Centered Urban VCT Network Using Digital Health Technologies in Guangzhou, China

Gu Y¹, Luo Y¹, Lu Y², Meng G², Sun L², Cai Y¹, Lin C¹, Han Z¹

¹Guangzhou Center for Disease Control and Prevention (Guangzhou Health Supervision Institute), Guangzhou, China,

²Lingnan Partners Community Support Center, Guangzhou, China

Background: In China, the "Four Frees and One Care" policy ensures HIV-positive individuals receive rapid treatment and viral suppression. Achieving the first UNAIDS 95-95-95 target—diagnosing 95% of people living with HIV—remains the greatest challenge. To address this, China established a nationwide free Voluntary Counseling and Testing (VCT) service network to promote HIV detection and reduce risky behaviors. However, stigma and limited public awareness hinder its full utilization. People lack reliable information about individual VCT sites, causing hesitation in decision-making. Even in Guangzhou, a megacity of 18 million, by 2018 only 6% of the 216 VCT sites, dominated by influential institutions such as CDCs and CBOs, were heavily utilized, limiting the impact of the urban VCT network.

Description: We developed Cha Bei, a digital health platform for VCT based on WeChat, China's most popular social app. Users can access the platform without additional downloads, browse service details, locations, and reviews/ratings of VCT sites in Guangzhou, and make online bookings, similar to selecting restaurants on platforms like Yelp or TripAdvisor. Reviews and ratings can only be submitted after users complete their test on-site, ensuring authentic and reliable feedback. This transparency helps others make informed decisions and encourages VCT sites to improve services, fostering a trust-centered urban VCT network.

Lessons Learned: Since its launch in 2018, Cha Bei has expanded to cover over 90% of VCT sites in Guangzhou, all available for booking and review. By 2024, the platform had identified 2,534 HIV-

positive cases. Bookings at non-CDC/CBO sites increased significantly, from 1,279 to 7,526 annually. The review/rating system introduced in 2021 collected 5,130 reviews. VCT sites with five-star ratings averaged 3,711 bookings per year, 2.36 times more than lower-rated sites. These findings demonstrate the role of digital health technologies in enhancing trust, engagement, and the utilization of VCT services.

Conclusions/Next Steps: A user trust-centered VCT network powered by digital health technologies can address decision delays caused by HIV-related stigma and discrimination, optimizing public health service utilization. This model enhances HIV detection and is scalable, both nationally in China and globally, contributing to the achievement of UNAIDS targets and the goal of ending the AIDS epidemic.

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Lessons Learnt from Providing Multilingual Mail-In HIV Testing for International Migrants in Japan

Kitajima T¹, Sawada T², Miyakubi H¹, Hue T³, Shakya S⁴, Ikushima Y⁵, Kidokoro H⁶, Okamoto H¹

¹Kyorin University, Tokyo, Japan, ²Minatomachi Clinic, Yokohama, Japan, ³Kobe Women's University, Kobe, Japan, ⁴Japan Foundation for AIDS Prevention, Tokyo, Japan, ⁵Place Tokyo, Tokyo, Japan, ⁶Shinjuku Ward Office Health Consultation Room, Tokyo, Japan

Background: International migrants account for nearly 20% of people who were newly diagnosed with HIV infections in Japan. Their access to HIV testing needs to be improved urgently. Public health centers offer free HIV testing, but mostly in Japanese. Mail-in HIV testing (MiHIV) using filter paper blood is commercially available, but only in Japanese. Our previous research suggested that international migrants had a high demand for MiHIV. This project examined the feasibility of providing multilingual MiHIV in Japan.

Description: We established a website for MiHIV in Japanese, English, Chinese, Vietnamese, Portuguese, and Nepali, by which applicants chose their preferred method to receive the MiHIV package at the distribution meetings, the nearest post office, or home). MiHIV package contains a test kit (Take-out® HIV test, product code: 278498176, H.U.POCKET, Inc.), instruction manual, test registration request letter, and return envelope. Upon receipt of the kit, applicants were asked to register their kit ID, email address, and password on the website before sending the sample to the laboratory. The website also has a video on how to use the test kit. The test results (negative, positive, or unmeasurable) were available to the test takers at the URL sent to the registered email address. We strongly recommended that those who tested positive go to the nearest medical institution for confirmatory tests. We provided on-line consultations. MiHIV packages were distributed free of charge. We advertised the project on SNS, targeting mainly those living in Kanto and Okinawa and migrant communities for 3 months from October 2024.

Lessons learnt: Of the 163 applicants from 33 nationalities, 85.3% were male, and 87.7% were in their 20s/30s. Breakdown of applicants by language is; English 76, Vietnamese 40, Portuguese 22, Japanese 19, Chinese 6. In total, 145 packages were distributed, 82% of which were delivered to their homes. Of 81 samples (55.9%) that were returned to the laboratory, 74 were negative, two were unmeasurable, and five were positive. Eight cases (9.9%) were not registered, so we could not return the results to the testers.

Next steps: The project demonstrated the feasibility of providing multilingual MiHIV in Japan. The high proportion of positive cases suggests that MiHIV can reach out to those at higher risk. Further studies are needed to improve the return rate, registration rate, strengthen post-test support and explore the possibility of extending the coverage to other areas of Japan.

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Maximizing HIV Case Finding: Insights and Outcomes from Partner Notification Services Among High-Risk Populations in Myanmar from October 2021 to September 2024

Win T¹, Kyaw M¹, Htet L¹, Naing K¹

¹Community Partners International, Yangon, Myanmar

Background: Partner Notification Services (PNS) play a pivotal role in HIV prevention and control, enabling the identification of new HIV cases among partners of index clients. By tracing and testing partners of individuals newly diagnosed with HIV, this approach provides an efficient strategy to reach high-risk populations and ensure their linkage to prevention or care services. This study evaluates the outcomes of PNS, aiming to assess the effectiveness of partner testing in enhancing HIV case finding and to inform future public health strategies and interventions.

Materials and Methods: The HIV/TB Agency, Information and Services Activity project conducted a retrospective cohort analysis between October 2021 and September 2024 across healthcare facilities offering PNS in five HIV high-burden priority Regions/States. Index clients newly diagnosed with HIV were provided with PNS, utilizing client, contract, dual and provider-led approaches. The team delivered services in adherence to ethical standards, ensuring safety, obtaining informed consent, and allowing clients to withdraw at any time. Data collection focused on the number of index clients including acceptance of PNS, the number of partners elicited, partners tested, and the corresponding HIV testing results. The project used descriptive statistics to summarize the data and statistical tests to explore the relationship between PNS implementation and HIV case findings outcomes.

Results: The project engaged a total of 11,342 newly diagnosed index clients with HIV during the study period. Among them, 9,147 (81%) accepted PNS, resulting in the identification of 11,699 partners (average of 1.3 partners per index client).

Of the identified partners, 6,399 (55%) were tested for HIV and an additional 1,871 (29%) individuals were newly diagnosed with HIV. From October 2021 through September 2024, the partner positivity rate increased from 25.5% to 31.9%, reflecting an annual increase of 3.2%. This suggests the testing approach became efficient at identifying HIV positive individuals over time. Time-trend analysis revealed a significant rise in partner positive contribution to overall new HIV cases, increasing from 7.6% in FY2022 to 18.8% in FY2024, highlighting the critical role of PNS and its programmatic value. Pearson correlation analysis ($r = 0.983$) showed a strong positive association between partner testing and the number of new HIV diagnoses (FY2022–FY2024), suggesting enhanced case finding through PNS.

Conclusion: The strong positive correlation between PNS implementation and new HIV case detection, along with the growing contribution of partner-notified cases over time, demonstrates the effectiveness of PNS in identifying previously undiagnosed HIV cases in remote areas. The 81% acceptance rate highlights the feasibility of this approach. Tailored interventions, such as counseling and community-based awareness campaigns, are essential for further enhancing the program reach and impact of partner notification services. The consistent rise in positivity rates demonstrates the program's success in targeting high-risk populations. By integrating partner testing into routine HIV care services, healthcare systems can improve case detection and contribute to epidemic control efforts. However, further analysis such as qualitative interviews with index clients and their partners, and focus group discussions is needed to provide valuable insights into the barriers to partner notification acceptance and testing.

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Participants and Recipients in Social Network Distribution of HIV Self-Testing Kits Among Men Who Have Sex with Men in China

Li R^{1,2}, Zhou³, Zhang Y^{1,2}, Wu D^{1,2}, Zhang X², Jing F^{2,4}, Fan J², He X⁵, Tucker J^{2,6}, Tang W^{1,2,7}

¹School of Public Health, Nanjing Medical University, , China, ²University of North Carolina Project-China, , ³Zhuhai Center for Disease Control and Prevention, , ⁴Faculty of Data Science, City University of Macau, , ⁵Zhuhai Xutong Voluntary Services Center, , ⁶London School of Hygiene and Tropical Medicine, , ⁷Dermatology Hospital of Southern Medical University, ,

Background: HIV self-testing (HIVST) has become a vital tool in expanding HIV testing access and enabling early diagnosis, especially among key populations. A promising approach, known as secondary distribution of HIV self-testing (HIVST) through social networks has shown promise in reaching marginalized populations and increasing HIV testing among men who have sex with men (MSM). However, evidence of its effectiveness remains limited. Understanding differences in characteristics between MSM who apply for HIVST kits (index participants) and their recipients (alters) is crucial. Identifying factors influencing HIV testing and kit distribution among index participants can guide interventions.

Methods: We analyzed data from 303 index participants and 264 alters recruited in Zhuhai, China, between October 2019 and September 2020. Descriptive statistics (frequencies and percentages) were used to compare their characteristics, with chi-square tests assessing group differences. Two separate multivariable logistic regression models were conducted to identify factors associated with HIV testing uptake among index participants and alters, respectively. Additionally, negative binomial regression was used to examine predictors of HIVST kit distribution among index participants.

Results: Our findings indicate that index participants had a higher likelihood than alters of having undergone prior HIV testing (84.5% vs. 62.5%) and engaging in recent anal sex (83.2% vs. 60.6%). Additionally, a greater proportion of index

participants reported multiple sexual partners (>2) in the past three months compared to alters (27.8% vs. 18.1%). Among index participants, older age (aOR = 1.14, 95% CI: 1.05–1.24), higher education (aOR = 4.71, 95% CI: 1.94–11.6), and condomless sex (aOR = 3.90, 95% CI: 1.37–12.9) were associated with increased odds of HIV testing. For alters, higher income was a key determinant (aOR = 2.58, 95% CI: 1.11–6.00; aOR = 2.35, 95% CI: 1.04–5.36). Among index participants, greater age (IRR = 1.03, 95% CI: 1.00–1.07), graduate-level education (IRR = 2.18, 95% CI: 1.05–4.54), and having more sexual partners (IRR = 1.09, 95% CI: 1.02–1.17) were positively associated with increased HIVST kit distribution.

Conclusions: Tailored interventions are critical to ending the HIV epidemic. Pro-poor strategies that address financial barriers can improve access to HIV testing, particularly among lower-income MSM. These findings can inform the refinement of secondary distribution strategies for HIV self-testing kits in China and other low- and middle-income countries (LMICs).

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The Impact of Hospital Policies on Pre-ART Screening Procedures on Adverse Outcomes and Viral Non-Suppression

Seekaew P^{1,2,3}, Chen B^{1,3}, Teeratakulpisarn N³, Lujintanon S^{3,4}, Vollmer B⁵, Leenasirimakul P⁶, Khusuwan S⁷, Mathajittiphan P⁸, Nilmanat A⁹, Saenyakul P¹⁰, Arunmanakul A¹⁰, Lingjongrat D¹¹, Janyam S¹², Chanlern P¹³, Sittikarn S¹⁴, Mills S¹⁰, Lamb M², Mathema B², Abrams E², Phanuphak P³, Phanuphak N³

¹Johns Hopkins University School Of Medicine, Baltimore, United States, ²Department of Epidemiology, Columbia University Mailman School of Public Health, New York, USA, ³Institute of HIV Research and Innovation, Bangkok, Thailand, ⁴Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, USA, ⁵Taub Institute for Research in Alzheimer's Disease and the Aging Brain, Columbia University, New York, USA, ⁶Nakornping Hospital, Chiang Mai, Thailand, ⁷Chiang Rai Prachanukroh Hospital, Chiang Rai, Thailand, ⁸Queen Savang Vadhana Memorial Hospital, Chonburi, Thailand, ⁹Hat Yai Hospital, Songkhla, Thailand, ¹⁰FHI 360 and LINKAGES, , Thailand, ¹¹Rainbow Sky Association of Thailand, Bangkok, Thailand, ¹²The Service Workers In Group Foundation, Bangkok, Thailand, ¹³Mplus Foundation, Chiang Mai, Thailand, ¹⁴Caremat, , Thailand

Background: Accelerated antiretroviral therapy (ART) initiation has been proposed to address structural barriers associated with the ART initiation process and improve ART uptake. Despite this, there is no consensus on how this approach should be implemented, especially concerning clinical readiness screening procedures. While emerging literature has reported the clinical safety of accelerated ART, limited data are reported from Thailand. Given the heterogeneity of clinical profiles of people with HIV (PWH) in different regions, past studies may not be generalizable to Thailand. Additionally, as different screening procedures affect the time to ART initiation, how these procedures impact treatment outcomes needs to be explored.

Methods: Data were obtained from PWH from 10 ART facilities in six provinces (Chiang Rai, Chiang Mai, Chonburi, Ubon Ratchathani, Songkhla, and Bangkok) in Thailand between July 2017 and July 2019 and followed up until January 2021. All PWH registered in HIV care were included in the

analysis, regardless of baseline clinical status. ART facilities were categorized into three models according to hospital policy on pre-ART laboratory screening procedures: Model A did not consider any lab results at initiation, Model B considered only CD4 count, and Model C considered other non-CD4 baseline laboratory results. Log-Poisson regression was used to assess the impact of hospital policies on adverse outcomes (deaths, ART discontinuation, loss to follow-up) at months 3, 6, 12, 18, and 24 after care engagement. Logistic regression was used to examine the impact of hospital policies on viral non-suppression (VNS, HIV-1 RNA>50 copies/mL) at months 6, 12, and 18 after ART initiation. Multilevel mixed model was used to account for potential clustering.

Results: Of 10,926 PWH, 9,695 (88.7%) were included in this study. Among these, 68% (6,571/9,695), 13% (1,236/9,695), and 19% (1,888/9,695) were in Models A, B, and C, respectively. Both Models A and B had 2 ART facilities each, while Model C had 6 ART facilities. 54.2% (5,257/9,695) self-reported to be men who have sex with men, and the overall baseline median CD4 (IQR) was 168 (129-404) cells/mm³. Compared to Model A, the average risk ratio (95%CI) of adverse events at months 3, 6, 12, 18, and 24 for Model B was 1.14(1.08-1.20), 1.40(1.31-1.49), 1.19(1.10-1.27), 1.11(1.02-1.21), and 1.32(1.21-1.44), respectively, while it was 1.21(1.16-1.27), 1.76(1.67-1.85), 1.59(1.50-1.67), 1.81(1.71-1.90), and 1.98(1.88-2.10) for Model C, respectively. Of 9,695 PWH, 6,785 (70%) had a confirmed date of ART initiation; 37% (2,513/6,785), 34% (2,332/6,785), and 13% (851/6,785) PWH had information on viral load status at months 6, 12, and 24 after ART initiation, respectively. Among these samples, compared to Model A, the average odds ratio (95%CI) of VNS for Model B at months 6, 12, and 18 was 0.79(0.59-1.06), 1.06(0.71-1.55), and 1.47(0.49-3.58), respectively, while it was 1.01(0.77-1.32), 0.68(0.40-1.09), and 0.93(0.31-2.22) for Model C, respectively.

Discussion: ART facilities that considered CD4 or other non-CD4 baseline laboratory results before starting ART had, on average, a higher likelihood of adverse outcomes after the initial care engagement visit and viral non-suppression after ART initiation than ART facilities that did not consider any baseline laboratory result.

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Acceptability of Long-Acting Cabotegravir and Rilpivirine Treatment Among People Living with HIV and Health Workers and Quality of Life Measures After 6 Months: Findings from the ICAROS Study

Eu B^{1,2}, Traeger M^{3,6}, Lau H⁴, Roth N¹, Ronney J⁴, Stoové M^{3,6,7}, Burnett C⁸, Russell D⁹, Cordon J⁷

¹Prahran Market Clinic, Prahran, Australia, ²University of Melbourne, Melbourne, Australia, ³Burnet Institute, Melbourne, Australia, ⁴Alfred Hospital, Melbourne, Australia, ⁵National Association of People living with HIV Association, Sydney, Australia, ⁶Monash University, Melbourne, Australia, ⁷Deakin University, Melbourne, Australia, ⁸Living Positive Victoria, Melbourne, Australia, ⁹James Cook University, Cairns, Australia

Background: In Australia, long-acting cabotegravir and rilpivirine (LA-CAB/RPV) was approved and PBS-subsidised for HIV treatment in April 2022. This study aimed to understand perceptions of LA-CAB/RPV treatment acceptability among people with HIV and their QOL measures after commencing this treatment as well as the acceptability for health workers involved with its administration.

Methods: From June 2023-December 2024, we recruited individuals prescribed LA-CAB/RPV from primary and tertiary clinics, and directly from the community, as well as health workers involved with administration of LA-CAB/RPV across Australia. Participants completed baseline and follow-up surveys at 6 months (LA-CAB/RPV recipients) and 12 months (health workers), exploring reasons for switching to LA-CAB/RPV, concerns, and LA-CAB/RPV acceptability measured using the Acceptability of Intervention Measure (AIM) and Intervention Appropriateness Measure (IAM) with 5-point Likert scales.

Results: In total, 105 LA-CAB/RPV treatment recipients were recruited, with 78.1% enrolled from primary care centres. Most treatment recipients were assigned male sex at birth (92.4%), 89.5% identified as gay/bisexual men, and 7.6%

reported injecting drug use. Most common reasons for switching to LA-CAB/RPV were - general interest in new treatments (48.6%), convenience for travelling (42.9%), not worrying about forgetting to take medication (48.6%) and not having a daily reminder of HIV (38.1%). Most reported treatment concerns were injection-site pain (61%) and not sustaining viral suppression (50.5%). Most (94.2%) reported their LA-CAB/RPV initiation clinic visit took <30 minutes, of which 89.5% found the time taken acceptable. Thirty-seven health worker respondents included GPs (35.1%), GP/community nurses (27%), hospital nurses (21.6%) and hospital doctors (13.5%). Top concerns for prescribing and administering LA-CAB/RPV were staff resourcing (48.6%), patients failing treatment due to missed visits (42.9%), risk of treatment failures with resistance (40.0%) and rescheduling missed visits within the recommended window period (40.0%). At 12 months follow-up, the most important lessons learnt for implementing LA-CABRPV reported by health care workers were ensuring patients understood the importance of the injection window period, and scheduling follow-up injections are the start of the window period. For both LA-CAB/RPV recipients and health workers, acceptability measures for LA-CABRPV were high at baseline and follow-up, with mean AIM and IAM scores all greater than 4.5/5. POZQOL scores showed sustained high quality of life among LA-CAB/RPV recipients during follow-up (mean=3.7/5.0).

Conclusion: Novelty, convenience and not being reminded daily of their HIV status were the primary reasons for switching to LA-CAB/RPV for recipients of LA-CAB/RPV, however some had concerns about side effects and efficacy. Many healthcare workers shared concerns and treatment efficacy in addition to the logistics of delivering LA-CAB/RPV. Long-acting injectable cabotegravir and rilpivirine has a favourable satisfaction and quality of life in this study where most patients are attending primary care clinics, as well as favourable satisfaction amongst health workers. These findings support a successful implementation of this long-acting treatment in Australia.

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The Impact of Time to ART Initiation on Adverse Outcomes and Viral Non-Suppression

Seekaew P¹, Chen B^{1,3}, Teeratakulpisarn N³, Lujintanon S^{3,4}, Vollmer B⁵, Leenasirimakul P⁶, Khusuwan S⁷, Mathajittiphan P⁸, Nilmanat A⁹, Saenyakul P¹⁰, Arunmanakul A¹⁰, Lingjongrat D¹¹, Janyam S¹², Chanlern P¹³, Sittikarn S¹⁴, Charoenying S¹⁰, Mills S¹⁰, Lamb M², Mathema B², Abrams E², Phanuphak P³, Phanuphak N³

¹Johns Hopkins University School Of Medicine, Baltimore, United States, ²Department of Epidemiology, Columbia University Mailman School of Public Health, New York, United States, ³Institute of HIV Research and Innovation, Bangkok, Thailand, ⁴Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, United States, ⁵Taub Institute for Research in Alzheimer's Disease and the Aging Brain, Columbia University, New York, United States, ⁶Nakornping Hospital, Chiang Mai, Thailand, ⁷Chiang Rai Prachanukroh Hospital, Chiang Rai, Thailand, ⁸Queen Savang Vadhana Memorial Hospital, Chonburi, Thailand, ⁹Hat Yai Hospital, Songkhla, Thailand, ¹⁰FHI 360 and LINKAGES, Bangkok, Thailand, ¹¹Rainbow Sky Association of Thailand, Bangkok, Thailand, ¹²The Service Workers In Group Foundation, Bangkok, Thailand, ¹³Mplus Foundation, Chiang Mai, Thailand, ¹⁴Caremat, Chiang Mai, Thailand

Background: Pre-screening clinical and psychosocial readiness assessments are imperative to ensure clinical safety and antiretroviral therapy (ART) adherence. However, lengthy assessment times and preparation steps contribute to low ART uptake and care disengagement. Therefore, accelerated ART initiation has been proposed. Despite this, concerns with accelerated ART remain, especially with commitment to optimal HIV care adherence among people with HIV (PWH). This study examined the impact of time to ART initiation on adverse outcomes after care engagement and viral non-suppression (VNS) after ART initiation among PWH in Thailand.

Methods: Data were obtained from PWH from 10 ART facilities in 6 provinces (Chiang Rai, Chiang Mai, Chonburi, Ubon Ratchathani, Songkhla, and Bangkok) in Thailand between July 2017 and July 2019 and followed up until January 2021. PWH who tested negative for cryptococcal antigen test at baseline and had a confirmed date of ART initiation were included in the analysis and were categorized into three groups based on the time

interval between care engagement and ART initiation: (1) same day (ART initiation upon the day of care engagement), (2) 1-7 days, and (3) more than 7 days. Log-Poisson regression was used to assess the impact of time to ART initiation on adverse outcomes (deaths, ART discontinuation, and loss to follow-up) at months 3, 6, 12, 18, and 24 after care engagement. Logistic regression was used to examine the impact of time to ART initiation on VNS (HIV-1 RNA >50 copies/mL) after ART initiation at months 6, 12, and 18 after ART initiation. The final models adjusted age, population, hospital pre-ART screening procedure policy, and baseline CD4. Of 10,926 PWH, 5,528 (50.6%) met inclusion criteria.

Results: Among these, 44.23% (2,445/5,528), 38.69% (2,139/5,528), and 17.08% (944/5,528) started ART on the day of, 1-7 days from, and more than 7 days from HIV care engagement visit, respectively. The median age (IQR) was 29 (24-36), and 61% (3,387/5,528) identified themselves as men who have sex with men. The baseline median CD4 (IQR) was 283 (162-412) cells/mm³. Compared to PWH who started ART on the day of HIV care engagement visit, the average risk ratio (RR) of adverse outcomes for those who started ART between 1-7 days at months 3, 6, 12, 18, and 24 was 0.73(0.60-0.89), 0.66(0.55-0.79), 0.74(0.63-0.86), 0.83(0.71-0.98), and 0.84(0.70-1.01), respectively, while it was 2.27(1.91-2.71), 2.16(1.85-2.52), 1.70(1.46-1.98), 1.93(1.65-2.25), and 2.83(2.44-3.30) for those who started ART more than 7 days, respectively. In the adjusted models, the associations from both groups became statistically non-significant, except for the more than 7 days at month 24 (adjusted RR:1.08; 95%CI:1.04-1.12). Of 5,528 PWH, 29% (1,616/5,528), 36% (1,967/5,528), and 14% (795/5,528) had information on viral load status at months 6, 12, and 18 after ART initiation, respectively.

Discussion: Time to ART initiation was determined to have no impact on VNS in crude and adjusted models. Therefore, HIV programs should recognize the potential for accelerated ART initiation to improve ART uptake while addressing a diversity of needs and minimizing adverse outcomes following ART initiation.

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Improving HIV-Related Knowledge and Reducing Stigma Attitudes in Healthcare Settings Among Medical and Nursing Students Participating in the HIV S&D E-Learning, A Piloted Project in 10 Universities in Thailand, 2024

Pakdeepinid A¹, Teerawantane T¹, Prajankett O², Wisawatapnimit P³, Munsakul W⁴, Dinchuthai P⁵, Inchai P⁵, Chumwong W³, Chumpa N⁶, Maneesriwongul W⁷, Muktier S⁸, Northbrook S⁸, Lolekha R⁸

¹Division of AIDS and STIs, Department of Disease Control, Ministry of Public Health, Nonthaburi, Thailand, ²The Royal Thai Army Nursing College, Phramongkutklao Hospital, Bangkok, Thailand, ³Boromarajonani College of Nursing, Bangkok, Faculty of Nursing, Praboromarajchanok Institute, Nonthaburi, Thailand, ⁴Faculty of Medicine Vajira Hospital, Navamindradhiraj University, Bangkok, Thailand, ⁵Faculty of Medicine, Burapa University, Chonburi, Thailand, ⁶Thai Red Cross Emerging Infectious Diseases Clinical Center, King Chulalongkorn Memorial Hospital, Bangkok, Thailand, ⁷Ramathibodi School of Nursing, Faculty of Medicine Ramathibodi Hospital, Bangkok, Thailand, ⁸Division of Global HIV and TB, U.S. Centers for Disease Control and Prevention, Nonthaburi, Thailand

Background: People living with HIV (PLHIV) have reported discrimination from healthcare providers. In Thailand, medical and nursing students have displayed moderate HIV knowledge, with some holding stigmatizing attitudes toward PLHIV. We evaluated HIV-related knowledge and stigma attitudes before and after participating in the Ministry of Public Health (MOPH) Stigma & Discrimination (S&D) e-learning program.

Methods: Thailand's MOPH and universities adapted the HIV S&D e-learning video from DriStri for Thai audiences. The 90-minute video consists of six modules covering topics, including S&D definition, its impact on the HIV epidemic, and universal precautions, 25 pre-/post-test questions (17 knowledge questions and eight stigma attitude questions on a Likert scale, where 1 is no stigma). We ensured that only questions with a reliability alpha of >0.7 were included. A convenience sample of medical and nursing students from ten

schools in Bangkok, Nonthaburi, and Chonburi participated from June to July 2024, completing online pre-/post-tests before and immediately after the modules after providing electronic consent. SPSS software was used to analyze changes in attitudes and knowledge scores.

Results: The survey included 811 students: 241 (30%) third and fourth-year medical students and 570 (70%) first and fourth-year nursing students. Of the participants, 88% were female. Compared to the pre-test and post-test, HIV knowledge scores improved from 9.44 to 15.26 ($p < 0.001$). HIV stigma scores decreased (14.6 vs. 11.9, $P < 0.001$), including the discomfort level in providing services to PLHIV, concerns about contracting HIV, and negative attitudes toward HIV and key populations. Year 3 and 4 students had higher knowledge scores (15.4 vs. 15.0, $P < 0.001$) and lower stigma attitudes than first-year students (11.4 vs. 12.9, $P < 0.001$). More than 90% of the students reported being highly satisfied with the e-learning modules and suggested shortening the video and including the "Undetectable = Untransmittable" message in the materials.

Conclusions: After participating in the S&D e-learning program, students demonstrated an increase in their HIV knowledge scores and a decrease in S&D attitude scores. The students reported high levels of satisfaction with the S&D e-learning program. The MOPH plans to simplify the video based on feedback and expand this program to enhance S&D reduction in health facilities.



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Integrating Mental Health Care Among Adults Living with HIV Attending an Outpatient HIV Clinic in Malaysia: Lessons learned

Tan X¹, Chong M^{1,2}, Vasigaran J¹, Cheong T², Ross J³, Petersen B³, Charl B⁶, Stockton M⁴, Wainberg M⁵, Rajasuriar R^{1,2}

¹Centre of Excellence for Research in AIDS, Universiti Malaya, Kuala Lumpur, Malaysia, ²Department of Medicine, Faculty of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia, ³TREAT Asia/amfAR – The Foundation for AIDS Research, Bangkok, Thailand, ⁴Department of Epidemiology, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, United States, ⁵Columbia University College of Physicians and Surgeons and New York State Psychiatric Institute, New York, United States, ⁶Department of Global Health, Boston University School of Public Health, Boston, United States

Background: Mental health (MH) care for adults living with HIV (PWH) remains inadequate and siloed in the Asia-Pacific region despite evidence suggesting integrated care can improve MH and HIV outcomes. This study aims to share key lessons learned over six months of implementing MH screening and linkage to care, highlighting strategies to bridge gaps in MH service delivery within an outpatient HIV clinic in Malaysia.

Description: The Infectious Diseases (ID) Clinic, University Malaya Medical Centre (UMMC) was one of three Asia Pacific sites which piloted the implementation of MH services into routine HIV care (Sept 2024 – February 2025). Eligible PWH were aged >18 years and not currently receiving MH care. The implementation strategy included MH training for all ID doctors and nurses, supervision of a dedicated HIV nurse to engage with eligible PWH for MH screening and identification of a key champion within psychiatric services to foster inter-department communication and facilitate the referral process. The screening tool utilised was the Electronic Mental Wellness tool (E-mwTool), a brief, validated, electronic self-administered tool which screens for common mood disorders, severe mental disorders, substance use disorder, alcohol use disorder and suicide risk. A screening and linkage to care algorithm was developed, where

PWH who screened positive on E-mwTool were referred to a psychologist in the ID clinic for further assessment. Those with moderately severe symptoms were scheduled for the next available appointment or same-day referral with the psychologist. Those presenting with severe symptoms or high risk of suicide were referred to a dedicated psychiatrist at the psychiatric clinic co-located in the same hospital for a next available appointment or on an immediate basis. PWH with a negative screen or mild symptoms were scheduled for an annual MH screening with the psychologist.

Lessons learned: Despite engagement with the HIV nurse on the importance of the service, obtaining full commitment for them to perform screening was a challenge. However, communication through established organizational structures via medical and nursing unit heads helped facilitate readiness and better acceptance. Over the 6-month implementation, 53/102 (52%) PWH screened positive on the E-mwTool requiring further assessments by the psychologist, but this was not practical given the limited manpower. A second, automated triage was then implemented where those positive on the E-mwTool were directed to proceed with further assessments (PHQ-9, GAD-7, PC-PTSD, PCL-5 and ASSIST). This helped streamline screening to fewer PWH needing intervention 22/102 (21%) and reduced hospital visits for PWH. Administrative gaps in scheduling for MH referral was also identified and rectified during this period allowing for better documentation and follow up of PWH requiring MH services. Identifying a dedicated psychiatrist within psychiatric clinic expedited referral process for severe MH conditions and improved clinical support for the HIV care providers through case discussions.

Conclusion: Integrating MH care into ID clinic is not one size fits all but requires tailored made implementation strategies to address the identified challenges on the ground. This effort should be a continuous process to improve clinical service delivery for PWH.

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Multi-Month ARV Dispensing, Adherence to Timely Refill, and Viral Suppression Trends in Phnom Penh, Cambodia

Men P¹, Ma S¹, Phoeun N¹

¹Aids Healthcare Foundation (ahf), Phnom Penh, Cambodia

Introduction: Multi-month antiretroviral (ARV) dispensing (MMD) has been scaled up in Cambodia in recent years to reduce clinic burden and improve patient convenience. However, concerns remain about its potential impact on timely ARV refills and treatment outcomes. This study explores the trends in MMD coverage, ARV refill adherence, and viral suppression rates from 2020 to 2024 to assess whether MMD affects these critical indicators.

Methods: This study analyzed retrospective data of an AHF-supported ART clinic providing care and treatment to more than 3,000 persons with HIV in Phnom Penh, Cambodia. MMD coverage was determined from routine appointment monitoring records, where the proportion of clients running out of ARV reserves before their visits was also tracked. Viral suppression rates were extracted from annual medical record audits. MMD was defined as ARV dispensing for three or more months and viral suppression was defined as an HIV RNA level <1000 copies/mL. Descriptive analyses examined trends over the five-year period.

Results: From 2020 to 2024, MMD coverage increased steadily from 79.0% in 2020 to 81.9% in 2021, 86.7% in 2023, and 87.6% in 2024. The percentage of clients running out of ARV reserves before their visits remained consistently low at ≤3% throughout the period, indicating effective ARV refill adherence. Viral suppression rates were also unaffected, remaining high at 98.5% in 2020, 99.0% in 2021 and 2023, and 99.8% in 2024. These trends highlight that MMD implementation has not compromised refill adherence or treatment outcomes.

Conclusions: The findings underscore that MMD is a viable strategy for improving ART efficiency and patient convenience without adversely affecting

ARV refill adherence or viral suppression. Our findings support the implementation of MMD into routine HIV care, particularly in resource-limited settings.

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Factors Contributing to Retention in Care Among People Living with HIV 12 Months After Antiretroviral Therapy Initiation in Jakarta and Greater Jakarta, Indonesia: A Retrospective Cohort Analysis

Monique R¹, Ferradini L¹, Sulami S¹, Francis C¹, Aditya E¹

¹FHI 360, Jakarta, Indonesia

Background: Antiretroviral therapy (ART) retention is a critical component of HIV care and treatment, yet globally, it remains a programmatic challenge in some populations. Rapid ART initiation and multimonth dispensing (MMD) have been implemented throughout Indonesia as components of differentiated service delivery (DSD) to enhance retention.

This analysis describes treatment outcomes 12 months after ART initiation among people living with HIV (PLHIV) followed at treatment sites supported by the USAID/PEPFAR-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project in Jakarta and Greater Jakarta, Indonesia.

Methods: The study analyzed HIV outcomes of PLHIV who began ART between January and September 2023 using data from 137 PEPFAR-supported health care facilities in Jakarta and Greater Jakarta. Variables included sex; age; key population (KP); World Health Organization (WHO) clinical stage 1 and 2; rapid ART initiation (within seven days of diagnosis); tenofovir, lamivudine, and dolutegravir (TLD) initiation; and MMD. Multivariate logistic regression analysis was performed to identify factors associated with retention (defined as remaining in care) 12 months after ART initiation.

Results: In total, 4,484 patients were analyzed: 82.1% were male, the median age was 30 (IQR: 25–38), and 51.1% identified as a KP individual. Twelve months after initiation, 1,493 (33.3%) were disengaged from treatment or dead, one (0.0%)

stopped treatment, 76 (1.7%) were transferred out, and 2,914 (65.0%) remained in care.

Multivariate analysis revealed that being male (aOR: 1.27, 95% CI: 1.07–1.52), belonging to a KP (aOR: 1.44, 95% CI: 1.24–1.68), having WHO clinical stage 1 and 2 (aOR: 1.19, 95% CI: 1.03–1.39), being initiated on TLD (aOR: 1.22, 95% CI: 1.00–1.48), and receiving MMD (aOR: 10.99, 95% CI: 8.10–14.90) were independent factors associated with 12-month retention. Conversely, rapid ART initiation was not associated with 12-month retention (aOR: 0.76, 95% CI: 0.65–0.89).

Conclusions: The HIV program in Jakarta and Greater Jakarta faces challenges in ART retention at 12 months, but MMD can significantly improve retention. Further expansion of MMD is needed to reduce HIV mortality, morbidity, and transmission, thereby improving early retention.

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HIV Treatment Retention Rates Among Young Versus Older Key Populations in Jakarta, Indonesia

Rachma Y¹, Sulami S¹, Safitri E², Zuhroh S², Ferradini L¹, Francis C¹, Aditya E¹

¹FHI 360, Jakarta, Indonesia, ²Jakarta Provincial Health Office, Jakarta, Indonesia, Indonesia

Background: Young key populations (KPs) might have less knowledge about HIV, riskier behaviors, and greater difficulty accessing HIV services than their older counterparts. This study aimed to compare the retention rates between young and older KPs in health and social service programs and to identify independent factors associated with young KP retention and continuity of care in Jakarta, Indonesia.

Methods: The USAID/PEPFAR-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project team in Indonesia analyzed routine data from KP clients who initiated antiretroviral therapy (ART) between October 2022 and September 2023 in 109 health facilities in Jakarta. Retention was defined as those still in care and on ART 12 months after ART initiation. KP individuals 10 to 24 years of age were defined as “young”, whereas those 25 years and older were defined as “older” KP individuals. Statistically significant differences between retention rates were assessed using a chi-square test.

Results: At baseline, among 2,064 KP individuals enrolled, the median age was 28 years (IQR=24–33 years), 573 (27.8%) were young KP individuals, 1,995 (96.7%) were males, 1,935 (93.8%) were men who have sex with men (MSM), 31 (1.5%) were transgender women, 31 (1.5%) were people who inject drugs, and 67 (3.2%) were female sex workers. Among the 573 young KP individuals, 549 (95.8%) were MSM. At 12 months, 17 (3%) were interruption in treatment (IIT) or had died, 39 (6.8%) were transferred out, and 517 (90.2%) were retained in care. Among the 1,491 older KP individuals, 1,386 (93.0%) were MSM and 1,410 (94.6%) were retained in care at 12 months. Young KP individuals exhibited lower retention rates compared to their older counterparts ($p < 0.01$).

Similarly, the young MSM group had a lower retention rate than the older MSM group ($p < 0.001$).

Conclusions: The findings highlight the necessity for better tailored interventions that specifically address the needs of young KP individuals to further improve retention rates, such as addressing health service accessibility, social stigma, and age-appropriate support services.

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Using Online Media to Increase the Awareness and Uptake of Pre-Exposure Prophylaxis Among Asian-Born Men Having Sex with Men: A Randomised Controlled Trial

Tieosapiaroen W^{1,2}, Phillips T^{1,2}, Chow E^{1,2,3}, Fairley C^{1,2}, Istiko S^{4,5,6}, Wu J^{2,7}, Tapa J¹, Mao L⁸, Zhang L^{1,2}, Wang D⁹, Sudarto B¹, Ong J^{1,2,10}

¹School of Translational Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia, ²Melbourne Sexual Health Centre, Alfred Health, Melbourne, Australia, ³Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia, ⁴Bradford Institute for Health Research, Bradford Teaching Hospitals NHS Foundation Trust, Bradford, United Kingdom, ⁵Bristol Medical School, University of Bristol, Bristol, United Kingdom, ⁶School of Public Health, Faculty of Medicine, The University of Queensland, Brisbane, Australia, ⁷Kings Park Medical Centre – Hillside, General Practice, Melbourne, Australia, ⁸Centre for Social Research in Health, University of New South Wales, Sydney, Australia, ⁹Burnet Institute, Melbourne, Australia, ¹⁰Faculty of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, London, United Kingdom

Background: Asian-born men having sex with men (ABMSM) are a key population for ending HIV transmission in Australia. However, most existing campaigns were not designed for them. We assessed the acceptability of a community-based audio drama, developed through a designathon, compared to written information on a PAN website (PAN.org.au) to increase PrEP awareness and uptake among ABMSM in Australia.

Methods: This open-label-two-arm pilot stratified randomised controlled trial was conducted between April and July 2024. ABMSM were randomised 1:1 to receive either the Hot Peach Tea 30-minute audio drama (intervention), depicting a PrEP journey of an ABMSM who newly arrived in Australia, or the PAN website (control), commonly suggested by clinicians in Victoria to gain PrEP-related information. An intention-to-treat analysis was used to evaluate the data. The primary outcomes included acceptability, attitudes towards PrEP and intention to use PrEP. The secondary outcomes included PrEP initiation and adherence to PrEP and PrEP-related knowledge.

Results: Among the 200 participants, 96 received the control, and 104 received the intervention. Extreme satisfaction was expressed by 74% (71/96) and 77% (80/104) in the control and intervention arms, respectively. Full engagement was 22% (21/96) and 85% (88/104) in the control and intervention arms, respectively ($P < 0.001$). The median score increase in attitude towards PrEP was 4 (interquartile (IQR) 0,7) and 7 (3,12.5) in the control and intervention arms, respectively ($P = 0.023$). Both online media increased the uptake of PrEP, with no significant differences observed between the two arms. At the two-month follow-up, 18% (17/96) and 22% (23/104) initiated PrEP in the control and intervention arm, respectively ($P = 0.0133$). The most reported reasons for not initiating PrEP were PrEP side effects (20%, 19/96) in the control arm and perceived inconvenience of PrEP use (16%, 17/104) in the intervention arm.

Conclusions: The Hot Peach Tea audio drama effectively engaged and positively influenced ABMSM's attitudes towards PrEP. Strategies to link individuals to care post-audio drama are needed to increase the uptake of PrEP. Future trials should consider incorporating further support in PrEP initiation for this population.

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HIV Pre-Exposure Prophylaxis Initiation, Continuation, Loss to Follow-up, and Associated Factors Among Key Populations in Indonesia: Data from a Real World Pilot Implementation 2021 – 2023

Wisaksana R¹, Hanum N^{2,3}, Handayani M¹, Pohan M¹, Putri T¹, Rakhmat F¹, Zazuli Z², Anggadiredja K², Padmasawitri A², Anggiani D⁴, Afriana N⁴, Lukitosari E⁴, Prabowo B⁵

¹Research Center for Care and Control of Infectious Disease, Padjajaran University, Bandung, Indonesia, ²Pharmacology and Clinical Pharmacy – School of Pharmacy, Bandung Institute of Technology, Bandung, Indonesia, ³Biosciences and Biotechnology Research Center, Bandung Institute of Technology, Bandung, Indonesia, ⁴HIV and STI Working Group of the Directorate of Disease Prevention and Control, Ministry of Health, Jakarta, Indonesia, ⁵The Joint United Nations Programme on HIV/AIDS (UNAIDS), Jakarta, Indonesia

Background: The pre-exposure prophylaxis (PrEP) care cascade depicting eligibility, initiation, and continuation, as well as loss to follow-up (LTFU) among individuals taking PrEP has not been systematically evaluated in Indonesia. We examined PrEP initiation and the associated baseline factors, continuation, and LTFU and the associated longitudinal factors in a large-scale implementation program for key populations vulnerable to HIV in Indonesia.

Methods: Numbers of HIV-negative individuals screened for eligibility, eligible for, initiated, continued to use PrEP from month-one until month-12, and LTFU (defined as not returning for PrEP refill for 100 days) were retrieved from the Indonesia PrEP Pilot Program database, a longitudinal oral PrEP implementation rolled out in 21 districts in 10 provinces with high HIV prevalence between Dec-2021 and Dec-2023 among men who have sex with men (MSM), female sex workers (FSW), people who inject drugs (PWID), transgender women (TGW), and serodiscordant partners of people living with HIV (SD-PLHIV). Participants completed baseline and follow-up visits at month one and then every three months (months three, six, nine, 12 and so on) for

HIV and STI testing, assessment of side effects and adverse events, adherence counselling, return of the leftover TDF/FTC, and sexual behaviours assessment. We used logistic regression models to assess factors associated with PrEP initiation and time-varying Cox's models to determine risk factors of subsequent LTFU.

Results: Of the 16,469 eligible individuals, 9,124 (55.4%) initiated PrEP up to December 2023 (mean age 29.8 [SD 16.3], 85% men, 75% MSM, 12.2% FSW, 7.8% SD-PLHIV, 5.2% TGW and 0.2% PWID, 92% from Java-Bali). PrEP initiations were significantly higher among older people, women, FSW and TGW (versus MSM), and those reporting higher-risk sexual behaviours, while significantly lower among PWID and SD-PLHIV, and those living in provinces not covered by the program (all $p < 0.001$). Among all who started PrEP, 68.5% retained at month one, 66.3% retained at month three (from those retained at month one), 69% retained at month six, 68.7% retained at month nine, and 65% retained at month 12. PrEP continuations at months one and three were very low among FSW (37% and 34%, respectively). The cumulative LTFU rate at 12 months was 40% (95% confidence interval [CI] 38%–42%). In age-adjusted models, becoming LTFU while on PrEP was predicted by younger age (adjusted hazard ratio, AHR 0.99; 0.98–0.99, $p = 0.037$), living in Yogyakarta (aHR 1.41; 1.00–1.98), West Java (aHR 1.35; 1.09–1.67) or East Java (aHR 1.49; 1.22–1.81) (all versus Jakarta, $p < 0.001$), no STI diagnoses (aHR 0.39; 0.29 – 0.52, $p < 0.001$), using event-driven PrEP (aHR 1.18; 1.02–1.37, $p = 0.023$), and reporting higher risk behaviours (condomless sex aHR 1.33; 1.02–1.74 and no condom at last sex aHR 3.94; 2.28–6.83, all $p < 0.001$).

Conclusion: Our findings revealed gaps in PrEP initiation, continuation, and LTFU among key populations taking PrEP in Indonesia. Targeted interventions are needed to address engagement among those likely to LTFU and populations underserved by the program to improve initiation and continuation.

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PrEP Use Cascade Among Men Who Have Sex with Men (MSM) Before and During the Indonesian Pilot Program: Analysis of APMIS 2020 and PrEP APPEAL 2022 Surveys

Wirawan G¹, Phanuphak N², Ong J^{3,4}, Schmidt H⁵, Cassell M⁶, Tieosapjaroen W³, Kaneko N⁷, Chan C¹, Tang W^{8,9,10}, Holt M¹¹, Bourne A^{1,12}, Bavinton B¹

¹Kirby Institute, UNSW Sydney, Sydney, Australia, ²Institute of HIV Research and Innovation (IHRI), Bangkok, Thailand, ³School of Translational Medicine, Monash University, Melbourne, Australia, ⁴Faculty of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, London, United Kingdom, ⁵Joint United Nations Programme on HIV/AIDS (UNAIDS), Geneva, Switzerland, ⁶FHI 360, Hanoi, Vietnam, ⁷School of Nursing, Global and Community Health, Nagoya City University, Nagoya, Japan, ⁸Institute for Global Health and Infectious Diseases, University of North Carolina at Chapel Hill, Chapel Hill, USA, ⁹Social Entrepreneurship to Spur Health Global, Guangzhou, China, ¹⁰Department of Epidemiology, University of North Carolina at Chapel Hill, Chapel Hill, USA, ¹¹Centre for Social Research in Health, UNSW Sydney, Sydney, Australia, ¹²Australian Research Centre in Sex, Health and Society, La Trobe University, Melbourne, Australia

Introduction: Pre-exposure prophylaxis (PrEP) is vital to interrupt HIV transmission among an estimated population of 847,000 Indonesian MSM, of whom 21.9% are already infected with HIV. Indonesia initiated a pilot PrEP program in the 2022-2023 period, increasing PrEP availability. However, there was limited data on the proportion of PrEP use at baseline or during the pilot program. This study aims to examine changes to PrEP awareness and use in this period as well as to identify associated factors.

Methods: We used the Indonesian subset of data from two internet surveys of PrEP and HIV prevention conducted in Asia-Pacific countries: APMIS, conducted in May-Dec 2020, and PrEP APPEAL, May-Nov 2022. Recruitment was similar across both studies, with participants engaged via advertisements on dating apps, social media, and community organisations. Our analysis was limited to non-HIV-positive MSM participants. Key variables were PrEP awareness and use. Independent variables included age, gender, sexual orientation, location, education,

employment, chemsex, sex work, condomless anal intercourse, and attitudes toward PrEP. The data were pooled together, and we analysed changes between 2020 and 2022 comparing the two surveys and developed logistic regression models for associated factors.

Results: The APMIS and PrEP APPEAL studies recruited 15,937 and 17,032 participants, respectively. Of these, 1,248 and 1,139 Indonesian participants were included in the analysis (total n=2,387). The median age was 28 years (IQR 24-33 years) in 2020 and 30 years (IQR 25-35 years) in 2022 and >90% of participants identified as cisgender men in both years. However, more participants in 2022 identified as gay (59.4% in 2022 v. 43.4% in 2020), worked full-time (61.8% v. 49.8%), lived in major cities (75.5% v. 55.7%), and reported consistent condom use (44.2% v. 30.9%). In both years, 15% of participants reported chemsex, although in 2022 fewer reported receiving payment for sex (12.2% v. 39.3%). More participants were willing to use PrEP in 2022 (73.7% vs. 58.3%), and a similar proportion expressed concern about side effects (about 50%). In 2022, 72.8% of participants were PrEP-aware, 9.6% had ever used PrEP, and 7.6% were currently using PrEP. It increased from 21.0%, 2.4%, and 1.7% in 2020, respectively. In multivariable analysis, current PrEP use was more likely in 2022 (aOR=3.38, 95%CI=2.00-5.71), participants reporting full-time employment (aOR=1.63, 95%CI=1.13-2.59), condomless anal intercourse (aOR=2.05, 95%CI=1.31-3.23), chemsex (aOR=1.91, 95%CI=1.22-3.03), and willingness to use PrEP (aOR=2.82, 95%CI=1.54-5.17). It was less likely among participants not identifying as gay (aOR=0.43, 95%CI=0.27-0.69) and living outside major cities (aOR=0.44, 95%CI=0.24-0.79).

Conclusions: There are indications that PrEP awareness, attitude, and uptake have improved between 2020 and 2022 in Indonesia, corresponding with the first half of the pilot PrEP program implementation. Access barriers remain, attributable to limited availability in non-urban areas and poor linkages to services for non-gay-identifying MSM. Stakeholders should be encouraged by this result and commit to community-based PrEP services, especially in non-urban areas, to increase availability and mitigate stigma to encourage linkage to services for all MSM.

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Factors Associated with Oral HIV Pre-Exposure Prophylaxis (PrEP) Continuation in the Indonesian Pilot Program, 2022-2023

Wirawan G^{1,2}, Wardhani B², Lukitosari E³, Afriana N³, Anggiani D³, Grulich A¹, Januraga P², Bavinton B¹

¹Kirby Institute, UNSW Sydney, Sydney, Australia, ²Center for Public Health Innovation, Udayana University, Denpasar, Indonesia, ³Ministry of Health, Jakarta, Indonesia

Introduction: Despite high HIV incidence among key populations, Indonesia did not roll out PrEP until a pilot program was introduced in 2022 to 2023. Using pilot program data, this study aimed to determine PrEP continuation over one year and identify factors associated with discontinuation.

Methods: We analyzed the pilot program data from 1 February 2022 to 31 December 2023. Participants with complete demographic data (visit date, age, sex, key populations [KPs]) were included. Time-varying independent variables included PrEP regimen (daily/event-driven), province, and facility type (government-run public health centres [PHCs], hospitals, and private KP-friendly clinics) where visits were conducted. Discontinuation events for PrEP users were determined at the last recorded visit for voluntary discontinuations or 90 days after the last visit for those lost to follow-up. Otherwise, observations were censored at seroconversion, one year after initiation, or on 31 December 2023. A Kaplan-Meier estimator estimated the PrEP continuation rate. Predictors of discontinuation were identified using bivariable and multivariable Cox regression.

Results: The program recorded 19,014 visits for 9,488 individuals during the observation period. At baseline, the median age was 27 (IQR 23-32) years, 85.5% were male, 75.2% were men who have sex with men (MSM), 66.4% initiated PrEP on a daily regimen, 39.7% lived in Jakarta, and 85.7% initiated PrEP at PHCs. Nearly a quarter (23.0%) of participants dropped out and re-initiated PrEP at least once during their observation period. The continuation rates at 3, 6, 9, and 12 months were

69.8% (95%CI=68.9-70.7%), 57.7% (95%CI=56.6-58.9%), 44.8% (95%CI=43.4-46.1%), and 5.7% (95%CI=4.4-7.2%). Female sex worker (aHR=1.55, 95%CI=1.28-1.92) compared to MSM; living in West Java (aHR=1.32, 95%CI=1.18-1.48) and South Sulawesi provinces (aHR=1.32, 95%CI=1.11-1.55) compared to Jakarta; and last visit at a PHC (aHR=1.14, 95%CI=1.01-1.28) or hospital (aHR=1.20, 95%CI=1.01-1.43) compared to private KP-friendly clinics were associated with PrEP discontinuation.

Conclusions: A very high proportion of participants in Indonesia's first pilot PrEP program discontinued PrEP, with higher discontinuation observed in specific geographic regions, among sex workers, and among those attending PHCs and hospitals. Lower discontinuation at private KP-friendly services suggests that PrEP at these sites or other similar KP-friendly settings should be scaled up. Barriers to PrEP continuation by key populations must be urgently addressed.



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Factors Associated with Pre-Exposure Prophylaxis (PrEP) Regimen Choice and Switching Among Men Who Have Sex with Men (MSM) in China

Hou H^{1,2,3}, Zhao H^{1,2}, Li Q^{1,2}, Que J^{1,2,3}, Li C⁴, Yin Z⁷, Wu S⁵, Huang H⁶, Liang K⁵, Hazra A⁸, Lio J⁸, Sherer R⁸, Tucker J⁹, Tang W^{7,8}, Li L^{1,2}

¹Infectious Disease Center, Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China, ²Guangzhou Medical Research Institute of Infectious Diseases, Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China, ³School of Public Health, Guangzhou Medical University, Guangzhou, China, ⁴Tokyo College, the University of Tokyo, Tokyo, Japan, ⁵Zhongnan Hospital of Wuhan University, Wuhan, China, ⁶Wuhan Tongxing LGBT Center, Wuhan, China, ⁷UNC Project China, Guangzhou, China, ⁸University of North Carolina at Chapel Hill, Chapel Hill, NC, USA, ⁹London School of Hygiene and Tropical Medicine, London, UK

Background: Oral pre-exposure prophylaxis (PrEP) are efficacious in reducing HIV transmission among men who have sex with men (MSM). This secondary analysis aimed to explore the factors associated with PrEP regimen choice and switching among MSM in China in a PrEP demonstration trial.

Methods: A Phase IV PrEP demonstration trial was conducted in Guangzhou and Wuhan between September 2021 and September 2024. A total of 1138 participants were screened eligible and initiated PrEP. All were provided oral TDF/FTC as PrEP for 12 months along with quarterly clinical and behavioral assessments. Suboptimal PrEP adherence was defined as taking 4 or more pills in past 7 days for daily users and taking PrEP strictly following the 2+1+1 requirement at least 75% of the time in past 30 days for the event-driven regimen. Analyzed baseline sociodemographic and sexual behavioral characteristics between different groups and used generalized estimating equations (GEE) to examine factors influencing regimen switching during follow-up.

Results: Overall, 659 MSM participants completed the 12-month follow-up: 179 (27.2%) in the Daily only group (stayed with once daily PrEP), 311 (47.2%) in the ED only group (stayed with event-

driven PrEP), 115 (17.4%) in the Daily-to ED group (switched from daily to event-driven), and 54 (8.2%) in the ED-to-Daily group (switched from event-driven to daily). The GEE analysis revealed significant temporal trends: individuals in switched groups had an increasing number of sexual partners and were more likely to live in co-living spaces, while RUSH use and income both decreased, and group comparisons showed that ED-to-Daily group were more likely to live in co-living space (OR=1.79, 95% CI: 1.04-3.08); Compared to Daily only group, Daily-to ED group had worse adherence (OR=0.30, 95% CI 0.14-0.62) and was more likely to live alone (OR=0.67, 95% CI 0.45-0.99); Additionally, compared to ED only group, ED-to-Daily group had better adherence (OR=2.84, 95% CI 1.36-5.91) and was more likely to live in co-living space (OR=1.86, 95% CI 1.15-2.99).

Conclusions: Our study underscores the critical importance of personalized PrEP navigation programs that integrate real-time adherence monitoring and residential status assessments, particularly among mobile populations with fragmented healthcare access.

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Optimising HIV Pre-Exposure Prophylaxis and Testing Strategies in Men Who Have Sex with Men in Australia, Thailand, and China: A Modelling Study and Cost-Effectiveness Analysis

Zhang L¹

¹Melbourne Sexual Health Centre, Alfred Health, Australia, Carlton, Australia

Background: Men who have sex with men (MSM) in the Asia-Pacific region have a disproportionately high burden of HIV infection compared with the general population. Although pre-exposure prophylaxis (PrEP) for HIV is highly effective at preventing new HIV infections, the cost-effectiveness of PrEP for MSM in different countries in the Asia-Pacific region with varying PrEP coverage and HIV testing frequencies remains unstudied. We aimed to analyse the economic and health benefits of long-acting injectable cabotegravir (CAB-LA) compared with oral PrEP in high-income countries and low-income and middle-income countries within the Asia-Pacific region.

Methods: We developed a decision-analytic Markov model to evaluate the population impact and cost-effectiveness of PrEP scale-up among MSM in Australia, Thailand, and China. We assumed a static cohort of 100 000 MSM aged 18 years or older who were at risk of HIV infection, with a monthly cycle length over a 40-year time period. We evaluated hypothetical scenarios with universal PrEP coverage of 80% among 100 000 suitable MSM in each country. We modelled oral PrEP and CAB-LA for MSM with diverse HIV testing frequency strategies. We adopted the health-care system's perspective with a 3% annual discount rate. We calculated the incremental cost-effectiveness ratio (ICER), measured as additional cost per quality-adjusted life-year (QALY) gained, to compare different strategies with the status quo in each country. All costs were reported in 2021 US\$. We also performed one-way, two-way, and

probabilistic sensitivity analyses to assess the robustness of our findings.

Findings: Compared with the status quo in each country, expanding oral PrEP to 80% of suitable MSM would avert 8.1% of new HIV infections in Australia, 14.5% in Thailand, and 26.4% in China in a 40-year period. Expanding oral PrEP use with 6-monthly HIV testing for both PrEP and non-PrEP users was cost-saving for Australia. Similarly, expanding oral PrEP use remained the most cost-effective strategy in both Thailand and China, but optimal testing frequency varied, with annual testing in Thailand (ICER \$4707 per QALY gained) and 3-monthly testing in China (ICER \$16 926 per QALY gained) for both PrEP and non-PrEP users. We also found that replacing oral PrEP with CAB-LA for MSM could avert more new HIV infections (12.8% in Australia, 27.6% in Thailand, and 32.8% in China), but implementing CAB-LA was not cost-effective due to its high cost. The cost of CAB-LA would need to be reduced by 50-90% and be used as a complementary strategy to oral PrEP to be cost-effective in these countries.

Interpretation: Expanding oral PrEP use for MSM, with country-specific testing frequency, is cost-effective in Australia, Thailand, and China. Due to the high cost, CAB-LA is currently not affordable as a single-use strategy but might be offered as an additional option to oral PrEP.

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Expanding PrEP Access in Correctional Facilities: A Case Study of 10 Prisons in Northern Thailand.

Sangtong S^{1,2}, Pokum R¹, Panpet P¹, Apiputhipan R^{1,2}, Patpeerapong P^{1,2}

¹MPLUS Foundation / Non-governmental organization, Chiang Mai, Thailand, ²MPLUS Polyclinic, Chiang Mai, Thailand

Background: MPLUS Foundation (MPLUS), Thailand's first community-based organization registered as a government-authorized HIV testing and treatment facility, leverages two decades of experience to provide comprehensive HIV services tailored to MSM (Men-who-have-sex-with-men), TGW (Transgender women), all gender sex workers, and PWID (People who inject drugs) through KPLHS (Key Population-Led Health Services) model. During December 2023 – July 2024, MPLUS in collaboration with 10 hospitals, MPLUS expanded PrEP (Pre-Exposure Prophylaxis) services to incarcerated populations, ensuring access to HIV prevention options among this marginalized group.

Description: The healthcare system in prisons faces challenges, including limited service delivery at hospitals co-located within correctional facilities, often lacks readiness for comprehensive HIV care. Recognizing this gap, MPLUS sought formal approval from the Chiang Mai Central Prison to initiate PrEP services for inmates. Once approved, MPLUS collaborated with 10 district hospitals and correctional officers across 10 prisons in northern Thailand to conduct a voluntary survey on risk behaviors followed by implementation of HIV programming, including HIV testing, PrEP, and ART (Antiretroviral Therapy). We report here on PrEP service uptake following this intervention since this was not previously offered.

Lessons learned: Among 2,249 inmates, 12% had multiple partners within October 2023 - July 2024, 78% reported not using condoms during their last sexual encounter, and 61% had not used condoms in the past three months. Additionally, only 6% were aware of PrEP and 56% had tested for HIV. Among 1,942 HIV-negative inmates offered PrEP

services, 109 individuals expressed interest, received PrEP, and were first-time PrEP users. Among PrEP users, 61% continued taking PrEP consistently, 3-month follow up. The main reasons for PrEP discontinuation were release from incarceration and unwillingness to adhere to medication

Conclusions/next steps: The study underscores the urgent need for improved HIV prevention in prisons, emphasizing condom use, PrEP awareness, and reducing barriers to access. Partnerships between correctional facilities and community organizations can deliver integrated health services, leveraging telemedicine and HIV self-tests for PrEP initiation and refills. These comprehensive services address the unique needs of this underserved population and can be scaled to other correctional facilities nationwide.

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Readiness for the Dapivirine Vaginal Ring (DVR) Pilot Program in Papua, Indonesia: Expanding HIV Prevention for At-Risk Women

Handayani M¹, Pohan M¹, Fauziah S¹, Mardiana N¹, Putri T¹, Anggiani D², Afriana N², Lukitosari E², Wisaksana R¹

¹Research Center for Care and Control of Infectious Disease, Universitas Padjadjaran, Bandung, Indonesia, ²HIV and STI Working Group of the Directorate of Disease Prevention and Control, Ministry of Health of Republic Indonesia, Jakarta, Indonesia

Background: Papua has the highest prevalence of HIV in Indonesia, with heterosexual contact as a primary mode of transmission. However, due to stigma and barriers to accessing HIV services, uptake among female sex workers (FSWs) and female partners of people living with HIV (PLHIV) remains limited. The Dapivirine Vaginal Ring (DVR), a discreet, long-acting HIV prevention method, has the potential to address these gaps. This study was conducted to assess health system readiness, DVR acceptability, and access barriers in Jayapura City and Mimika Regency, key areas for the planned DVR pilot program.

Methods: This study used a mixed-method approach, including: 1. Quantitative surveys of healthcare facilities to assess infrastructure, trained personnel, and logistics. 2. Qualitative focus group discussions (FGDs) with FSWs, female partners of PLHIV or high-risk men, community workers, and local stakeholders to explore DVR acceptability and potential service delivery challenges. The AAAQ framework (Availability, Accessibility, Acceptability, and Quality) was used to guide the analysis. Coordination and Readiness concepts were incorporated to assess the dynamics of the existing HIV program and its adaptability to a new prevention method.

Results: The availability and quality of HIV services in Jayapura and Mimika were found to be adequate to support the implementation of the DVR pilot program. However, challenges remain, including a shortage of trained personnel,

inconsistent STI medication supply, and gaps in counselling capacity.

High-risk women, as potential beneficiaries, expressed interest in DVR due to its discreet, long-acting protection but raised concerns regarding insertion comfort, partner discovery, and misconceptions about its function. Stigma, financial constraints, and fear of disclosure were identified as major barriers to accessing HIV prevention services, including DVR.

Mobile clinics and community-based outreach programs were identified as trusted access points for HIV services. Community workers, healthcare providers, and local stakeholders emphasized the need for community-driven awareness campaigns and healthcare provider training to improve DVR integration.

Conclusions: DVR presents a promising HIV prevention method for at-risk women in Papua. However, successful implementation requires consistent supply and provider training and peer-led interventions to address misconceptions. Enhancing accessibility through mobile services and integrated maternal health/STI clinics is essential. Reducing stigma and structural barriers through the involvement of local community leaders and policymakers and establishing monitoring systems will further support the implementation. Integrating DVR services into Papua's HIV prevention strategy can improve access and protection for high-risk women, complementing existing prevention efforts.

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Preferred Service Model and Other Factors Associated with Pre-Exposure Prophylaxis (PrEP) Willingness Among Indonesian Men Who Have Sex with Men (MSM): Analysis of PrEP APPEAL Survey

Wirawan G¹, Tieosapjaroen W², Chan C¹, Schmidt H^{3,4}, Ong J^{2,5}, Bavinton B¹

¹Kirby Institute, UNSW Sydney, Sydney, Australia, ²School of Translational Medicine, Monash University, Melbourne, Australia, ³Joint United Nations Programme on HIV/AIDS (UNAIDS), Geneva, Switzerland, ⁴World Health Organization, Geneva, Switzerland, ⁵Faculty of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, London, United Kingdom

Introduction: A recent study highlights high HIV prevalence (22-23%) and incidence (9.4 per 100 person-years) among MSM in Indonesia. To prevent transmission, a pilot PrEP program offered free oral PrEP at 60 clinics with 3-monthly visits between 2022-2023. However, there is limited evidence on the preferences of people suitable for PrEP to inform national scale-up. This analysis aims to identify the preferred service model and factors associated with PrEP willingness, especially among MSM.

Methods: PrEP APPEAL was a cross-sectional online survey conducted among MSM between May and November 2022 in 15 Asian countries/territories, including Indonesia. Participants included adult MSM who believed themselves to be HIV-negative and were recruited through online advertisements on dating apps, social media platforms, and community organizations. This analysis is limited to Indonesian participants. Service model preferences included preferred PrEP regimen, preference for MSM healthcare workers, and willingness to pay. Multivariable logistic regression models were developed to identify associations between service model preferences and PrEP willingness. We also describe perceived barriers to PrEP use among PrEP-willing participants. Preferences were also examined through a discrete choice experiment (DCE) with 5 attributes: PrEP type, location, cost,

side effects, visit frequency, and extra services. Latent class analysis (LCA) was used to identify subgroups with similar characteristics and preferences.

Results: We included 1,039 MSM in Indonesia with a median age of 30 (IQR 25-35), 76% living in major cities, 95% identifying as cisgender, 59% as gay, and 59% with higher education. Overall, 73% were PrEP-aware, 58% expressed willingness to use PrEP, 10% had used PrEP, and 8% currently used PrEP. Preference for daily/ED oral PrEP compared to not accepting either (aOR 2.85, 95%CI 1.81-4.49) and willingness to pay up to IDR150,000 (aOR 3.03, 95%CI 2.14-4.29) or more than IDR150,000 (aOR 2.10, 95%CI 1.44-3.05) were associated with PrEP willingness. Not knowing where to get PrEP (68%), it being not available locally (36%), or not affordable (24%) were the most frequent reasons for not being on PrEP among PrEP-willing participants. The largest class identified through LCA (79%) were more likely to be gay, PrEP-experienced, and have higher education with preferred PrEP service model that included the ED regimen (preference weight 0.31, $p<0.001$); access at MSM-run private community clinics (0.16, $p<0.001$); available for free (0.65, $p<0.001$), up to IDR 100,000 (0.16, $p<0.001$), but under IDR 200,000 (-0.17, $p<0.001$); and with STI testing attached (0.12, $p<0.001$).

Conclusions: We identified a preferred service model for MSM that includes an ED regimen, ideally free or under IDR 200,000, accessible from MSM-run community clinics. Salient factors for PrEP willingness were regimen, costs, and location. PrEP costs and location, whether due to access or awareness, are also salient barriers to uptake. These correlate with real-world implementation data in Indonesia showing a high proportion of ED PrEP compared to Australian or Vietnamese counterparts and greater popularity of community-friendly private clinics over government-run ones. Future PrEP scale-up in Indonesia should prioritize community-friendly facilities and sustainable financing to ensure accessible and affordable PrEP for target populations.

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Scaling Access to HIV Pre-Exposure Prophylaxis: Understanding Preferences, Attitudes and Service Needs Among GBMSM in Singapore Through a Prospective Cohort Study and Longitudinal Mixed-Methods Analysis

Naidu K¹, Ong C¹, Tan R¹, Le T², Chia S², Chia T², Archuleta S², Olszyna D²

¹Saw Swee Hock School of Public Health, National University of Singapore, National University Health System, Singapore, Singapore, Singapore, ²Department of Medicine, National University Hospital, National University Health System, Singapore, Singapore, Singapore

Background: The adoption of novel HIV prevention modalities, including self-testing and injectable PrEP, offers promising opportunities to enhance prevention strategies for gay, bisexual, and other men who have sex with men (GBMSM). However, concerns regarding financial accessibility, convenience, privacy, and clinical service integration remain underexplored in Singapore. This study aims to investigate attitudes towards these emerging preventive approaches and identify areas for optimizing HIV/PrEP-related clinical services.

Methods: A concurrent mixed-methods design was employed. Quantitative data were collected from a cohort of GBMSM at baseline, 6, and 12 months after initiating PrEP at a tertiary hospital-based specialised clinic. Key outcomes included attitudes toward HIV self-testing, injectable PrEP, and perceptions of PrEP accessibility and affordability, assessed via composite scores derived from Likert-scale responses. A longitudinal mixed-effects linear regression model was used to evaluate temporal changes, adjusting for sociodemographic variables. Additionally, in-depth interviews were conducted at the 12-month follow-up to explore qualitative themes, analysed using inductive thematic analysis.

Results: A total of 53 participants were recruited, with 40 remaining at the 6-month follow-up and

37 at 12 months. Thirteen participants engaged in qualitative interviews. Over time, concerns regarding financial accessibility of PrEP and HIV self-testing remained persistent ($C=-0.67$, $CI=[-1.51, 0.17]$ at 12 months), while convenience-related concerns significantly decreased at the 6-month mark ($C=-1.48$, $CI=[-2.75, -0.21]$).

Participants who perceived anonymity as crucial for HIV prevention services expressed strong preferences for digitalized PrEP clinic services. Nevertheless, many were apprehensive about the potential implication of a PrEP prescription appearing in their national medical records, particularly regarding employment opportunities. Trust in injectable PrEP increased over time, though concerns about long-term effects and perceived invasiveness persisted. Privacy issues, especially in employment settings, were a recurrent theme, with participants expressing concerns about potential discrimination related to PrEP use or HIV self-testing disclosures.

Conclusions: Findings underscore the need to enhance affordability, accessibility, and confidentiality in the delivery of HIV prevention services. Digitalizing PrEP-related services and integrating HIV prevention into general healthcare settings may improve uptake while addressing privacy concerns. The increasing acceptability of novel prevention tools, such as injectable PrEP, highlights the importance of continued education and tailored interventions. Future research should explore scalable models for optimizing service delivery while addressing financial and privacy barriers in Singapore.

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What Do People Want from an Artificially-Intelligence-Assisted Screening App for Sexually Transmitted Infection-Related Anogenital Lesions: A Discrete Choice Experiment

Soe N^{1,2}, Latt P^{1,2}, King A^{1,2}, Lee D¹, Phillips T^{1,2}, Fairley C^{1,2}, Zhang L^{1,2,3}, Ong J^{1,2,4}

¹Melbourne Sexual Health Centre, Melbourne, Australia, ²School of Translational Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia, ³Clinical Medical Research Centre, Children's Hospital of Nanjing Medical University, Nanjing, China, ⁴Faculty of Infectious Diseases, London School of Hygiene and Tropical Medicine, London, UK

Background: Melbourne Sexual Health Centre (MSHC) developed an artificially intelligence (AI) assisted screening app (AiSTI) for the detection of common STI-related anogenital skin conditions. This study aims to understand the community's preference for using the app.

Methods: A discrete choice experiment (DCE) was used to understand community preferences regarding the attributes of the app for checking anogenital skin lesions. The DCE design included the attributes: data type; AI accuracy; verification of result by a clinician; details of result; speed; professional support; and cost. The anonymous DCE survey was conducted between January and March 2024. Participant preferences on various app attributes were examined using random parameters logit (RPL) and latent class analysis (LCA) models.

Results: The median age of 411 participants was 32 years (IQR: 26–40 years), with 64.0% assigned male at birth. Of the participants, 177 (43.1%) identified as same-sex attracted and 137 (33.3%) as heterosexual. In the RPL model, the most influential attribute was the cost of using the app (relative importance: 24.1%), followed by the clinician's verification of results (20.4%), the AI accuracy (19.5%) and the speed of receiving the result (19.1%). The LCA identified two distinct groups: 'all-rounders' (class size 88%), who considered every attribute as important, and a 'cost-focused' group (12%), who mainly focussed

on the price. The predicted uptake, based on the current app attributes, was 72%. In the short term, improving AI accuracy to 80–89% with clinician verification at \$5 could increase uptake to 90%. An optimistic long-term scenario with AI accuracy over 95%, without clinician verification and cost, could increase it to 95%.

Conclusions: Participants would prefer an AI-assisted screening app targeting STI-related anogenital skin lesions that is low-cost, clinician-verified, highly accurate and provides results rapidly. An app with these key qualities would substantially improve user uptake.

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Joint Patient-Provider Decision Making was Associated with Improvements in Quality of Life, Adherence and Treatment Satisfaction for People Living with HIV in the Positive Perspectives 3 study

Iwahashi K¹, Allan B², Brough G³, Cascio M⁴, Castellanos E⁵, Cingolani A⁶, Dubula V⁷, Hardy W⁸, Mbudwini S⁹, McBritton M¹⁰, Ndungu M¹¹, Richman B¹², Shibemba M¹³, Appiah A¹⁴, Fox D¹⁵, Mayer M¹⁶, Mellors S¹⁴, Patel R¹⁴, Vega V¹⁵, Nwokolo N¹⁴

¹Akita, Tokyo, Japan, ²National Association of People Living with HIV Australia, Newtown, Australia, ³Transformation Partners in Health and Care, London, UK, ⁴European AIDS Treatment Group (EATG), Bruxelles, Belgium, ⁵Global Action for Trans Equality (GATE), , Netherlands, ⁶Fondazione Policlinico A. Gemelli, IRCCS, Catholic University of the Sacred Heart, Roma, Italy, ⁷The Global Fund, Geneva, Switzerland, ⁸USC Rand Schrader (HIV) Clinic, Keck School of Medicine of USC, Los Angeles, USA, ⁹Nelson Mandela University, Port Elizabeth, South Africa, ¹⁰Barong, São Paulo, Brazil, ¹¹Women's Health in Women's Hands Community Centre, Toronto, Canada, ¹²Prevention Access Campaign, Brooklyn, USA, ¹³Manchester, , UK, ¹⁴ViiV Healthcare, London, UK, ¹⁵ViiV Healthcare, Durham, USA, ¹⁶ViiV Healthcare, Rueil-Malmaison, France

Background: For people living with HIV, improving quality of life can, in part, depend on a strong relationship with healthcare providers (HCPs) to navigate treatment and optimise care. This analysis assessed the quality of relationships between people living with HIV and their HCPs, focusing on trust, comfort in discussing sensitive issues, and satisfaction with care.

Methods: This analysis utilized interim data from 834 participants in Positive Perspectives Study Wave 3 from adults on antiretroviral therapy (ART) from Australia, Argentina, Chile, South Africa, Colombia, Italy, and USA. Descriptive data were summarized with percentages, and logistic regression analysis was used to explore how involvement in treatment decisions influenced treatment-related outcomes. Multivariable analysis adjusted for age, gender and income.

Results: Overall, 62.7% reported high trust in their HCPs, however, 45.5% did not feel comfortable discussing sensitive issues (e.g., sexual health), 50.1% reported that they were not consulted by their HCP before prescribing their current HIV medication, and 43.9% were not satisfied with their involvement in treatment decisions. Additionally, 54.2% indicated that their HCP did not regularly check their satisfaction with their treatment.

48% (405 participants) indicated they were dissatisfied with an aspect of their visit in the past 12 months, and as a result 19.0% of those individuals sought clarifying information on their own, 12.0% sought a second opinion from another provider, 11% reported missing their HIV medication because of their dissatisfaction, 10.6% consulted friends for advice, and 8.9% missed their next scheduled visit.

People living with HIV who reported being involved in the treatment decision for their current HIV medication were more likely to report satisfaction with the treatment (AOR=2.17, 95% CI:1.47–3.20), compatibility with other non-HIV medications they were taking (AOR=1.76, 95% CI:1.21–2.57), alignment with their lifestyle (AOR=2.53, 95% CI:1.72–3.73), improvement in quality of life (AOR=2.14, 95% CI:1.45–3.14), and less likely to skip their medication (AOR=0.41, 95% CI:0.23–0.65).

Conclusion: These findings highlight the need to enhance patient-provider interactions and encourage collaborative decision-making. Strengthening these aspects may minimise loss-to-care, improve adherence, and enhance overall care quality, leading to better health outcomes for people living with HIV.



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Assessing the Effectiveness of HIV/STI Risk Communication Displays Among Melbourne Sexual Health Centre Attendees: A Cross-Sectional, Observational and Vignette-Based Study

Latt P^{1,2}, Soe N^{1,2}, Fairley C^{1,2}, Xu X^{2,3}, King A^{1,2}, Rahman R², Ong J^{1,2}, Phillip T^{1,2}, Zhang L^{1,2,4}

¹Monash University, Melbourne, Australia, ²Melbourne Sexual Health Centre, Alfred Health, , Australia, ³School of Public Health, Shanghai University of Traditional Chinese Medicine, , China, ⁴China-Australia Joint Research Center for Infectious Diseases, School of Public Health, Xi'an Jiaotong University Health Science Center, Xi'an, China

Introduction: Increasing rates of sexually transmitted infections (STI) over the past decade underscore the need for early testing and treatment. Communicating HIV/STI risk effectively can promote individuals' intention to test, which is critical for the prevention and control of HIV/STIs. We aimed to determine which visual displays of risk would be the most likely to increase testing or use of prevention strategies.

Methods: A vignette-based cross-sectional survey was conducted with 662 clients (a median age of 30 years (IQR: 25-36), 418 males, 203 females, 41 other genders) at a sexual health clinic in Melbourne, Australia, between February and June 2023. Participants viewed five distinct hypothetical formats, presented in a randomised order, designed to display the same level of high risk for HIV/STIs: icon array; colour-coded risk meter; colour-coded risk bar; detailed text report; and guideline recommendation. They reported their perceived risk, concern, and intent to test for each risk display. Associations between the format of the risk display and the intention to test for HIV/STI were analysed using logistic regression.

Results: About 378 (57%) of participants expressed that the risk meter was the easiest to understand. The risk meter (Adjusted Odds Ratio (AOR)=2.44, 95% confidence interval (CI)=1.49-4.01) and risk bar (AOR=2.08, CI=1.33-3.27) showed the greatest likelihood of testing compared to the detailed text

format. The icon array was less impactful (AOR=0.73, CI=0.57-0.94). The risk meter also elicited the most concern but was the most preferred and understood. High-risk perception and concern levels were strongly associated with their intention to have an HIV/STI test.

Conclusions: Displaying risk differently affects an individual's perceived risk of an HIV/STI and influences their intention to test.

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Preference for Mail-in HIV Testing Among International Migrants in Japan

Kitajima T¹, Li C², Shakya S³, Tieosapjaroen W⁴, Ong J⁴, Sawada T⁵, Hue T⁶, Miyakubi H¹

¹Kyorin University, Tokyo, Japan, ²University of Tokyo, Tokyo, Japan, ³Japan Foundation for AIDS Prevention, Tokyo, Japan, ⁴Monash University, Melbourne, Australia, ⁵Minatomachi Clinic, Yokohama, Japan, ⁶Kobe Women's University, Kobe, Japan

Background: About 3.6 million international migrants are registered to live in Japan, which is around 3% of the population. Nearly 20% of people who were newly diagnosed of HIV in Japan were international migrants. Meanwhile, HIV self-testing is not yet approved, and existing free HIV testing services available at public health centers (PHCs) are often delivered only in Japanese. Although not officially part of the national testing system, a mail-in HIV testing (MiHIV) kit that uses blood spots on filter paper is available commercially. Utilization of this service remains low. Our study aimed to understand the preferences for MiHIV service design among international migrants in Japan through a discrete choice experiment (DCE).

Methods: An online multilingual DCE survey was implemented in 2024. Based on a literature review and a pilot study, three attributes were included in the DCE choice sets: location to receive the testing kit (PHCs, drug stores, convenience stores, home), availability of multilingual support, and cost. Participants were presented two hypothetical scenarios of MiHIV testing service that varied across the three attributes and asked to indicate their preferred option. The questionnaire was available in Japanese, English, Chinese, Vietnamese, Korean, Nepali, and Portuguese. The participants were recruited via SNS and migrant communities. Data were analyzed using a conditional logistic regression model.

Results: Of 123 participants from 29 nationalities, 82% were male, with an average age of 32.8 (±9.0) years. All attributes were found significantly related to the choice of MiHIV design. In particular, participants preferred MiHIV services of the following characteristics: the test kit to be delivered to one's residential address by mail

(OR=0.44, 95% CI:0.17-0.71), providing counseling support available in one's chosen language (OR=0.72, 95% CI: 0.50, 0.94), and free of charge (OR=-0.00082, 95% CI: -0.00099, -0.00065). Compared to the 24.9% who preferred the PHC model (pick up at a PHC, with support in Japanese, free of charge) that was trialed with Japanese people in 2023, 57.1% preferred the home model (mailed to home, with support in the tester's native language, free of charge), and 18% preferred neither. The estimated marginal willingness-to-pay for the home model was US\$6.5.

Conclusions: This study is the first of its kind in Japan to use DCE to elicit the preferences among international migrants regarding MiHIV. The findings highlight the importance of incorporating multilingual support and offering diverse test kit delivery options to better address the needs of this population in future MiHIV program design.



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Assessing Acceptability, Usability, and Improvement Needs for an mHealth Intervention to Improve PrEP Uptake and Adherence: Insights from Frontline Users

Sriwatchara K¹, Getwongsa P¹, Janamnuysook R¹, **Boonruang J¹**, Thitipatarakorn S¹, Rattanaart P¹, Sayansasikanok N¹, Kim D², MacDonell K³, Wang B², Phanuphak N¹

¹Institute of HIV Research and Innovation (IHRI), Bangkok, Thailand, ²University of Massachusetts Chan Medical School, USA, ³Center for Translational Behavioral Science, Behavioral Sciences and Social Medicine, Florida State University, USA

Background: Young men who have sex with men (YMSM) in Thailand face a high risk of HIV infection, yet PrEP uptake and adherence remain low despite its proven effectiveness. Barriers such as low awareness and motivation hinder initiation and persistent use. We developed the Maintenance Enhancement System for PrEP Use (MES-PrEP), an interactive, avatar-delivered two-session intervention, and motivational text messaging (MTM) to improve PrEP uptake and adherence. We conducted interviews with frontline users to evaluate acceptability and usability of the mHealth interventions.

Methods: We developed MES-PrEP using the innovative Computerized Intervention Authoring System (CIAS) platform based on the needs assessments and two text message libraries were created. Beta-testing was conducted with 10 participants, and feedback from the Youth Advisory Board was incorporated for refinement. A pilot trial was launched with 120 YMSM participants. Exit interviews were conducted with 20 participants (15 intervention, 5 control) to assess acceptability, usability, challenges, and gather feedback for improvement. All 15 intervention participants completed the System Usability Scale (SUS) and the Client Satisfaction Questionnaire (CSQ-8).

Results: All intervention participants expressed a willingness to recommend the study and PrEP to friends at risk. Most participants identified

Standard PrEP counseling (SPC) as the most beneficial intervention component. MES-PrEP effectively increased awareness and provided critical information on PrEP usage, showing moderate success in improving uptake, while MTM supported adherence by providing consistent medication reminders. SUS scores for MES-PrEP and MTM were acceptable at 80%, and CSQ-8 scores reached 88%. However, participants raised concerns about the MES-PrEP avatar's voice, speed, and outdated design. Additionally, MTM messages sent via LINE were sometimes overlooked among daily notifications, and weekly reminders after the first month were considered insufficient. These findings underscore the need to improve cultural relevance, interface design, and message frequency to improve engagement and satisfaction.

Discussion: The study demonstrates the potential of technology-based interventions as additional tools to improve PrEP uptake and adherence among YMSM. Future efforts should focus on refining the design of MES-PrEP, ensuring cultural authenticity, and optimizing MTM frequency to boost engagement. Addressing these areas will enable mHealth interventions to more effectively support HIV prevention strategies.

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PsySE-HCPN: Documenting the Lessons Learned from the Pilot Implementation of the Capacity-Building and Establishment of a Health Care Providers Network to Provide Psycho-Socioeconomic Support to Filipinos Living with HIV

Olete R^{1,2}, Arandia R¹, Ogues A¹, Co J¹, Arranz J³, Simpauc E⁴, Daclison J¹, Leyritana K¹

¹Sustained Health Initiatives of the Philippines (SHIP), Mandaluyong City, Philippines, ²Department of Public Health, National Cheng Kung University (NCKU), Tainan, Taiwan, ³SHIP-Save and Improve Lives (SAIL) Clinic, Caloocan City, Philippines, ⁴SHIP Clinic, Mandaluyong City, Philippines

Background: Despite advancements in biomedical care, psychological and socioeconomic barriers continue to hinder treatment retention among Filipino people living with HIV (PLHIV). As of September 2024, the HIV and AIDS Registry of the Philippines reported that approximately 30% of PLHIV were not on antiretroviral treatment. Delayed referrals to mental health and social welfare services further exacerbate these challenges. To address these issues, Sustained Health Initiatives of the Philippines (SHIP) implemented PsySE-HCPN, a two-phase program aimed at strengthening the capacity of HIV care providers and establishing a Health Care Providers Network (HCPN) to deliver integrated psycho-socioeconomic (PsySE) support. The program also sought to institutionalize PsySE services by advocating for local government policies integrating these services into HIV care standards.

Program: The PsySE-HCPN program ran from February 2024 to February 2025 and was implemented in two phases. The first phase focused on capacity-building through a nine-module training curriculum co-developed with the Department of Health (DOH), the Department of Social Welfare and Development (DSWD), and PLHIV-led community-based organizations (CBOs). Training sessions were conducted in three batches between October and November 2024, targeting private, government-led, and community-based

HIV care providers. Pre- and post-test assessments measured improvements in knowledge (percentage scores) and self-efficacy (5-point Likert scale) in PsySE service delivery. The second phase involved policy engagement through a provincial assembly and the signing of a Memorandum of Understanding (MoU) between SHIP and the Iloilo Provincial Government in February 2025. This agreement established the initial HCPN and initiated discussions on standardizing PsySE service delivery across HIV care facilities in the province.

Outcomes: A total of 87 health providers completed the training: 31 HIV primary care providers, 28 non-licensed frontliners, 19 registered social workers, and 9 mental health professionals. The majority (77/87) had direct experience in PLHIV care, with an average of 3.2 years in service.

- Knowledge Scores: Increased from 87.1% (SD = 8.90) to 91.2% (SD = 5.74), with a mean test score difference of 4.1% (95% CI = 2.9%-5.4%, $p < 0.001$, $d = 0.71$, moderate effect).
- Self-Efficacy: Improved from somewhat confident (mean = 3.06, SD = 0.75) to confident (mean = 4.03, SD = 0.65), with a mean difference of 0.97 (95% CI = 0.81-1.13, $p < 0.001$, $d = 1.30$, large effect).

Additionally, a referral directory of HIV care, mental health, and social welfare professionals was developed, enabling HCPN members to streamline referrals for PLHIV. The signed MoU formalized SHIP's role in providing research and technical assistance for PsySE service implementation in Iloilo Province.

Conclusion: The pilot implementation had key lessons: (1) tailoring a comprehensive training content applicable to different provider roles enhances engagement and applicability of PsySE service delivery; and (2) policy adoption is a gradual process requiring continuous advocacy and government buy-in. While the PsySE-HCPN demonstrated measurable improvements in provider capacity and intersectoral collaboration, long-term sustainability hinges on institutionalizing PsySE services through dedicated funding and structured referral systems. Moving forward, further research and scaling efforts will be critical in optimizing PsySE-HCPN model for integrated HIV care in the Philippines.

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Improving Cervical Cancer Screening Among Women with HIV: A Single-Centre Experience in Malaysia

Salleh A¹, Kukreja A^{1,2}, Rajasuriar R^{1,2}, Raja Azwa R^{1,2}, Syed Omar S^{1,2}, Kamarulzaman A³, Woo Y⁴

¹Centre of Excellence for Research in AIDS (CERiA), Universiti Malaya, Kuala Lumpur, Malaysia, ²Department of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia, ³Monash University Malaysia, Bandar Sunway, Malaysia, ⁴Department of Obstetrics & Gynaecology, Universiti Malaya, Kuala Lumpur, Malaysia

Background: Women with HIV face a higher risk of cervical cancer due to persistent Human Papillomavirus (HPV) infection, yet screening rates remain sub-optimal. Malaysia has adopted the World Health Organization target of 70% screening coverage, promoting HPV-based screening and self-sampling to increase accessibility and uptake. This study evaluates the impact of multimodal interventions to improve cervical cancer screening uptake among women with HIV at an academic medical centre in Malaysia.

Materials and Methods: A longitudinal study conducted from 2022 – 2024 assessed HPV screening rates at the Infectious Diseases clinic, Universiti Malaya Medical Centre across three phases: Phase 1 (P1, 2021) involved a retrospective review of electronic medical records to establish the pre-intervention screening uptake. Phase 2 (P2, 2022) focused on the implementation of multimodal interventions which included (1) providing subsidized HPV self-test kits within the ID clinic, (2) placing reminder notes on patients' medical cards, and (3) employing onsite trained staff who actively promoted screening to clinicians for their patients. Phase 3 (P3, 2023 – 2024) maintained the subsidized kits and staff but without active promotion. Data collected throughout the study included the number of women with HIV attending follow-up visits, the number of women eligible for HPV testing (defined by age, no hysterectomy, and no recent HPV test within the last three years), and the number of women who underwent screening with HPV self-testing. Descriptive analysis and rates of screening uptake were reported to assess the impact of the interventions.

Results: During Phase 1 (P1, 2021), the pre-intervention screening uptake was 7.0% (12/171). In Phase 2 (P2, 2022), following the introduction of the multimodal interventions, 166 women with HIV attended the clinic, of whom 135 were eligible for HPV testing. Among those eligible, 26 (19.3%) underwent HPV testing. In Phase 3 (P3, 2023), 162 women with HIV attended follow-up visits, and 111 were eligible for screening, with 25 (22.5%) undergoing HPV testing. In 2024, 161 women with HIV attended clinic, of whom 97 were eligible and 13 (13.4%) were screened. Overall, over the three years (2022 to 2024), a total of 189 women attended follow-up visits, with 158 eligible for HPV testing. Of these, 71 (44.9%) underwent screening showing a significant increase compared to the baseline. The highest screening uptake occurred in 2022 (19.3%) and 2023 (22.5%), while a decrease was observed in 2024 (13.4%). The interventions, particularly the provision of subsidized self-test kits and active promotion by onsite trained staff, contributed to a marked increase in uptake during the first two phases and are important strategies to support program sustainability.

Conclusion: Multimodal interventions led to a more than sixfold increase in cervical cancer screening uptake from baseline among women with HIV at UMMC, with subsidized screening and active promotion identified as key facilitators for program sustainability. Despite improvements in screening uptake, more efforts are needed to improve screening to recommended targets of 70%.

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Sustaining Community-Led HIV Services Through Funding Diversification and Private Sector Partnerships

Rittiwong N¹, Matwangsang C¹, Daramadhaj K¹, Arunmanakul A²

¹Rainbow Sky Association Of Thailand (RSAT), Bangkok, Thailand, ²USAID/EpiC Thailand project, FHI 360, Bangkok, Thailand

Background: Community-led organizations like the Rainbow Sky Association of Thailand (RSAT) are pivotal in delivering HIV services to key populations. However, reliance on international donors can limit their ability to address evolving needs and ensure sustainability. Diversifying funding through social contracting by host governments and private partnerships is crucial for stability, autonomy, and responsiveness. This approach empowers RSAT to address broader needs, including legal advocacy and livelihood support, while maintaining leadership in the global HIV response.

Description: RSAT began diversifying its funding in 2021 through Thailand's social contracting scheme, which now accounts for 50% of total revenue earned. To enhance financial resilience, RSAT launched a formal resource mobilization program in 2023, actively engaging private companies through corporate social responsibility (CSR) initiatives and to set up a separate social business entity.

Lessons Learned: By 2024, RSAT secured support from IKEA, Grindr, Vaseline Thailand, and Garnier, contributing 3.72% of its total revenue. IKEA donated \$30,000 through public campaign promoting diversity and inclusion which enabled RSAT to customize two vans for mobile HIV testing targeting young key populations (YKP) aged 15–24 years at hotspots, for instance university campuses, and community centers, increasing those tested from 3,211 in 2023 to 5,744 in 2024. The substantial increase in service uptake demonstrates the effectiveness of mobile clinics in overcoming structural barriers to HIV and STI screening among at-risk youth and marginalized populations. Vaseline's contribution expanded

services to 1,214 new transgender clients, while Grindr's funding strengthened advocacy for the Marriage Equality Act by training 150 LGBTQI+ leaders and government representatives. Garnier's grant provided critical emergency relief during floods in northern Thailand, supporting communities with food and hygiene supplies. Additionally, RSAT successfully registered a company as part of its social business initiative to offer fee-based gender sensitivity training programs endorsed by the Ministry of Social Development and Human Security (MSDHS). These programs support companies in meeting their commitments to the Sustainable Development Goals (SDGs) and were piloted with 80 participants from community-led organizations and YKP, in collaboration with provincial attorney general offices and regional MSDHS offices.

Conclusion/Next steps: RSAT highlights the potential for corporate partnerships to enhance healthcare accessibility, particularly in settings where funding constraints limit traditional service delivery. By engaging businesses as financial contributors to community health efforts, healthcare organizations can sustain their essential services, expand service coverage to those underserved, and better respond to evolving needs of specific populations, especially young key populations. Looking ahead, RSAT aims to generate 10% of its revenue by 2025 through private sector engagement, collaborating with business schools and Stock Exchange of Thailand to secure additional CSR grants and expand its training services' sales. By leveraging private sector resources and KP-CSO's expertise, HIV and STI services can be more effectively integrated into broader community health strategies, ensuring equitable healthcare access for all.

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Gamlang-Jai Service: An Integrated Mental Health Service Delivery Model in an HIV Research Clinic in Thailand

Suttichom D¹, Poonpitak L¹, Kroon E¹, Promsena P^{1,7}, Sae-Eiaw N¹, Ratnaratorn N¹, Chomchey N¹, Sriplienchan S¹, Paul R², Spudich S³, Phanuphak N⁴, Trautmann L^{5,6}, Vasan S^{5,6}, Sacdalan C^{1,7}

¹Search Research Foundation, Bangkok, Thailand, ²Missouri Institute of Mental Health, Saint Louis, USA, ³Department of Neurology, Yale University School of Medicine, New Haven, USA, ⁴Institute of HIV Research and Innovation, Bangkok, Thailand, ⁵U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, USA, ⁶Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc, Bethesda, USA, ⁷Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: The SEARCH Research Clinic follows research participants with and without HIV. The research clinic reports increasing rates of stress, anxiety, depression, and substance use. The Gamlang-Jai Mental Health Service was established to increase access to a mental health intervention using Cognitive Behavioral Therapy (CBT) techniques to address psychosocial issues and to promote wellbeing within the context of participation in HIV research. Through integrating mental health services in HIV research, we enhance the emotional and psychological wellbeing of participants, provide support and empowerment, and increase the value of research participation.

Description: "Gamlang-Jai" in Thai means "to empower" or "provide support." The Gamlang-Jai service aims to integrate a mental health service into an HIV research clinic to alleviate mental health issues and promote volunteers' ability to deal with negative automatic thoughts that result in inappropriate emotions and behaviors. We collected demand, counseling preferences, and reasons for needing mental health services through preliminary data from our services. Using the collected information, a mental health service delivery model was developed.

Lessons learned: Data was collected from 397 research participants. 37% of participants are interested in mental health services, with stress

(62%) as the most common concern, followed by anxiety (46%), depression (34%), and substance use (20%). The majority of participants preferred a combined online and onsite mental health service delivery (63%), followed by online (24%) and onsite (13%).

The Gamlang-jai mental health service model begins with a mental health triage and assessment. Research participants reporting self-harm or suicidal ideation are prioritized to see the counselor for safety planning. During study visits, participants with HADs or PHQ-9 scores of 10 or above, implying moderate to severe anxiety and/or depression) are assessed by the study team for referral to the mental health service. Participants with other concerns (e.g., work-related stress, poor ARV adherence, self-stigma related to living with HIV) can also access the service. Once referred, the participant is assigned to the in-house counselor. If the in-house counselor's schedule is full, the service can provide access to volunteer or paid CBT counselors for backup.

Since the program's initiation in November 2024, 30 participants have been referred to the mental health service. 21 (70%) participants accepted the referral for a counseling session, with 8 of 21 continuing with full CBT. Most (90%) of the counseling sessions occurred online.

Conclusions/Next steps: A mental health service delivery model was seamlessly integrated into our HIV research clinic through the Gamlang-Jai service. The design of the service delivery model was data-driven, patient-centered and tailored to meet each individual's needs, reducing system-level barriers to accessing mental health services. We used strategies such as co-location, early screening, and quick coordination to improve mental health and clinical outcomes. The model serves as an example of how mental health services can be integrated into clinical research or routine HIV service delivery in a way that is scalable and effective in a developing country setting.

Future steps include evaluating the impact of the Gamlang-Jai mental health service on HADS and PHQ-9 scores.

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Feasibility and Acceptability of Mental Health Screening and Care Linkage for Key Populations with HIV at a Community-Based ART Clinic in Cambodia: A Qualitative Pre-Implementation Study

Ouk V¹, Mootz J, Chhay Meng S, Soun S, Heng S, Ross J, Sohn A

¹National Center For HIV/AIDS, Dermatology, and STD (NCHADS) of Ministry of Health/Cambodia, Phnom Penh, Cambodia, ²Columbia University Department of Psychiatry, New York, USA, ³TREAT Asia/amfAR, Bangkok, Thailand

Background: Common mental disorders negatively impact treatment adherence and clinical outcomes of people with HIV (PWH) on antiretroviral therapy (ART). There is no national model for screening and referral mechanisms to mental health (MH) services for PWH in Cambodia. We explored the feasibility and acceptability of integrating a strategy for these services for depression and anxiety into routine HIV care at an ART clinic led by a local community-based organization (CBO) for key populations (KPs), including men who have sex with men, transgender women, sex workers, and people who use drugs.

Material and Methods: From September to November 2023, we conducted six focus group discussions (FGDs; n=43, 6-10 people per group) among CBO ART clinic staff, healthcare providers, and KP representatives, selected using purposive sampling. We interviewed ten key informants: national policymakers (n=3), the CBO ART clinic manager (n=1), and representatives from UNAIDS, WHO, and local and international non-governmental organizations. We used grounded theory methods to conduct inductive coding and deductively used thematic analysis guided by the Consolidated Framework for Implementation Research (CFIR).

Results: Of 43 FGD participants, 37% were female and the median age was 36 years (range 23-63). All 10 interviewees were male with a median age of 51 years (range 30-65). Facilitators included

building on existing guidelines to develop MH-specific standard operating procedures for KP care, providing financial support for MH care, building MH care capacities among healthcare providers and lay counsellors, integrating MH services into routine HIV care, and ensuring collaboration between the national HIV and MH programs. Barriers included the current lack of MH-specific guidelines for HIV care, limited MH experience among healthcare providers and lay counsellors, MH-related stigma and discrimination, lack of financial support for MH care, and the lack of an established referral system for severe cases. Recommendations included creating and implementing MH care guidelines for KPs with HIV, integrating MH screening and basic treatment into care at the CBO ART clinic, and establishing processes to facilitate referral to specialized MH services and adequate financial and technical support (e.g., hiring a part-time on-site psychiatrist).

Conclusions: Respondents shared a preference for one-stop MH screening and referral services, where mild and moderate MH cases could be managed in the CBO ART clinic and severe cases could be referred to other facilities. Successful integration of MH care for KPs with HIV would require MH-related capacity-building for CBO ART clinic staff, addressing MH-related stigma and discrimination, and policy guidance and financial support for referral systems and clinical infrastructure.

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Mental Health Screening and Referral Among People with HIV at a Sexual Health Clinic in Thailand

Sitikornvorakul K¹, Janamnuyasook R¹, Sinchai K¹, Amasombat T¹, Tangcharoensathien S¹, Thitipatarakorn S¹, Phanuphak N¹, Ross J², Mootz J³, Wainberg M³

¹Institute of HIV Research and Innovation, Bangkok, Thailand, ²TREAT Asia/amfAR, Bangkok, Thailand, ³New York State Psychiatric Institute and Columbia University, Psychiatry, New York, United States

Background: Mental health (MH) disorders are prevalent among people with HIV and key populations in Thailand. However, MH screening and linkage-to-care within HIV and sexual health services are limited. We assessed the integration of MH screening and linkage to care among people with HIV attending a sexual health clinic in Bangkok.

Methods: Demographic and HIV data were collected from adults with HIV attending the Pribta-Tangerine sexual health clinic. MH screenings were conducted using the self-administered Electronic Mental Wellness tool (Emw Tool-13). Those screening positive for one or more mental health disorders were offered linkage-to-care options: in-clinic support from a counselor; in-clinic support from a psychiatrist; or referral to their national health insurance-registered hospital. Participants with suicide risk were offered safety planning and escorted to a nearby tertiary care hospital for immediate support. Participants with positive screening result, but declined to receive MH support were asked for reasons for denying the service.

Results: From April-November 2024, 100 participants with HIV were screened. Of those, 43% (n=43) were transgender women, 29% (n=29) were men who have sex with men, and 10% (n=10) were newly diagnosed with HIV. MH screening identified 58% (n=58) with a common mental disorder (depression, anxiety, PTSD); 28% (n=28) with hazardous alcohol use; 12% (n=12) with problematic drug use; 11% (n=11) with a severe mental disorder; and 15% (n=15) with suicide risk.

One third (n=34) had no mental health disorder. Of 66 participants with positive MH screening, 20% (n=13) were successfully linked to care with a: counselor (n=6), a psychiatrist (n=6), or referral to their registered hospital (n=1). Most participants (n=53) declined further mental health support due to concerns around time consumption, additional clinic visits if identified with any MH disorder, and associated treatment costs.

Conclusions: Two-thirds of people with HIV attending a sexual health clinic in Bangkok screened positive for a MH or substance use disorder. Most declined linkage to MH care. Of those successfully linked to care >90% selected in-clinic referral options. MH services should be better integrated as part of comprehensive health services for people with HIV. Further qualitative assessment to guide tailored approaches for linkage to care are needed.

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Expanding HIV Service in Public Hospitals Through Community-Involved Strategies to Enhance Access, Case Finding, and Same-Day Treatment for Key Populations

Patpan N¹, Artit Wongs A², Thienfaidee O¹, Moonnamang J¹, Sangpasert T³, Saiwaew S³, Janamnuysook R², Mills S⁴, Phanuphak N², Ramautarsing R²

¹Ratchaphiphat Hospital, bangkok, Thailand, ²Institute of HIV Research and Innovation, bangkok, Thailand, ³Rainbow Sky Association of Thailand (RSAT), bangkok, Thailand, ⁴USAID Epic Project FHI 360, bangkok, Thailand

Background: HIV remains a significant problem in Thailand, with an estimated 580,000 people living with HIV in 2023. HIV testing and treatment are easily accessible in public hospitals, but key -populations still face social and economic barriers which hinder their access to essential healthcare services. To address those challenges, we developed a community-led same day antiretroviral therapy (CL-SDART) program.

Description: Ratchaphiphat Hospital (RPP), a tertiary care hospital in Bangkok, collaborated with Rainbow Sky Association of Thailand (RSAT) to implemented CL-SDART. Trained lay -providers from key populations provide HIV screening, testing, and SDART initiation at RSAT's clinic, under supervision of a medical team from RPP. Physicians from RPP prescribed ART for all newly diagnosed clients within one day. We compared HIV-related data from January 2023 – October 2024 between CL-SDART clients and clients from regular HIV services at RPP.

Lessons learnt: Through regular services at RPP, 226 clients with a median age of 33 (interquartile range, IQR 25-43) years were newly diagnosed with HIV during the study period. One-third (33.3%) were heterosexual men, 33.3% were cisgender women, and 33.3% men who have sex with men. Median (IQR) CD4 at diagnosis was 202.0 (44.5-387.0) cells/mm³, and 36.3% (82/226) of clients had CD4 <100 cells/mm³. Furthermore, cryptococcal antigen and syphilis positivity were

6/226 (2.7%) and 40/226 (17.7%), respectively. Through CL-SDART, 288 clients with a median age of 27 (IQR 23-31) years were newly diagnosed with HIV, of whom 83.7% identified as men who have sex with men. Median CD4 count was 414.0 (299.8-554.8) cells/mm³. No CD4 <100 cells/mm³ or cryptococcal antigen positivity were observed. Syphilis positivity was 117/288 (40.6%). CL-SDART has been particularly effective in engaging young people and key populations, especially men who have sex with men. Additionally, HIV testing in a community-led clinic facilitated earlier detection of HIV with higher initial CD4 counts ($p < 0.001$), enabling prompt interventions which will contribute to improved patient outcomes.

Conclusions: These findings emphasize the effectiveness of CL-SDART in improving accessibility for key populations and facilitating early HIV diagnosis. Expanding this approach across multiple sectors could help address barriers to accessing HIV-related services and improve service delivery.

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Facilitators and Barriers to Mental Health Service Integration for Women with HIV in Outpatient Care: Insights from Healthcare Providers in Malaysia

Kukreja A^{1,2}, Salleh A², Hasmukharay K¹, Ross J³, Lovero K⁴, Rajasuriar R^{1,2}

¹Universiti Malaya, Department of Medicine, Kuala Lumpur, Malaysia, ²Universiti Malaya, Centre of Excellence for Research in AIDS (CERIA), Kuala Lumpur, Malaysia, ³TREAT Asia, amfAR - The Foundation for AIDS Research, Bangkok, Thailand, ⁴Columbia University Mailman School of Public Health, Department of Sociomedical Sciences, , New York, United States

Background: Women with HIV experience a high burden of mental health (MH) conditions, which negatively impact antiretroviral therapy adherence and retention in care. Despite evidence that integrated MH and HIV services improve health outcomes, such services remain uncommon in low- and middle-income countries, including Malaysia. This pre-implementation study explored facilitators and barriers to integrating MH services within an HIV outpatient clinic from healthcare providers' (HCPs) perspectives.

Materials and Methods: We conducted focus group discussions (FGDs) at Universiti Malaya Medical Centre from August 2023 to September 2024 with HCPs from Infectious Diseases (ID) and Psychological Medicine (Psy). Seven FGDs were conducted, including residents (ID=2, Psy=2), specialists (ID=3, Psy=2), consultants (ID=1, Psy=1), psychologists/counsellors (ID=3, Psy=2), clinic nurses (ID=2, Psy=2), support staff (ID=3, Psy=2), and nursing heads (ID=2, Psy=1). Discussions followed a semi-structured interview guide based on the Consolidated Framework for Implementation Research 2.0 to explore facilitators and barriers to integrating MH screening and linkage to care within outpatient HIV services for women. Thematic analysis was conducted using Dedoose software.

Results: A total of 28 HCPs participated (ID=16, Psy=12), with 78.5% identifying as female and 92.9% having more than five years of clinical

experience. Three overarching themes emerged. First, Mental Health Perceptions and Engagement. Facilitators included HCPs recognising the benefits of integrating MH services within ID clinics and their willingness to be trained by Psychological Medicine specialists to co-manage MH conditions. However, Organizational Readiness remained a challenge. The lack of standardized management algorithms and care pathways left HCPs uncertain about implementation, with many emphasizing the need for a clear framework to guide integration efforts. Staff shortages were widely cited, particularly the limited number of psychologists, psychiatrists, and counsellors who were unable to leave their units to provide care within the ID clinic. As a result, referrals to MH services were often met with long wait times, increasing reliance on already overburdened ID clinicians to address MH concerns within routine HIV care. Space limitations and time constraints further hindered integration, with clinicians struggling to balance HIV and MH care within short consultations. Additionally, a lack of clinical ownership for MH screening among junior clinicians emerged as a challenge, as they often prioritized acute HIV-related issues over MH needs. Sustainability concerns were raised regarding the feasibility of onsite psychiatric services, given past integrated models failing due to shifting institutional priorities. Finally, Women-Centered Factors posed unique barriers. HCPs highlighted the influence of patriarchal norms and reserved communication styles, which often limited women's ability to discuss MH concerns openly and seek timely care. In consultations, male partners or family members sometimes spoke on their behalf, potentially influencing their healthcare decisions. Some HCPs observed that these dynamics, coupled with internalized stigma, led women to deprioritize their mental well-being in favour of caregiving responsibilities.

Conclusions: Insights from HCPs highlight facilitators to leverage, such as willingness to be trained, and barriers to overcome, including the lack of standardized care pathways. These findings provide a foundation for designing tailored strategies that optimize MH-HIV service integration and improve long-term health outcomes for women.



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Strengthening HIV/AIDS Service Delivery of Civil Society Organizations through Social Contracting: The Experience of MPLUS Foundation in Chiang Mai, Thailand

Panpet P¹, Sangtong S¹, Patpeerapong P¹, Pokum R¹, Apiputhipan R¹

¹MPLUS Foundation, Chiang Mai, Thailand

Background: MPLUS Foundation, a civil society organization (CSO), has implemented the Key Population-Led Health Services (KPLHS) model, which provides HIV testing, PrEP, ART referral, and adherence support through certified lay providers. Since 2017, MPLUS Chaing Mai, Thailand, has registered as a National Health Security Office node, a Thai government health service purchaser, to obtain reimbursement for services including HIV prevention and testing using a social contracting model. In 2024, MPLUS Chaing Mai, the first community-based clinic was registered as a Polyclinic, recognized for offering comprehensive ART treatment and STI services. This allows MPLUS to receive compensation for all HIV cascades, resulting in a "one-stop service."

Description: The KPLHS model has consistently developed these services which meet national criteria, and MPLUS has been certified by the Department of Disease Control, Ministry of Public Health. As a result, MPLUS has received official recognition as a service provider of HIV and STI services. This designation ensures a budget for quality improvements, service delivery, and increasing service uptake. MPLUS served a total of 1,286 key population clients in 2018, with this amount being indicated to increase 10 times (10,321 clients) by 2024. This number represents 56% of Chiang Mai's overall performance, presenting MPLUS' commitment to the region's HIV/AIDS response.

Lesson learned: The social contracting approach has effectively supported the CSO's capacity to expand its HIV and STI treatment fees. It provides financial support for service delivery, enabling

continuous improvements in service quality and building the capacity of lay providers. However, supervision by hospitals plays a crucial role ensures a systematic service and referral system. MPLUS has successfully expanded its comprehensive package, including HIV prevention, PrEP, testing, and same-day ART treatment. Data as of FY2024 indicated MPLUS provided services to over 10,321 tested, including 131 HIV-positive clients, with a significant 97% receiving ART treatment (60% received same-day ART). Additionally, non-Thai clients were offered for Fee-based model which integrates MPLUS social enterprise for the sustainability of key population service programs.

Conclusions/next steps: MPLUS contributes to improving the healthcare system in Thailand. Moving forward, MPLUS aims to continue strengthening its capacity and expanding its services to ensure a comprehensive package covering all MPLUS sites. This includes supporting the other CSOs to replicate this model and ensuring nationwide service availability to people in need.

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Upscaling Community Reach Through EMBRACE-ing Virtual Clinic Model

Maynes J¹, Pagtakhan R¹, Ruanto J¹, Lomarda L¹, Manahan R¹, Generao D¹

¹Loveyourself Inc., Mandaluyong City, Philippines

2024 year-end data from the Department of Health (DOH) shows that the Philippines was able to achieve only 63-67-40, this shows the gap from the 95-95-95 targets. Despite the rich resources of advocates and community-led services, Philippines is still short of efforts. DOH is spearheads addressing the 2nd and last 95 with their efforts in scaling up access to treatment through increasing numbers of rHIVda Facilities to ensure access of the community. COVID-19 has widely opened the access of the community to Telehealth, and this has shown significant acceptance among the Filipinos. LoveYourself, in partnership with Pilipinas Shell Foundation, DOH, WHO-PH and UNAIDS-PH, took advantage of this innovative approach to integrate other sought-after services of the community.

The Virtual Clinic model provides a more holistic approach to HIV service delivery. EMBRACE (Empowerment through Modern Best-practices for Real Access, Care, and Education), offers Education, Self-screening, STI consultations, Prep, PEP, Gender Affirming care, Mental Health, integrated in one platform.

Since its pilot, November 15th, 2024 to February 28th 2025; there have been a total of 282 HIV Self-screenings done which were ordered (free) through the platform and delivered to the individuals (fee applies), 66% of which are MSM and 3% TGW, 31% are from the Gen-pop. Averaging 81 reached and screened individuals per month, 40% of which are testing-naive individuals. Observing the status neutral approach, HIV PrEP and PEP are also offered in the platform, on the other hand, referral mechanisms are also in place for those who are tested reactive. PrEP service was accessed by 31% of the respondents and 4% for PEP. A new perspective in the HIV community-led service is the access to free STI consultations through tele-consultation, which served 22% of

the respondents. This is an important point to cite, other than the cost it may imply in a private setting, as STIs may also be a gateway for the identification of their HIV status. Emphasis on access of the community is shown in the convenience of the platform, the chatbot is programed in Facebook Messenger which most if not all Filipinos have access to. 66% of the clients are from Metro Manila which has the highest HIV prevalence, and 34% are from outside Metro Manila. This underscores the equally important access of the high burdened areas and the access of the rest of an archipelagic country like the Philippines. To complete the HIV-AIDS Service Delivery Cascade, further scale up of the virtual clinic model will also include treatment services.

Embracing innovations and upscaling access are key to differentiated approach in HIV service delivery. Championing community-led advocacy with the use of innovative service expansion that can cater to testing-naive and testing-averse individuals is crucial in obtaining both the national and global targets.

Diving into any innovation, other than embracing technology advancements, human-centered approach should be a priority to better connect the service available and community needs. This helps the advocates and health-care providers to see beyond their efforts and to further drive to reach the 95-95-95 target.

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Community-Driven Support for Families and Partners of Gay Men with Methamphetamine Use Experience: Addressing Stigma and Complex Challenges

Chen L¹, Kao C², Chuang P³, Wei H⁴, Hsu C⁵, Chen Y³, Wang C^{6,7}, Deng T⁸, Ku Y⁹, Shen W¹⁰, Lo L¹¹, Cheng C¹⁰, Peng C¹⁰, Du S¹⁰

¹Center for Infection Control, National Taiwan University Hospital, Taipei, Taiwan, ²Maichong Art Counseling Center, Taipei, Taiwan, ³Kunming Prevention and Control Center, Taipei City Hospital, Taipei, Taiwan, ⁴Department of Psychiatry, Taipei City Hospital Linsen, Chinese Medicine, and Kunming Branch, Taipei, Taiwan, ⁵Department of Psychiatry, Shin Kong Memorial Wu Ho-Su Hospital, Taipei, Taiwan, ⁶Taiwan HIV Story Association, Taipei, Taiwan, ⁷Couple and Family Therapy Program, Department of Family and Community Medicine, School of Medicine, Saint Louis University, St. Louis, United States, ⁸Prisma Attorneys-at-Law, Taipei, Taiwan, ⁹Center of General Education, Taipei National University of the Arts, Taipei, Taiwan, ¹⁰Taiwan Tongzhi (LGBTQ+) Hotline Association, Taipei, Taiwan, ¹¹Locker Room, Taipei, Taiwan

Background: Families and partners of gay men with methamphetamine use experience face emotional distress while navigating stigma related to sexual orientation, HIV status, substance use, and legal issues. Many struggle to support their loved ones, particularly when paranoia or delusional symptoms further complicate relationships. Despite these challenges, structured support services for affected families and partners remain scarce, particularly within HIV care settings. In response, a group of family members and friends—some with backgrounds in social work, counseling, and healthcare—initiated a community-driven support program. They collaborated with professionals in psychiatry, HIV care, and social work to develop a workshop-based intervention focused on knowledge-sharing, coping strategies, and peer support.

Methods: From 2019 to 2024, 12 full-day workshops were conducted, including virtual sessions during COVID-19. A total of 140 participants registered, including friends, family members, partners, and helping professionals. Sessions covered methamphetamine use in gay communities, addiction treatment, mental health

impacts, legal considerations, and harm reduction strategies. While HIV status was not explicitly addressed, discussions often included chemsex-related HIV/STI risks, ART and PrEP adherence, and the emotional burden of supporting loved ones living with HIV who engage in chemsex. Participants were also connected to HIV care providers when needed.

Results: Participants found the educational component highly valuable for understanding substance use, harm reduction, and legal rights. Peer-sharing reduced isolation and provided emotional relief, as many had never openly discussed their loved one's substance use before. Beyond gaining knowledge and reducing isolation, a key takeaway was the importance of self-care. Initially, some felt guilty prioritizing their well-being, but they recognized that maintaining their emotional and physical health was essential for providing sustainable support. Many moved from confrontational to supportive communication, avoiding arguments during active drug use and encouraging medical intervention when their loved ones were more receptive.

Some participants developed coordinated caregiving strategies, structuring daily routines to minimize unmonitored periods, which they believed helped reduce drug use opportunities. Discussions on chemsex-related concerns, such as HIV/STI risks and ART/PrEP adherence, increased participants' willingness to seek more information or referrals for healthcare services. However, stigma remained a major barrier, with many fearing discrimination related to their loved one's substance use, sexual orientation, HIV status, or legal history. These findings highlight the need for stigma-informed services that integrate substance use and HIV care.

Conclusion: This study demonstrates the effectiveness of community-driven, peer-led interventions in supporting families and partners of those with methamphetamine use experience. Integrating mental health, HIV care, and social work can help address stigma-related barriers and strengthen support systems. Future efforts should focus on expanding workshops within HIV care settings, improving referral pathways, and enhancing harm reduction education to ensure families and partners receive comprehensive support.

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Substance Use-Based Violence May Underlie Coinfections and Other Comorbidities Among People Living with HIV (PLHIV) Who Use Drugs in Kazakhstan

Wiginton J¹, Turpin G¹, Lyons C¹, Dunaway K², Brion S², Nangombe H³, Dong D⁴, Savin P⁵, Baral S¹

¹Johns Hopkins University Bloomberg School of Public Health, Baltimore, United States, ²International Community of Women Living with HIV (ICW), ³Global Network of People Living with HIV (GNP+), ⁴The Vietnamese Network of People Living with HIV (VPN+), ⁵ALE Central Asian Association of PLHIV, ,

Background: Kazakhstan, a former Soviet republic in Central Asia, has a concentrated HIV epidemic, with key populations such as people who use drugs disproportionately affected by HIV. PLHIV who use drugs confront violent manifestations of substance use-based (SU) stigma, which, through various mechanisms, may increase vulnerability to coinfections and other comorbidities. We sought to assess the relationship between SU-based violence exposure and coinfections and other comorbidities among PLHIV who use drugs in Kazakhstan.

Methods: Using 2020-2021 data from the PLHIV Stigma Index 2.0 (N=534), we calculated descriptive statistics for variables of interest, after which we performed modified Poisson regressions with robust variance estimation to estimate prevalence ratios (PRs) for the association between past-year or 1+ year ago SU-based violence (i.e., verbal harassment, blackmail, and physical violence) and past-year coinfection (tuberculosis, viral hepatitis, sexually transmitted infections, opportunistic infections) and other comorbidities (mental health diagnoses, drug or alcohol dependence diagnoses, non-communicable diseases) among PLHIV who use drugs in Kazakhstan.

Results: Mean participant age was 41.9 years. More than two thirds were cisgender men (n=370; 69.3%). Over half (n=296; 55.4%) had high school education, with more than a third (n=182; 34.1%) being unemployed. Endorsement of SU-based harassment was 22.1% (n=118; past-year) and 38.4% (n=205; 1+ year ago); blackmail was 2.9%

(n=26; past-year) and 8.8% (n=47; 1+ year ago); and physical violence was 5.8% (n=31; past-year) and 18.2% (n=97; 1+ year ago). Nearly half (n=235; 44.0%) reported at least one coinfection (viral hepatitis, 33.5% [n=179]; opportunistic infections, 13.1% [n=70]; tuberculosis, 9.4% [n=50]; sexually transmitted infections, 3.6% [n=19]), and more than half (n=279, 52.3%) reported at least one other comorbidity (drug or alcohol dependence, 38.8% [n=207]; non-communicable disease, 22.7% [n=121]; mental health condition, 20.0% [n=107]). Compared to those without any experience of verbal harassment, those reporting past-year verbal harassment had elevated prevalence of coinfection (PR=1.37, 95% CI=1.07, 1.75) and other comorbidities (PR=1.81, 95% CI=1.48, 2.21). Past-year experience of blackmail was likewise associated with elevated prevalence of coinfection (PR=1.49, 95% CI=1.08, 2.06) and other comorbidities (PR=1.53, 95% CI=1.20, 1.94), and past-year physical violence was further associated with elevated prevalence of coinfection (PR=1.56, 95% CI=1.17, 2.08) and other comorbidities (PR=1.50, 95% CI=1.20, 1.86). Blackmail occurring 1+ year ago was associated with elevated prevalence of coinfection (PR=1.44, 95% CI=1.11, 1.87) and marginally associated with elevated prevalence of other comorbidities (PR=1.24, 95% CI=0.97, 1.59; p=0.081).

Conclusions: PLHIV who use drugs in Kazakhstan confront several forms of SU-based violence, including harassment, blackmail, and physical violence. The more recent the experiences were, the stronger their associations with coinfections and other comorbidities. Research to understand the potential mechanisms (e.g., mental health; heightened stress response and decreased immune functioning; avoidance of healthcare due to anticipated SU stigma) of these relationships is needed. To optimize both HIV treatment and other health outcomes among PLHIV in Kazakhstan, multipronged interventions comprised of multilevel SU-based stigma mitigation, trauma-informed HIV care, and access to mental health services are needed.

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Transforming HIV Education through Illustrated Storytelling: Lessons from Singapore's National Centre for Infectious Diseases World AIDS Day Campaign

Kumar A¹, Tan Z¹, Choy C¹, Lee P¹, Wong C¹

¹National Centre for Infectious Diseases, Singapore, Singapore

Background: The National Centre for Infectious Diseases (NCID) Enhanced HIV Programme (EHIVP) cares for Singapore's largest cohort of people living with HIV (PLHIV) from diverse backgrounds. Despite notable advances in treatment, many PLHIV continue to face stigma and discrimination that intensifies isolation, limits access to care and adversely affects mental health. In a society influenced by cultural taboos and misperceptions, innovative initiatives such as the annual World AIDS Day event are essential. These events raise awareness of HIV, empower PLHIV, foster community support and reshape narratives through creative, relatable education.

Description: The NCID World AIDS Day campaign, conducted from 2021 to 2024, employed a comic-style storytelling approach to deliver powerful messages. Central to the campaign is the fictional character "Jason", whose journey reflects real experiences of HIV diagnosis, treatment and the everyday challenges of living with the condition. Each year focused on a specific theme. In 2021, the session introduced "Jason's" initial diagnosis, capturing the shock of the news and the process of navigating treatment options, alongside the vital support provided by local healthcare institutions. In 2022, the narrative shifted to highlight the employment challenges stemming from HIV-related stigma and the essential role of healthcare teams in overcoming these obstacles. The 2023 session focused on relationships, following "Jason" and his support group as they forged meaningful connections with peers, healthcare professionals and potential partners, while emphasising the U=U (undetectable equals untransmittable) message to debunk myths regarding transmission. In 2024, the theme of

ageing was explored by juxtaposing "Jason's" experiences with those of his loved ones, illustrating the evolving challenges and triumphs experienced by PLHIV. Each 1.5 hour presentation was enhanced by mini-sessions featuring expert talks from doctors, medical social workers, nurses, pharmacists and stakeholders, with interactive live polls adding real-time adaptability and engagement. A professionally recorded voice-over by "Jason" further enriched the narrative with authenticity and emotional depth.

Lessons Learnt: Over the 4-year period, the campaign engaged >1,000 attendees and achieved an impressive average satisfaction rating of 95%. The interactive storytelling, combined with expert insights and striking visual illustrations, created an immersive experience that resonated with audiences. The inclusion of diverse expert voices added credibility, while the open, public format helped to normalise HIV conversations and reduce misinformation. Although the approach proved highly effective, challenges remained in engaging all demographics consistently. Feedback suggested that further tailoring of content for both younger and older audiences, and an extension of the presentation duration, could enhance future initiatives.

Conclusions/Next Steps: This campaign's success demonstrates that a narrative-driven, visually engaging approach can be effectively adapted for a wide range of training and educational initiatives. By integrating storytelling, visual illustrations and interactive elements, organisers can simplify complex issues and foster empathy and active learning. Such methods can be applied in public health, professional development and community outreach to encourage inclusive dialogue and challenge stigmatising views. Future efforts should refine these techniques and customise narratives to meet specific audience needs, ensuring that education remains both accessible and impactful across diverse sectors with continued commitment and innovation.

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A Retrospective Study Using X (Formerly Twitter) to Examine HIV/AIDS Stigma During 2011-2023 in Japan

Inoue Y¹, Takaku Y², Piao Y³, Taguchi N³, Harada K³, Hirahara K³, Austin J⁴, Lee K³

¹Accelight Inc., Tokyo, Japan, ²Japanese Network of People Living with HIV/AIDS, Tokyo, Japan, ³Gilead Sciences K.K., Tokyo, Japan, ⁴Gilead Sciences, Inc., Foster City, USA

Background: A deep understanding of HIV/AIDS-related stigma and evidence-based countermeasure is critical for all stages of the HIV care cascade. However, research on the general public remains limited and require a more multi-faceted approach. On the other hand, X (formerly Twitter) tweets have been recognized as a valuable source of information (Toriumi, 2015) and utilized in the stigma research of mental disorders and obesity (Stupinski, 2020; Lazarus, 2021; Brown, 2023). This study aims to clarify the current state of stigma in Japan by collecting and analyzing HIV-related posts on social networking sites.

Target and Methodology: The analysis covered Japanese-language posts made every three years from 2011 to 2023 that are still visible to the public during the span of data collection (March to May 2024), and which include five keywords such as "HIV". A portion of the posts were manually classified, and the results were machine-learned using a large natural language model, which further classified the rest of posts. Posts were divided into four categories (stigma, anti-stigma, general-education, and neutral), and stigma was further divided into six categories (peril, fear, insult, responsibility, label, and mark). Stigma ratio was calculated along with ratios by the following user attributes-age, gender, individual/organization, medical professional, and place of residence.

Results: (1) 2,269,775 posts were determined to be relevant to HIV and included in the analysis. The breakdown of posts was 56% neutral, 29% stigma, 10% anti-stigma, and 6% general-education. In terms of stigma ratio, those in their 20s and 60s were the highest (35%) by age group, and non-healthcare professional was higher (32%) in

contrast to healthcare professionals (21%). Stigma ratio increased sharply post-2020.

(2) Regarding stigma types, the breakdown was peril 47%, fear 27%, insult 13%, responsibility 7%, labels 6%, and marks 0%. When age group was further broken down into stigma types, the 20s displayed more responsibility stigma (17%), whereas the 60s were dominated by peril (48%). Peril ratios were high post-2020.

Conclusion: In Japan, stigma remains common on social networking sites, while the proportion of anti-stigma and general-education tweets was relatively low. SNS is considered effective in understanding the actual situation of HIV-related stigma. In the future, specific stigma reduction measures based on the analysis results are desired.

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HIV-Related Stigma Prevalence and Association with Quality of Life and Clinical Outcomes: A Focus on Evidence from China

Jacob I¹, Fan L², Kolobova I³, Danchenko N⁴, Rice D³, Jones S⁵, Matthews E⁵, Carter P⁵, Bhopal S¹, Moorhouse M⁶

¹ViiV Healthcare, London, UK, ²GSK, Shanghai, China, ³ViiV Healthcare, Durham, USA, ⁴ViiV Healthcare, Rueil-Malmaison, France, ⁵Health Economics & Outcomes Research Ltd, Cardiff, UK, ⁶ViiV Healthcare, Johannesburg, South Africa

Background: HIV-related stigma is a multifaceted global health concern that adversely impacts mental health, quality of life (QoL), treatment engagement, and antiretroviral therapy (ART) adherence among people with HIV. Notably, HIV-related stigma can affect the full HIV care continuum from diagnosis, treatment initiation and adherence, to maintaining viral suppression. As part of a systematic literature review (SLR) evaluating 6 research questions on the association of HIV-related stigma with clinical and QoL outcomes, data from studies conducted in China examining the prevalence and association of HIV-related stigma with QoL and clinical outcomes are presented.

Material and Methods: Searches were conducted in MEDLINE® and Embase® via the OVID platform from 2020 to May 2023 for prevalence and from database inception to May 2023 for the other 5 research questions. Relevant conferences, SLR bibliographies, and websites were searched from 2021 to 2023. Records were independently screened by 2 reviewers until ≥90% inter-rater reliability was achieved. Data were extracted by 1 reviewer and validated by another.

Results: Overall, 36 studies conducted in China were identified by the SLR, comprising 35 observational studies and 1 randomized clinical trial. All identified studies used patient-reported outcome tools to measure HIV-related stigma, with the Berger HIV stigma scale being the most frequently reported (67%; 24/36). The SLR did not identify any studies reporting prevalence data in China for 2020 to 2023; however, an additional study published in 2015 was included and reported

a 72% rate of internalized HIV-related stigma among 2987 people with HIV. All 8 identified studies found significant associations between HIV-related stigma and worsened health-related QoL outcomes ($P \leq 0.05$ for all). Associations between HIV-related stigma and lower mental component summary score; reduced daily physical activity capacity; poorer psychological QoL; lower physical, psychological, and independence domain scores; and worse HIV-specific QoL outcomes were observed ($P \leq 0.05$ for all). In the study conducted in 2987 individuals, significant associations between higher perceived and internalized HIV-related stigma and higher viral load were reported ($P \leq 0.05$). No studies were identified reporting a direct association between HIV-related stigma and access to HIV care, engagement with healthcare, treatment continuation, treatment satisfaction, or adherence. However, a study conducted in 1254 people with HIV found that parental HIV disclosure had an indirect effect of poorer ART adherence through higher enacted stigma. Additionally, HIV-related stigma was positively associated with depression, which was a mediator affecting HIV treatment self-efficacy, ultimately impacting ART adherence in a study of 504 people with HIV.

Conclusions: Although limited, the data indicate that HIV-related stigma negatively impacts QoL, ART adherence, and ultimately the level of viral suppression among people with HIV in China. There is an urgent need for additional high-quality studies to investigate the prevalence of HIV-related stigma and its associations with QoL and clinical outcomes in this population. Understanding the broader impact of HIV-related stigma on the full HIV care continuum is needed. Stakeholders and healthcare providers must prioritize interventions to mitigate stigma's adverse effects and improve the health and well-being of people living with HIV globally.

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The Impact of HIV-Related Stigma on Social Isolation and Mental Health Among People with HIV in Malaysia

Loh J¹, Hisham S¹, Yap S¹, Tan X¹, Chong M^{1,2},
Kukreja A^{1,2}, Chong N^{1,2}, Wong P^{1,2}, Rajasuriar R^{1,2}

¹Centre of Excellence for Research in AIDS, Faculty of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia, ²Department of Medicine, Faculty of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia

Background: HIV-related stigma is a persistent barrier in the HIV care cascade. Evidence suggests that HIV-related stigma is significantly associated with deleterious mental health, including high levels of depression, stress, and anxiety. There is a growing exploration of the potential mechanisms underlying the association between HIV-related stigma and mental health. This study aims to investigate the relationship between HIV-related stigma and mental health, including the mediating effect of social isolation in this relationship among people with HIV (PWH) undergoing routine HIV care at a tertiary centre in Malaysia.

Methods: This was a cross-sectional analysis of data from the Malaysian HIV and Aging Study (MHIVA) (Wave 2: 2021-2023). Participants included PWH who are aged ≥ 35 , receiving antiretroviral therapy and under routine follow-up in Universiti Malaya Medical Centre (UMMC). All participants answered standard, validated questionnaires in the language of their choice which included assessments for mental health, stigma and social isolation. We employed a validated 12-item HIV stigma scale (HSS) (Cronbach's alpha, $\alpha=0.872$), measuring disclosure concerns alongside enacted stigma (personalized stigma), perceived stigma (concern with public attitudes) and internalized stigma (negative self-image). We measured social isolation using the Lubben Social Network scale (LSNS) that included domains of isolation from family and friends ($\alpha=0.777$) and mental health with the Depression, Stress, Anxiety Scale 21 (DASS-21) ($\alpha=0.927$). We performed linear regression to test the association between HIV-related stigma, and mental health. We subsequently examined the mediating effects of social isolation between HIV-related stigma and

mental health using PROCESS Macro in SPSS. 5000 bootstrap resampling iterations at a 95% confidence level were performed to estimate the confidence intervals.

Results: 196 participants with complete data were included in the analysis from recruited PWH ($n=213$). The mean age was 51.07 (SD=9.751). Most of them identified as male (78.1%). A total of 96.9% had an HIV RNA <200 copies/ml. The mean for the HSS was 31.68 (range=14-48, SD=6.965). A total of 27.0% experienced at least mild depression, while 33.2% reported mild to extremely severe anxiety, and 13.3% experienced mild to severe stress. HSS and LSNS scores were negatively correlated ($r=-0.178$, $p<0.05$), suggesting that individuals who experienced greater levels of HIV-related stigma had fewer social connections with family or friends. Additionally, linear regression analysis suggests that HIV-related stigma was associated with poorer mental health ($\beta=0.675$, $p<0.05$) in which perceived stigma had the strongest association ($\beta=1.765$, $p<0.05$), followed by internalized stigma ($\beta=1.602$, $p<0.05$), disclosure concerns ($\beta=1.356$, $p<0.05$), and enacted stigma ($\beta=1.314$, $p<0.05$). In mediation analysis, there was a significant direct effect of HIV-related stigma on mental health ($\beta=0.6117$, $p<0.05$). The indirect effect of HIV-related stigma on mental health through social isolation was also significant ($\beta=0.0636$, 95% CI[0.0051,0.1594]), suggesting that the relationship between HIV-related stigma and mental health is partially mediated by social isolation.

Conclusion: HIV-related stigma was associated with poorer mental health in this cohort of PWH undergoing routine HIV care, with social isolation partially mediating this relationship. Our findings suggest that stigma-reduction interventions could be tailored to increase social engagement and to reduce the negative impact of stigma on mental health.

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Understanding Public Attitudes Toward People Living with HIV: A Longitudinal Analysis of Population-Based National Chinese Data from 2015 to 2023 Using Bayesian Methods

Yang F¹, Li J¹, Li W², Wu D³, Tucker J⁴

¹Institute of Population Research, Peking University, Beijing, China, ²Chinese Academy of Social Sciences, Beijing, China, ³Nanjing Medical University, School of Public Health, Beijing, China, ⁴London School of Hygiene and Tropical Medicine, London, UK

Background: Public attitudes toward people living with HIV (PLHIV) represent a critical dimension of the social environment, reflecting societal stigma, impacting discrimination, and influencing treatment adherence. Understanding how these attitudes evolve across age groups, historical time periods, and birth cohorts can shed light on the social dynamics underpinning HIV stigma. This study applies an age-period-cohort (APC) framework to disentangle these effects.

Methods: We analyzed data from the China Social Survey (CSS) from 2015 to 2023, a biennial cross-sectional survey across 31 provinces in China. The outcome variable, attitudes toward PLHIV, was measured on an ordinal scale ranging from very accepting (no stigma) to not accepting at all (severe stigma). We applied a generalized linear mixed-effects model using the Integrated Nested Laplace Approximation (INLA), specifying fixed age effects, random period effects, and a random walk structure for cohort effects informed by stigma theory (i.e., adjacent cohorts share more similar beliefs). Individual-level covariates included sex, education, marital status, ethnicity, residence (urban vs rural), and religion. To assess potential educational confounding, we compared cohort effects before and after adjusting for education, given the rapid educational expansion among younger generations. All analyses were conducted using R (INLA package).

Results: We identified significant period and cohort effects on public attitudes toward PLHIV in China. Between 2015 and 2023, negative attitudes

toward PLHIV declined sharply in 2021, followed by a rebound to pre-2021 levels in 2023. Cohort analysis showed that individuals born between 1965-1969 expressed significantly higher levels of HIV stigma compared to later birth cohorts. This cohort effect was substantially attenuated after adjusting for educational attainment, suggesting that cohort differences in educational levels contribute to intergenerational differences in HIV attitudes. Increasing age was also associated with greater odds of holding stigmatizing attitudes, with each 10-year age increase associated with higher stigma relative to the 18-24 year reference group. Among individual-level factors, urban people (aOR: 0.97, 95% CI: 0.96-0.99) and men (aOR: 0.97, 95% CI: 0.96-0.99) had less stigmatizing attitudes compared to rural residents and women, respectively. Religion, marital status, and ethnicity were not significantly associated with HIV-related attitudes.

Conclusion: Public attitudes toward PLHIV in China are shaped by a complex interplay of age, period, and cohort effects, with no evidence of a consistent declining trend in stigma over the past decade. The temporary drop in stigma observed in 2021 highlights the potential influence of contextual events, such as the COVID-19 pandemic, on public perceptions of infectious diseases and vulnerable populations. The importance of education in shaping inter-cohort differences underscores the role of educational expansion as a key driver of shifting public attitudes. Further research and action to reduce HIV stigma in China are urgently needed.

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Enhancing Undetectable = Untransmittable (U=U) Communication in Healthcare setting in Bangkok – An Implementation Science Approach

Jatupornpimol N¹, Siriphan J², Piakhuntod R¹, Duangmala P², Janploy N¹, Pengnonyang S¹, Benjarattanaporn P³, Suwanphatthana N³, Ramatuarsing R¹, Phanuphak N¹

¹Institute for HIV Research and Innovation, Bangkok, Thailand,

²Foundation for Action on Inclusion Rights, Bangkok, Thailand,

³The Joint United Nations Programme on HIV/AIDS (UNAIDS), Bangkok, Thailand

Background: Undetectable = Untransmittable (U=U) is a powerful message that can improve wellbeing among people living with HIV (PLHIV) and reduce HIV related stigma and discrimination. However, healthcare providers (HCPs) in Thailand still do not routinely or accurately discuss U=U with their clients. We explored barriers to and facilitators of U=U communication with PLHIV among HCPs in Bangkok.

Methods: We conducted an online, cross-sectional survey using the COM-B Model for Behavior Change and the Theoretical Domains Framework to assess barriers and facilitators of U=U communication among doctors, nurses, assistant nurses, social workers or counsellors providing care for PLHIV.

Results: Between 2-18 December 2024, 129 HCPs, with a median (interquartile range) age of 38 (22-63) completed the survey. Fourteen (10.9%) were doctors, 62 (48.1%) were nurses, 8 (6.2%) were nursing assistants, 7 (5.4%) were social workers, 4 (3.1%) were counsellors and 34 (26.3%) are other types of HCPs. Twelve (20.7%) HCPs communicated U=U with every people living with HIV, 16 (27.6%) communicated U=U with only some PLHIV, 7 (12.1%) did not communicate U=U with any PLHIV, while 23 (39.7%) HCPs reported that U=U communication is not a part of their responsibility. HCPs communicating U=U with every or some clients, did so because they believe that U=U knowledge will encourage

adherence to antiretroviral therapy and improve clients' health, to live with hope (both belief about consequences). They also believe their role is to prevent HIV transmission (professional role and identity). Those who did not communicate U=U with some or any clients did so because they lack capacity (lack of accurate U=U knowledge and training) and physical opportunity (limited time and U=U communication resources and policies). Ten (19.6%) HCPs cited fear of risk compensation, and 8 (15.7%) worried about other sexually transmitted infections.

Conclusions: Only 20% of respondents discussed U=U with every client living with HIV. In addition to conventional strategies like education and training, tailored implementation strategies to enhance U=U communication will need to create and amplify providers' motivation, reduce providers' negative attitudes towards intersecting characters of their clients, and endorse a human-centered policy in healthcare settings.

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Who and Where? Sexual Orientation Related Stigma or Discrimination Among Non-HIV-Positive Gay and Bisexual Men in Australia: Results of a National Cross-sectional Survey

Yu S¹, MacGibbon J¹, Broady T¹, Holt M¹

¹Centre for Social Research in Health, University of New South Wales, Sydney, Australia

Background: Gay and bisexual men (GBM) may face sexual orientation related stigma or discrimination, which can negatively impact their mental health, well-being, and healthcare access. Identifying who is most affected and where stigma occurs is critical for targeted interventions. We assessed these experiences as potential barriers to HIV prevention and sexual health care.

Methods: A national, online cross-sectional survey of GBM was conducted in June–July 2023. Participants were asked whether they had experienced any stigma or discrimination related to sexual orientation in everyday life, and separately, in healthcare settings in the last year. Logistic regression identified factors associated with experiences of stigma or discrimination.

Results: In total 2,046 surveys were completed, with 129 participants living with HIV. 1,907 non-HIV-positive participants were included in this analysis. The median age was 35 years (IQR=27-45 years) and 81.3% identified as gay. In the past year, 56.8% (n=1,083) reported any sexual orientation related stigma or discrimination in daily life, and 25.2% (n=481) reported it in healthcare settings. The only factor associated with sexual orientation related stigma in daily life was younger age (aOR=0.97, 95%CI=0.96-0.98). Sexual orientation related stigma in healthcare settings was independently associated with younger age (aOR=0.98, 95%CI=0.976-0.99), or having 1-5 (aOR=1.54, 95%CI=1.05-2.28), 6-10 (aOR=1.70, 95%CI=1.10-2.65), >10 male partners (aOR=1.83, 95%CI=1.20-2.80) in the last six months, compared with no male partners.

Conclusions: Sexual orientation related stigma or discrimination was more commonly reported in daily life than in healthcare settings. Younger GBM and those with multiple sexual partners were most affected by stigma in healthcare settings. It is concerning that participants with more sex partners were more likely to report stigma or discrimination in healthcare settings, as these GBM are prioritised in HIV prevention efforts and in sexual health testing. Stigma-free healthcare access and services should be promoted to younger and sexually active GBM, to encourage engagement.

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HIV-Related Healthcare Stigma and HIV Viral Load Testing Among Multiply Marginalized Men Who Have Sex with Men in Vietnam

Wiginton J¹, Turpin G¹, Lyons C¹, Dunaway K², Brion S², Nangombe H³, Dong D⁴, Savin P⁵, Baral S¹

¹Johns Hopkins University Bloomberg School of Public Health, Baltimore, United States, ²International Community of Women Living with HIV (ICW), ³Global Network of People Living with HIV (GNP+), ⁴The Vietnamese Network of People Living with HIV (VPN+), ⁵ALE Central Asian Association of PLHIV, ,

Background: The HIV epidemic in Vietnam continues to significantly affect gay men and other men who have sex with men (MSM) and other key populations. MSM are already stigmatized for their sexuality, and MSM living with HIV face another layer of stigmatization. HIV stigma emerging in healthcare encounters may be especially detrimental to MSM living with HIV and may disproportionately target racial/ethnic or religious (RER) minorities, compromising treatment and prevention efforts. We sought to assess the burden of HIV-related healthcare stigma and investigate its association with lack of HIV viral load testing among MSM living with HIV in Vietnam, including among RER minorities.

Methods: Using data from the People Living with HIV Stigma Index 2.0 (2020; N=572), we calculated descriptive statistics for variables of interest. We created a summed score (range=0-7) from 7 items assessing past-year healthcare stigma when seeking HIV care (denial of care, advised to abstain from sex, gossip, verbal abuse, physical abuse, contact avoidance, nonconsensual status disclosure). We used modified Poisson regression with robust variance estimation to estimate prevalence ratios (PRs) for the association between healthcare stigma and lack of viral load testing; we also explored associations between each individual healthcare stigma experience and lack of HIV viral load testing. We conducted stratified analyses by RER minority status to assess potential moderation.

Results: Mean participant age was 29 years (SD=7.2); nearly half (n=264, 46.2%) had

university/tertiary education, and more than half (n=330, 57.7%) were employed full-time. Over one third (n=210, 36.7%) identified as RER minorities. 10.3% (n=59) had not had an HIV viral load test in the past year (including n=5 who were unaware of viral load or viral load testing concepts). One third (n=191, 33.4%) endorsed past-year HIV-related healthcare stigma when seeking HIV care. Verbal abuse and sex restrictions were the most prevalent (n=126, 22.0% and n=124, 21.7%, respectively), followed by physical contact avoidance (n=35, 6.1%), nonconsensual status disclosure (n=33, 5.8%), gossip (n=28, 4.9%), denial of care (n=16, 2.8%), and physical abuse (n=1, 0.2%). A greater number of healthcare stigma experiences was positively associated with lack of HIV viral loading testing (PR=1.35, 95% CI=1.18, 1.55). By individual healthcare stigma experience, denial of care (PR=4.67, 95% CI=2.53, 8.62), gossip (PR=3.96, 95% CI=2.25, 6.96), verbal abuse (PR=1.68, 95% CI=1.01, 2.79), contact avoidance (PR=3.91, 95% CI=2.29, 6.67), and nonconsensual status disclosure (PR=2.19, 95% CI=1.08, 4.45) were all associated with lack of HIV viral load testing. Among RER minorities, greater healthcare stigma overall (PR=1.54, 95% CI=1.29, 1.83), denial of care (PR=6.31, 95% CI=3.20, 12.47), gossip (PR=5.34, 95% CI=2.72, 10.50), physical contact avoidance (PR=6.09, 95% CI=3.12, 11.87), and nonconsensual status disclosure (PR=2.75, 95% CI=1.27, 5.96) remained significant; no associations were significant among non-RER minorities.

Conclusions: HIV-related stigma persists in healthcare settings in Vietnam. MSM living with HIV who are RER minorities have heightened vulnerability to this stigma, with detrimental effects on viral load testing access and consequently viral load awareness. Targeted stigma mitigation addressing intersecting HIV- and RER-based prejudice in HIV-specific healthcare settings is needed.

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HIV Stigma and Mental Health: Implications for UNAIDS 10-10-10 Targets in India

Borse R¹, Nimkar S², Slavi S¹, Mundhe S¹, Pawar A², Bhosale H², Lele G², Potphode V², Mave V^{2,3}, Marbaniang I^{2,4}

¹BJGMC Department of General Medicine, Pune, India, ²BJGMC-JHU CRS, Pune, India, ³Johns Hopkins University, Baltimore, USA, ⁴McGill University, Montreal, Canada

Background: Poor mental health among people living with HIV (PLHIV) is linked to lower HIV care engagement and poorer health outcomes. HIV-related stigma is a driver of poor mental health, and UNAIDS emphasizes the need to eliminate stigma to achieve the 95-95-95 targets. However, systematic research on the relationship between HIV-related stigma and mental health in Asia remains limited, particularly in longitudinal studies. Here, we evaluate longitudinal associations between HIV stigma and depressive, anxiety, and PTSD-related symptoms among Indian PLHIV.

Materials and methods: We used data from three visits with 12-month intervals (Visit1: January 2022 – May 2022; Visit3: January 2024 – August 2024) from 179 PLHIV participants aged ≥40 years in the ongoing Sentinel Research Network study at BJ Government Medical College, Pune, India. The exposure was HIV-related stigma, measured using the 40-item Berger HIV Stigma Scale (possible range: 40–160). Scores were scaled by a factor of 4, such that a 1-unit change in the model corresponds to a 4-point change on the actual stigma scale. The outcomes were mental health symptoms: depressive symptoms (PHQ-9, possible range: 0–27), anxiety symptoms (GAD-7, possible range: 0–21), and post-traumatic stress disorder (PTSD) symptoms (PCL-5, possible range: 0–80). The Berger scale measures lifetime HIV-related stigma (no timeframe), whereas PHQ-9 and GAD-7 assess symptoms over the prior two weeks, and PCL-5 over the prior month. Accordingly, stigma was assumed to temporally precede depressive, anxiety, and PTSD symptoms within each visit. We fit three separate multilevel linear regression models to assess the association between stigma and continuous mental health symptom scores, with robust standard errors and a random

intercept to account for within-person correlation. Models were adjusted for age, sex, education, income, viral suppression 12 months prior to Visit1, and time-varying PHQ-9, GAD-7, and PCL-5 scores from the prior visit (in relevant models).

Results: Mean age at enrollment was 50 years (SD: 7), 48% (n=86) were cisgender women, and 31% (n=56) had ≥10 years of education. Mean stigma scores were 103 (SD:10) in Visit1, 98 (SD:11) in Visit2, and 96 (SD:14) in Visit3. Observed PHQ-9 scores ranged from 0 to 16, with mean scores of 4.3 (SD: 3.4) at Visit1, peaking at 5.1 (SD: 3.4) at Visit2, and decreasing to 4.6 (SD: 3.5) at Visit3. Observed GAD-7 scores ranged from 0 to 15, with the highest mean at Visit2 (5.2). Observed PCL-5 scores ranged from 0 to 41, with the highest mean also at Visit2 (16.6, SD:7.7), mirroring PHQ-9 and GAD-7 trends. HIV stigma was positively associated with depressive symptoms (Coefficient: 0.21, 95% CI: 0.13, 0.29), anxiety symptoms (Coefficient: 0.20, 95% CI: 0.10, 0.31), and PTSD symptoms (Coefficient: 0.38, 95% CI: 0.21, 0.57). Stigma's effect on mental health symptoms remained stable across visits, as interaction models (stigma × visit) and random slope models did not significantly improve model fit.

Conclusion: Higher HIV-related stigma was associated with increased depressive, anxiety, and PTSD symptoms, with the strongest association for PTSD. Our findings highlight the need to address HIV-related stigma as a structural determinant of mental health among PLHIV in India.

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Intersectional Stigma Among Ageing LGBTQ+ Individuals Living with HIV

Tee M¹, Woon S, Neo P, Chan C, Connolly D, Howard N, Teerawichitchainan B, Tan R

¹National University of Singapore, Singapore, Singapore

Introduction: The intersection of ageing and HIV presents unique challenges for LGBTQ+ individuals, who navigate multiple layers of stigma related to their age, HIV status, and sexual orientation. While early research established our understanding of psychosocial adaptation among men who identify as gay and are living with HIV, contemporary studies highlight a more complex picture of intersectional stigma and evolving care needs. A particularly significant aspect is the longevity of individuals living with HIV arising from medical advances, creating unique challenges for people living with HIV as they age. This review aimed to synthesise over two decades of research examining the lived experiences of older LGBTQ+ individuals living with HIV.

Methodology: We conducted a systematic search of mixed-methods and qualitative studies across six databases (PUBMED, Scopus, Web of Science, PsycINFO, EMBASE, and ASSIA) and synthesised qualitative data focusing on LGBTQ+ individuals' experiences and expectations of ageing well using Noblit and Hare's meta-ethnography approach.

Results: We included 8 eligible studies of 3019 screened, most from North America (n=4), followed by Europe (n=2), South America (n=1), and Africa (n=1). Studies included persons who identified themselves as gay (n=8), bisexual (n=3), lesbian (n=2), transgender woman (n=2), cisgender woman (n=1), and pansexual (n=1). We found that ageing well with HIV represents a dynamic balance between physical and mental well-being, shaped by individual journeys and interactions with healthcare services, generating three themes from our synthesis:

Intersectional Stigma: The compounded effects of stigma related to age, HIV status, and sexual orientation created persistent barriers across healthcare settings, social interactions, and within LGBTQ+ communities. This multilayered stigma

often results in reduced access to care and support services.

Service Gaps and Uncertainty: Healthcare and social service systems frequently fail to recognise older LGBTQ+ individuals living with HIV as a population with distinct needs. As one participant noted, "It's almost like they haven't made a slot for us yet." Additionally, participants expressed concerns about the long-term effects of antiretroviral therapy, acknowledging their unique position as the first generation to age with HIV - described as being "still in the test tube and finding out how the experiment ends."

Resilience and Adaptation: Participants demonstrated remarkable resilience through multiple mechanisms in the absence of formal institutional support and despite stigma and discrimination, developing alternative support networks and chosen families, cultivating high levels of health literacy and self-advocacy, and engaging in community organisations for practical and emotional support.

Conclusion: Our findings highlight the importance of developing targeted interventions that address both the medical and psychosocial needs of older LGBTQ+ individuals living with HIV, with three critical areas for attention: the need for holistic, person-centred care models addressing intersectional challenges, the importance of addressing systemic stigma at multiple levels, and the necessity of specialised support services that acknowledge the evolving needs of this population.

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HIV-Related Stigma, Depression and Quality of Life in Older Adult Living with HIV

Apornpong T¹, Lwin H¹, Hiransuthikul A², Hiranburana N¹, Minn Kyaw H¹, Phonphithak S¹, Ubolyam S¹, Kerr S^{1,3,4}, Avihingasanon A^{1,5}

¹HIV-NAT - The Thai Red Cross Aids Research Centre, Bangkok, Thailand, ²Department of Preventive and Social Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ³Biostatistics Excellence Centre, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ⁴Kirby Institute, UNSW Sydney, Sydney, Australia, ⁵Center of Excellence in Tuberculosis, Department of Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: HIV-related stigma has been a problem for people with HIV (PWH) since the beginning of the epidemic. It adversely impacts testing rates, access to care, mental health and quality of life (QoL). Older PWH may face a double burden with both HIV-related and age-related stigma. Our study aimed to quantitate stigma and assess the relationship between participant characteristics and stigma in older PWH.

Material and Methods: We conducted a cross-sectional assessment among adult PWH aged ≥ 50 years (PWH50) at HIV-NAT, Thailand, from March 2021 to June 2024. The Berger HIV Stigma Scale (HSS), comprising 40 items on a 4-point Likert scale was used to assess HIV-related stigma. Total scores range from 40 to 160, with higher scores indicating greater stigma. The total stigma score was categorized as mild (40-80), moderate (81-120), and severe (>120). The Patient Health Questionnaire version 9 (PHQ-9) was used to assess depressive symptoms, and categorized as no (0-4), mild (5-9), and moderate to severe (>10) depression. The SF-36 was utilized to measure quality of life (QoL), with self-rated scores ranging from 0 to 100. Demographic and HIV-related characteristics were extracted from electronic medical records. Multiple linear regression was then used to assess relationships factors associated with total stigma score.

Results: A total of 542 PWH50 were included in the study, of which 58% were male, with a median age of 57 years (interquartile range [IQR]: 53-62). Of these participants, 70% had an education level lower than a Bachelor's degree, and nearly half

(40%) had a monthly income of more than 440 USD. Smoking and alcohol consumption were reported at lower than 10%. All PWH50 were on antiretroviral therapy (ART), with a median duration on ARV of 21 years (IQR: 17-24). The current CD4 cell count was 620 cells/mm³ (IQR: 468-799), and 98% had undetectable HIV-RNA (<50 copies/mL). Most PWH were not depressed (84%); 11% had mild depression and 5% experienced moderate to severe depression. The median (IQR) QoL score was 80 (IQR: 70-90).

The mean perceived stigma score was moderately high at 95 (IQR: 83-108). Among the four subscales, personalized stigma had the highest score at 67.50, while the negative self-image subscale had the lowest score at 57.50. The prevalence of mild, moderate, and severe stigma was 103 (19%), 130 (23.99%), and 61 (11.25%), respectively.

After adjusting for sex, age, QoL and duration on ARV, 3 factors were independently associated with higher stigma scores. These were higher income (>440 USD vs <440 USD: coefficient 4.78 (95%CI 0.31 – 11.18; $P=0.04$), having mild (7.26 (95%CI 0.26 – 12.77); $p=0.04$) or moderate/severe depression (15.0 (95%CI 5.23 – 23.12; $P=0.002$) versus no depression. Although QoL and ART duration were not statistically significant in an adjusted model, higher QoL (-1.77 (95%CI -2.75 to 0.27 per 10 units increase) and longer ART duration (-0.27 (95%CI -0.66 to 0.05) were associated with lower stigma scores.

Conclusion: HIV-related stigma remains high in older adult PWH. Depression and quality of life was the independent associated with stigma.

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The Impact of Shared Decision-Making on the Approval Rates and Outcomes of Long-Acting Antiretroviral Therapy in People Living with HIV in Taiwan

LIN L¹, Lee Y¹, Yu C¹, Li C¹

¹Division of Infectious Diseases, Department of Internal Medicine, Chung Shan Medical University Hospital, Taichung, Taiwan

At the end of February 2024, data from Taiwan's Centres for Disease Control (CDC) show approximately 35,657 people living with HIV (HIV) in Taiwan. Antiretroviral therapy (ART) is free for Taiwanese citizens under the guidance of the CDC and funded by the National Health Insurance (NHI), with the average cost of oral ART at NTD\$ 13,200 per month. In 2021, Taiwan's Food and Drug Administration approved the first long-acting injectable antiretrovirals (LA). In 2024, LA-cabotegravir and rilpivirine (CAB / RPC LA) were listed as second-line ART, costing NTD\$ 37,106 per bimonthly administration. Taiwan's CDC guidelines for CAB / RPG LA eligibility include adults aged 18 or older, a viral HIV load <50 copies / ml within 6 months, difficulty with daily oral medication, agreement to bimonthly injections and other clinical criteria. Long-acting injectable ART improves quality of life (QoL) for PLHIV and is a promising treatment option.

This study evaluated 903 HIV patients under our care, focussing on the completion of the LA injectable ART and the Shared Decision Making (SDM) questionnaire. This questionnaire first introduces the differences between LA injectable medications and oral medications. It then separately asks primary caregivers and patients about various aspects, including treatment effectiveness, changes in treatment methods, medication side effects, drug interactions, risk of disease exposure, follow-up visit frequency, and treatment convenience. Based on the scores calculated from these questions, the questionnaire helps patients decide on a new treatment approach. Among the patients, 41 (4.5%) received LA injectables. Of the 45 patients who completed

the SDM questionnaire, 43 were male (96%), 2 female (4%), with an average age of 37 years, a CD4 count of 689, and undetectable viral loads (100%). Among these, 36 (80%) had their applications approved, 1 (2%) was not approved, 5 (10%) chose not to apply and 3 (8%) were under review.

On the contrary, 13 patients did not complete the SDM questionnaire. They had a similar average age (37 years), CD4 count (608), and undetectable viral loads (100%). In this group, 5 (38%) had applications approved, 3 (24%) were not approved, and 5 (38%) chose not to apply. When categorising "not approved," "not applied," and "under review" as "applications not approved," chi-square analysis revealed a statistically significant difference in LA-ART approval rates between SDM questionnaire completers and noncompleters (p-value = 0.0107).

Conclusion: These findings demonstrate the critical impact of SDM on LA-ART application success. Incorporating SDM improves patient engagement and access to advanced treatments, suggesting the importance of promoting SDM to optimise care and outcomes for PLHIV.

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Leveraging Digital Tools and Community-Led Communication Strategies to Combat HIV Stigma and Enhance Prevention Efforts in the Philippines

Domingo R¹, Briñes ¹, Pagtakhan R¹, Rosadiño J¹, Wurtzbach P^{1,2}, Cruz D¹, Ruanto J¹, Corciega J¹

¹LoveYourself, Inc., Mandaluyong City, Philippines, ²UNAIDS-Asia Pacific, Bangkok, Thailand

Despite a global decline in new HIV infections, the Philippines remains one of the fastest-growing HIV hotspots, with 47 new cases daily in Q4 of 2024. Stigma is a significant barrier, with 36% of Filipinos living with HIV facing discrimination, hindering their access to treatment. Both People living with HIV (PLWH) and healthcare workers (HCWs) experience similar stigma, affecting their quality of life and healthcare delivery. These challenges stem primarily from a lack of HIV awareness, impacting PLHIV, HCWs, and public health in the Philippines.

Demand-generation activities are essential to reducing HIV-related stigma. Innovative social marketing strategies for HIV combination prevention (HCP) are crucial for the Philippines and the broader Asia-Pacific region. LoveYourself Philippines has developed a multi-platform communications strategy to drive awareness and uptake of HCP and mental health services.

Since 2015, LoveYourself's #IAmWorthyMonday campaign has generated over a million engagements, reaching 100,000+ people and helping reduce stigma while promoting HIV testing and prevention services. From 2020-2022, the #SaferNowPH campaign used digital tools, including animated videos and online posters, to raise awareness and service uptake of HCP during the height of the COVID-19 pandemic. These efforts reached over 100,000 online viewers, garnered over 20,000 engagements, and engaged 10,000+ in-facility clients annually.

LoveYourself's Holding Space online docuseries, hosted by global ambassador Pia Wurtzbach, expands awareness and access to HIV and mental

health services, particularly in rural areas. Since its debut in 2021, the series has featured 18 stories, generating over 15 million engagements across platforms like Facebook, Instagram, YouTube, and TikTok. The fourth season, with six more stories, is set for release in 2025.

Blending digital engagement, grassroots mobilization, and influencer-driven advocacy strategies have successfully reached diverse populations, normalized sexual health conversations, and empowered key communities. Implemented campaigns, like #IAmWorthyMonday, #SaferNowPH, and #HoldingSpacePh, have contributed to these positive outcomes in LoveYourself's service delivery in 2024 for HIV testing (79,236 clients), pre-exposure prophylaxis initiation (7,078 initiated), and linkage to treatment (3,195 newly diagnosed PLWH).

Key lessons from these efforts include:

- 1) People-centric, engaging content: LoveYourself's campaigns address stigma with relatable, empowering messages. Influencers and differentiated social marketing engage audiences, making HIV topics more approachable. Constant social listening and feedback ensure the campaigns remain relevant, thus branching from these campaigns the messaging #WhatWorksForU as a status-neutral approach to promote empowering choices to people.
- 2) Community-led initiatives: Involving community advocates in content creation ensures culturally relevant messages reach those in need, promoting sexual health choices. However, resource allocation and costs are challenges in implementing these campaigns.
- 3) Digital platforms as catalysts for change: Social media has been instrumental in reaching key populations. Campaigns generating over a million engagements underscore the importance of continued investment in digital tools, though challenges include digital noise, audience behavior, and rural access to technology.

Despite challenges, LoveYourself's digital-first campaigns have proven effective in promoting HIV prevention and reducing stigma. Moving forward, scaling these strategies, strengthening community partnerships, and integrating digital and in-person engagement will be crucial for sustained progress in the fight against HIV.

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From Planning to Implementation: How the Sustained Health Initiatives of the Philippines, (SHIP) Inc. Cookbook Standardizes HIV Prevention Across 17 Regions

De Castro M¹

¹*Sustained Health Initiatives of the Philippines, Mandaluyong City, Philippines*

Background: The Philippines has a controlled yet complex HIV epidemic shaped by its archipelagic geography, cultural diversity with over 170 dialects, and decentralized health service delivery structure. Implementing a standardized HIV prevention strategy across the country is challenging due to regional variations in service capacity, epidemiological trends, and logistical constraints.

The Sustained Health Initiatives of the Philippines, (SHIP) Inc. as a sub recipient of the Global Fund HIV Project in the Philippines, developed the Cookbook, a modular and scalable Differentiated Service Delivery (DSD) Toolkit. It serves as a structured implementation guide for HIV prevention programs across 17 regions and more than 100 sites, ensuring a unified but adaptable approach.

Operating through 26 clusters, each with one supervisor and a team of 3 to 30 staff, and Technical Assistance Providers (Strategy Unit) work in a hybrid setup across Luzon, Visayas, and Mindanao, making nationwide coordination complex. The Cookbook provides a solution by standardizing HIV service delivery while allowing for regional modifications based on site-specific needs.

Methods: The Cookbook functions as a structural intervention that strengthens HIV prevention programming through three key components: Technical Assistance Approach

- a. The Strategy Unit conducts site visits to document best practices and implementation challenges.
- b. Face-to-face training sessions bring together supervisors from all 17 regions to ensure program alignment and skill enhancement.

Monitoring and Evaluation (M&E) Frameworks Embedded in the Cookbook

- a. A structured system tracking of HIV prevention outreach, testing yield, and program performance.
- b. A centralized project folder ensures implementers have real-time access to updated guidelines and protocols.

Capacity-Building Initiatives for Regional Implementers

- a. An online Learning Management System (LMS) includes modules on Cookbook strategies and implementation guidelines.
- b. Regional-level training sessions and site-visit discussions reinforce structured approaches and adaptation models.

Results: The Cookbook has provided a unified implementation guide for HIV prevention across 17 regions and 100+ sites, improving service alignment and efficiency.

The integration of training, a centralized LMS, and on-site support has ensured that regional supervisors and frontline staff receive consistent technical assistance despite decentralized operations.

Site visits and regional program reviews helped bridge the gap between national strategies and local implementation, allowing teams to adapt interventions based on real-world challenges.

Lessons Learned: A structured toolkit enhances scalability while maintaining adaptability for regional needs.

Hybrid technical assistance (on-site visits and virtual learning) strengthens regional program implementation.

A centralized but accessible knowledge management system ensures program consistency across multiple sites.

Face-to-face training remains critical for strengthening implementer alignment and cross-regional learning.

Conclusion: The Cookbook developed by the Sustained Health Initiatives of the Philippines (SHIP) serves as a standardized yet adaptable implementation toolkit for HIV prevention across the country. By integrating technical assistance, centralized monitoring, and training innovations, the Cookbook ensures a structured but flexible approach to HIV service delivery in an archipelagic setting. Future efforts should enhance digital access, expand localized adaptations, and strengthen collaborative capacity-building models to further optimize implementation across diverse regions.

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Awareness of “Undetectable Equals Untransmittable” (U=U) Among Young Thai People Living with Perinatally Acquired HIV

Aurpibul L¹, Saisaengjan C², Songtaweessin W^{2,3}, Masurin S¹, Suwanlerk T⁴, Puthanakit T²

¹Research Institute for Health Sciences, Chiang Mai University, Thailand, ²Department of Pediatrics, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ³School of Global Health, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ⁴TREAT Asia/amfAR – The Foundation for AIDS Research, Bangkok, Thailand

Background: “Undetectable equals Untransmittable” (U=U) is a critical public health message that has been globally endorsed to reduce stigma, promote HIV testing, encourage HIV treatment adherence, and allow people with HIV to live without fear of onward HIV transmission. This differs from past advice. We assessed awareness and confidence in U=U among young people living with perinatal HIV in Thailand.

Material and Methods: Data were collected as a part of a qualitative study exploring healthcare transition issues conducted at two adolescent HIV clinics in tertiary care settings in Chiang Mai and Bangkok, Thailand. Individual face-to-face semi-structured interviews were conducted in the clinic by trained staff. We asked the young people two questions, “Have you ever heard about U=U?”, and “Do you truly believe that there will be no transmission to your partner or loved ones?”

Results: From December 2023 to January 2024, 30 people were interviewed; 17(56.6%) female, median age 23.0 years, median lifetime duration of HIV treatment 17.5 years. Twenty-one(70.0%) reported having heard of U=U. Among these, 66.7%(n=14) were unsure or untrusting of it. Many in this group associated presence of HIV in the body with persistent risk of transmission and continued need to use condoms to reduce HIV transmission risk. A 22-year-old male said “If we take medicines regularly and use condoms, no transmission. The virus is sleeping. However, if we stop taking it any day, the virus will wake up and can be spread out.” A 21-year-old female said “I

don't think it is true. When the viral load is undetectable, it is still there. It remains in our body, so it is spreadable.” Among the remaining 33.3%(n=7) who trusted in the message, some stated they felt good to learn about U=U, that it affected how they thought about themselves, and that they could navigate relationships with confidence. A 22-year-old female said “I feel good. It is like I am healthy. In the future, I can tell my boyfriend about HIV, and we might complete our family by having a child.” A 25-year-old male said “I heard about it when my wife was pregnant. The doctor told us that there was very little risk of HIV transmission because I took my medicines well. I believe it as my wife and our baby are HIV-negative.” Among 30% (n=9) unaware of U=U, some people were positive when they learned about it. A 26-year-old male said “I think it is good for me and other people around me. They don't have to be afraid of me. They have no risk of getting HIV from me.” Others did not believe in U=U, with one 20-year-old female saying, “I think it can still be transmitted to others.”

Conclusions: Although a large proportion of the Thai people with perinatal HIV in our study were aware of U=U, many still did not believe in it. To expand awareness and create trust among people with HIV, healthcare workers should devote more time explaining U=U to them in ways that can build their confidence.

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Pay-It-Foward STI Testing Among Men in China: A Mixed-Methods Analysis of Monetary Donations

Liu Y¹, Zhou K¹, Marley G¹, Li L¹, Fitzpatrick T⁵, Tang W^{2,4}, Wang R^{2,3}, Tucker J^{2,3}

¹UNC Project China, Guangzhou, China, ²University of North Carolina at Chapel Hill, , America, ³London School of Hygiene and Tropical Medicine, London, UK, ⁴Southern Medical University, Guangzhou, China, ⁵University of Washington, , America

Background: Sexually transmitted infection (STI) testing services face chronic underfunding, limiting accessibility. Pay-it-forward interventions—where individuals receive subsidized testing and are invited to donate funds or write encouraging messages for future participants—offer a community-driven financing model. However, factors influencing monetary donations in such programs remain poorly understood. This secondary analysis from a clinical trial identifies drivers of donation behavior to optimize sustainability and scalability of pay-it-forward strategies.

Methods: We conducted a convergent parallel mixed-method study using data from the PIONEER randomized controlled trial (NCT05723263) evaluating pay-it-forward STI testing among 800 men in China. Quantitative data included demographics, income, clinical setting (public STD clinics vs. community-based organization [CBO]-led clinics), and monetary donation behavior, analyzed via multivariable logistic regression. Qualitative data from semi-structured interviews were analyzed using thematic analysis to contextualize donation motivations.

Results: Among 800 men, they had an average age of 35 years old and 42.4% reporting annual incomes above \$8,280. Overall, 154/800 (19%) participants donated a total amount of \$622 USD, with an average donation of \$4 USD per person. Regression analysis revealed that men with higher incomes (>\$8,280 USD/year) were more likely to donate compared to men with lower incomes (aOR = 1.7, 95% CI = 1.0-2.7). Men attending CBO-led clinics were less likely to donate than those at

public STD clinics (aOR = 0.61, 95% CI = 0.37–0.98). Qualitative findings complemented these results, highlighting the importance of trust and transparency in driving donations. Participants emphasized that clear messaging about how donations would be used enhanced their understanding of the pay-it-forward approach and fostered trust.

Conclusion: Men in both public STI clinics and CBO-led clinics made monetary donations to support others. Men at diverse clinics could donate small amounts of money to support new services that are not currently available. Transparent communication is important for building trust and driving donations. More research and programs on financing pay-it-forward is needed.

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Dominant Risk-Based Framing of PrEP Despite Few Negative Attitudes in Media Coverage: A Media Analysis of HIV PrEP-Related News Publication in South Korea, 2010-2024

Lee Y¹, Li C², Chu I³, Wu H⁴, Huang P⁵, Ku S⁶, Strong C⁷

¹School of Medicine, College of Medicine, National Cheng Kung University, Tainan, Taiwan, ²Center for Infection Control and Department of Internal Medicine, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan, ³Department of Health Services Research and Policy, Faculty of Public Health and Policy, London School of Hygiene and Tropical Medicine, London, UK, ⁴Kirby Institute, University of New South Wales, Sydney, Australia, ⁵Institute of Health Behavior and Community Sciences, National Taiwan University, Taipei, Taiwan, ⁶Division of Infectious Diseases, Department of Medicine, Taipei City Hospital Renai Branch, Taipei, Taiwan, ⁷Department of Public Health, College of Medicine, National Cheng Kung University, Tainan, Taiwan

Background: Pre-exposure prophylaxis (PrEP) has proven effective in reducing HIV transmission, but its uptake in South Korea remains stagnant. Despite approval by the Ministry of Food and Drug Safety in February 2018 and national insurance coverage since June 2019, publicly funded PrEP were only available for HIV-negative partners of people living with HIV. Social attitudes and norms are crucial for raising public awareness and acceptability of PrEP, but no research exists on the perspectives of the news media, a key stakeholder in South Korea's policy implementation. Our study aims to analyze how media framed and positioned PrEP-related perspectives in South Korea per three stages in PrEP policy implementation.

Methods: We conducted a content analysis of media coverage using Naver, the largest online search engine in South Korea, with keyword searches (e.g., "PrEP", "Pre-exposure prophylaxis" or equivalents in Korean) of headings and contents. Only articles published before 31st July 2024 and written in Korean were included. Three stages of PrEP policy implementation were defined as: Pre-approval (before PrEP was approved on 19th February 2018), Pre-coverage (before PrEP was publicly funded, from 20th February 2018 to

1st June 2019), and After-coverage (from 2nd June 2019 to 31st July 2024). Eligible articles were then classified per seven criteria adapted from analytical frameworks of Chu et al. (2022) and Young et al. (2021): type of media, main focus of the article, tone of heading, tone of the content, stakeholders mentioned in the article, framing, and source of evidence. Each article was analyzed by two trained Korean native speakers and reconciled with the first author for final agreement.

Results: Of 145 eligible articles, the number of articles describing pre-approval stage, pre-coverage stage, and after-coverage stage was 43, 34, and 68, respectively. During pre-approval stage, articles mainly focused on education (46%) and awareness (49%). The proportion of education dropped in later stages, while contents addressing awareness increased from 49% to 81% in after-coverage stage. The proportion of articles covering acceptance/motivation rose from 2% in pre-approval stage to 14% in later stages. The negative tone of topics remained stagnant around 9% across pre-approval and pre-coverage stage, dropping to 4% in after-coverage stage. A similar decrease was observed in the tone of articles. Almost all articles (96%) utilized risk-based framing (e.g., how PrEP reduced HIV acquisition), which was observed across all three stages. Only in pre-coverage and after-coverage stage did articles addressing the benefits of PrEP emerged (e.g., improved quality of life, 9% and 2%, respectively).

Conclusion: While risk-based framing of PrEP has been dominant, few articles highlighted potential benefits of PrEP for users in South Korea. Most articles have addressed positive effects of PrEP for HIV prevention despite social stigma against same-sex relationships and people living with HIV. Future health communication may devise strategies that balance both risk- and benefit-based narratives for sustainable PrEP scale-up.

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Identifying Gaps in Strengthening Youth Engagement in HIV Digital Awareness Campaigns in the Philippines through Focus Group Discussion

Calizo H¹, Manahan R¹, Brines R¹, Sulit C¹, Abelardo J¹, Peralta A¹, Maynes J¹, Ruanto J¹, Pagtakhan R¹

¹Loveyourself Inc., Mandaluyong, Philippines

HIV campaign messaging in the Philippines has traditionally been centered on discretion and sexual appeal, primarily targeting specific populations while overlooking the rapidly growing youth demographic. This approach has contributed to a gap in awareness and education, particularly among young people who may not relate to the existing messaging strategies. Recognizing this limitation, efforts have been undertaken to reassess and enhance the effectiveness of HIV-related social media campaigns to better reach and engage this underserved audience.

LoveYourself's Digital media officers (DMOs) have examined the evolving nature of social media platforms and determined that campaign strategies must adapt to current content trends. The dynamic landscape of digital communication requires an approach that is flexible and responsive rather than static and uniform. To gain insights into youth engagement, a focus group discussion (FGD) was conducted targeting individuals aged 15 to 35 who have limited or no knowledge of HIV. The discussion involved participants from conservative communities in Baguio City at Northern Luzon, Bacolod City at Negros Island, and General Santos City at Southern shore of Mindanao. This initiative aimed to identify the most effective design formats and social media content strategies that could capture their interest and encourage interaction.

During the discussions, participants were presented with past and present HIV and AIDS campaign materials to assess their effectiveness and areas for improvement. The findings revealed several critical factors that could enhance

engagement. First, the language used in information dissemination should be laymanized and localized to ensure accessibility and relatability. Second, vibrant colors and color psychology should be considered in designing campaign materials to create visually appealing content. Third, text-heavy content should be avoided to prevent information overload and disengagement. Additionally, integrating relevant entertainment elements, such as local memes, into HIV education materials can make the messaging more appealing and culturally relevant. Furthermore, high-reach local influencers should be recognized as models for communication materials to enhance credibility and relatability among the youth. Finally, emphasis should be placed on video-based content, including short-form videos and reels, as these formats have proven to be more engaging on social media platforms.

In response to these findings, LoveYourself Inc. and Champion Community Centers recalibrated their social media messaging and content strategies in 2024 to align with the insights gathered from the FGDs. The impact of these adjustments was evident in the significant increase in audience reach. On the Champion Community Center Facebook page, the reach expanded from 16,584 in 2023 to 445,678 in 2024, reflecting an impressive 2,587.84% increase. Similarly, the LoveYourself Inc. Facebook page recorded a 314.66% increase, growing from 1,654,375 reach in 2023 to 6,861,825 reach in 2024.

These results underscore the effectiveness of data-driven and youth-centered approaches in digital HIV advocacy. Moving forward, continuous adaptation to evolving social media trends and audience preferences will be crucial in sustaining and further expanding the reach and impact of these initiatives.

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Optimizing Digital Communication Strategies: A Data-Driven Approach to Enhancing Engagement and Service Delivery

Brines R¹, Pagtakhan R¹, Rosadino D¹, Domingo R¹, Calizo H¹, Lomarda L¹

¹Loveyourself Inc., Mandaluyong, Philippines

Background: In an era where digital presence shapes impact, LoveYourself has harnessed the power of online platforms to drive meaningful change. Recognizing that the Philippines has one of the highest numbers of internet users, we have embraced a multi-faceted communication and service delivery approach. Through demand generation campaigns, digital media, and the influence of key personalities, we have successfully expanded our reach to vulnerable populations.

A comparative analysis of our Facebook and Instagram analytics from February 7, 2022, to October 1, 2022, and the present reveals significant growth. Facebook views, previously unavailable, now stand at 27.4 million, with reach increasing from zero to 11.9 million. Short-form content has seen an exponential rise, with three-second views surging by 385.4% to 3.1 million and one-minute views climbing by 225.9% to 183,800. Content interactions, once nonexistent, now total 1.2 million. Notably, 97% of these views are organic, affirming the effectiveness of our engagement strategies. However, watch time has declined by 41%, suggesting a shift in audience preferences toward more concise and engaging content.

Instagram has also shown remarkable organic growth, accumulating 10.4 million views and a reach of 4.5 million, both reflecting a 100% increase. Content interactions have similarly doubled, reaching 300.4K. Notably, all Instagram views are organic, further reinforcing the strength of our strategic approach.

By leveraging data-driven insights and continuously refining our strategies, we ensure that our communication efforts remain relevant, impactful, and aligned with the evolving digital landscape.

Methodology: Our approach begins with hackathons that foster innovation, leading to strategies like the #WhatWorksForU initiative. These sessions highlight that communication is not one-size-fits-all. Members from different vulnerable populations and key groups actively contribute insights and co-create tailored solutions. Focus group discussions (FGDs) validate these strategies, ensuring they resonate with target audiences. Ambassador selection enhances message delivery by boosting engagement and relatability. Each digital platform requires a distinct communication style, so content is optimized for different channels. To maintain relevance, we leverage trends and online bandwagons, making content appealing and timely. Additionally, our scheduling strategy ensures content feels organic rather than promotional, focusing on motivational messaging instead of directive or preachy tones.

Lessons Learned: Authenticity and organic communication are the most effective strategies. Reducing the presence of brand and funder logos helps maintain audience trust and engagement. The quantity and frequency of content significantly impact visibility and reach, emphasizing the need for a consistent, data-driven approach.

Conclusion: A modern, data-driven approach to digital marketing is key to enhancing communication strategies. Understanding what works for each vulnerable population allows us to provide more effective and meaningful services. By continuously refining our strategies based on engagement insights, we can amplify our reach and impact within the communities we serve.

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Outcomes of Streamlining Sexual Choice and Agency in HIV Education and Service delivery: Reflections from Free to Be YOUTH Leaders in the Philippines

Bagasol Jr E¹, Cabuso M

¹Family Health International 360, Makati City, Philippines

In the Philippines, HIV-related stigma is heavily driven by sex stigma, prompting health service providers to rely on approaches centered on risk, fear, and abstinence. Consequently, key populations are not only discouraged from accessing HIV services, but are often left with no choice but to engage in unsafe sexual practices (UNAIDS, 2022; Department of Health, 2021).

Free To Be YOUTH, an upskilling program for young sexual health leaders initiated by Family Health International (FHI) 360 in 2023, attempted to address this by co-designing projects that integrate messaging that highlight sexual choice and agency.

Following a co-creation framework, 60 youth leaders participated in the program and implemented 12 projects in a span of four months that addressed access barriers to HIV services among young people aged 18-30. They co-designed the projects with technical and community mentors who provided guidance on messaging, approach integration, and social preparations.

Collectively, the projects' outcomes include 832 young people screened for HIV, 47 enrolled in PrEP, and 21 young people living with HIV (YPLHIV) successfully re-engaged in treatment. Thematic analysis of the process documentation for each project highlighted themes underscoring sexual choice and agency as key drivers of safer sex practices, positive health-seeking behaviors, and advocacy engagement.

The young leaders expressed a preference for intimate and open conversations about sex with

peers. When they feel "safe" discussing sex, they develop greater confidence in their bodies, which translates into informed decision-making during sex such as use of condoms and/or PrEP.

Anecdotes from the youth leaders also revealed increased confidence in accessing health services when providers are comfortable discussing sex and use inclusive, non-stigmatizing language. This was emphasized by queer participants, who viewed current delivery approaches as predominantly heteronormative. For YPLHIV, sexual agency emerged as a critical motivator for re-engaging in treatment.

Overall, a sense of safety significantly drives young people's interest and retention in HIV advocacy work. Participants expressed longing for spaces where they can be authentic, share personal experiences beyond sexuality, and feel emotionally supported.

The young leaders' reflections offer actionable recommendations for creating non-stigmatizing HIV education and service delivery. Insights urge service providers to rethink their approaches by framing sex as a natural human experience, with HIV viewed as just one part of it.

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Accuracy of Symptom Checker for the Diagnosis of Sexually Transmitted Infections Using Machine Learning and Bayesian Network Algorithms

Soe N^{1,2}, Towns J^{1,2}, Latt P^{1,2}, Woodberry O³, Chung M¹, Lee D¹, Ong J^{1,2}, Chow E^{1,2,5}, Zhang L^{1,2,4}, Fairley C^{1,2}

¹Melbourne Sexual Health Centre, Melbourne, Australia, ²School of Translational Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia, ³Faculty of Information Technology, Monash Data Futures Institute, Monash University, Melbourne, Australia, ⁴China-Australia Joint Research Centre for Infectious Diseases, School of Public Health, Xi'an Jiaotong University Health Science Centre, Xi'an, China, ⁵Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia

Background: Many individuals with STI symptoms delay healthcare, but digital diagnostic tools might encourage earlier visits. Unfortunately, no current tools fully replicate clinical assessments or cover a wide range of STIs.

Methods: Between 2015 and 2018, we invited attendees with STI-related symptoms at Melbourne Sexual Health Centre to complete gender-specific questionnaires about 12 common STIs via a computer-assisted self-interview system. We then developed an online symptom checker (iSpySTI.org) using Bayesian networks. This study evaluated several machine learning (ML) algorithms for predicting STIs and anogenital conditions. We compared the ML algorithms with Bayesian networks for diagnostic accuracy.

Results: The study population included 6,162 men (median age 30, IQR: 26–38) and 4,358 women (median age 27, IQR: 24–31). The most common conditions in men were non-gonococcal urethritis (23.6%), genital warts (11.7%), and balanitis (8.9%). The most common conditions in women were candidiasis (16.6%) and bacterial vaginosis (16.2%). ML models excelled on unseen datasets for most male conditions, with AUCs averaging 0.81 to 0.95, except for UTIs at 0.72. AUCs ranged from 0.75 to 0.95 for female conditions, except for cervicitis at 0.58. Urethral discharge and other urinary symptoms were important features for

predicting urethral gonorrhoea, NGU and UTIs. Similarly, participants selected skin images that were similar to their lesions, and the location of the anogenital skin lesions were also strong predictors. The vaginal discharge (odour, colour) and itchiness were important predictors for bacterial vaginosis and candidiasis. The performance of the machine learning models was significantly better than Bayesian models for male balanitis, molluscum contagiosum and genital warts ($P < 0.05$) but was similar for the other conditions.

Conclusion: Both machine learning and Bayesian models could reasonably predict correct diagnoses. Further work should explore a wider coverage of disease conditions and improvements in diagnostic accuracy.

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The Acceptability, Appropriateness and Feasibility of Implementing a Tablet-Based Screening Tool for Neurocognitive Impairment in a Multi-Ethnic and Multilingual HIV Population in Malaysia

Wong P¹, Hisham S¹, Loh J¹, Yap S¹, Tan X¹, Chong M¹, Ng N¹, Chen P², Leong C², Chong S², Cysique L³, Robbins R⁴, Rajasuriar R¹

¹Universiti Malaya, Kuala Lumpur, Malaysia, ²University of Nottingham, Semenyih, Malaysia, ³University of New South Wales, Sydney, Australia, ⁴Columbia University and New York State Psychiatric Institute, New York, United States

Background: Neurocognitive impairment (NCI) needs to be assessed as part of a comprehensive health assessment for people living with HIV (PWH) even with undetectable viral loads. Management of NCI is often neglected due to lack of personnel and screening tools suitable for culturally diverse, non-English speaking populations as >80% PWH live in the Global South. NeuroScreen is a tablet-based app for neurocognitive assessment developed to overcome these barriers. We assessed acceptability, feasibility, and appropriateness (i.e., fitting, suitability, applicability, and match) of using NeuroScreen among PWH for routine NCI screening in a tertiary care HIV clinic in Kuala Lumpur, Malaysia.

Methods: NeuroScreen was translated and culturally adapted into Bahasa Malaysia (BM), Mandarin and Tamil, the most common languages spoken in Malaysia, and piloted in the HIV clinic at Universiti Malaya Medical Centre (UMMC) from June 2024 till January of 2025. After completing NeuroScreen, participants completed 3 implementation-related questionnaires (Acceptability of Intervention Measure (AIM), Intervention Appropriateness Measure (IAM), Feasibility of Intervention Measure (FIM)) and a questionnaire on experience using and ownership of computer technology. Participant socio-

demographic characteristics and implementation measures were analyzed descriptively.

Results: A total of 58 virally-suppressed PWH participated in the study, median(IQR) age of 52(47-58) years, 49 (84.5%) male; 76% were Malay and 24% Chinese ethnicity; 72.4% completed tertiary education; 32 (55.2%) opted to complete NeuroScreen in English, 5 (8.6%) in BM and 21 (36.2%) in Mandarin. All participants had experience using a smartphone with a touchscreen, 47 (81%) had ever used a tablet and 31 (53.5%) currently owned one. Most participants (97%) found NeuroScreen "very easy" to "somewhat easy" to use. Only 2 participants found it "somewhat difficult" and "difficult" to use. Median(IQR) scores (max=20) indicated high levels of acceptability, appropriateness and feasibility, 17.5(16-20), 16(16-20) and 17.5(16-20), respectively, of using the NeuroScreen app routinely in clinic. 25% of participants mentioned the app was fun and easy to use. The main difficulty highlighted was the sensitivity of the screen for the "Mazes" task.

Conclusions: Overall, participants found NeuroScreen acceptable, appropriate and feasible for routine screening of NCI. Further enhancement of the app to generate and automate results will further benefit resource-limited communities.

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Developing and Testing Digital Solutions to Improve HIV Prevention Among GBMSM Engaging in Chemsex: A Feasibility Study Grounded in Users' Lived Experiences

Strong C¹, Joson P¹, Huang P², Chen C³, Li C⁴, Tseng Y⁵, Wu H⁶, Ku S⁷

¹Department of Public Health, College of Medicine, National Cheng Kung University, Tainan, Taiwan, ²Institute of Health Behavior and Community Sciences, National Taiwan University, Taipei, Taiwan, ³In the know marketing Ltd., Kaohsiung, Taiwan, ⁴Center for Infection Control and Department of Internal Medicine, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan, ⁵AIMS Fellows, National Tsing Hua University, Hsinchu, Taiwan, ⁶The Kirby Institute, University of New South Wales, Sydney, Australia, ⁷Division of Infectious Diseases, Department of Medicine, Taipei City Hospital Renai Branch, Taipei, Taiwan

Background: Chemsex, involving using substances like methamphetamine, GHB/GBL, and mephedrone before or during sex among gay, bisexual, and other men who have sex with men (GBMSM), poses HIV and health concerns. Despite existing integrated care programs, service uptake remain low, highlighting a missed opportunity for self-help harm-reduction digital strategies. This study employs a collaborative design approach, integrating insights from the community on the app prototype and assessed usability to guide future interventions.

Methods: The app prototype was built on two theoretical foundations: recovery as a continuum with evolving goals like harm reduction and temporarily not using, and harm reduction dimensions on drug-, sex-, and HIV-related harms. Features were integrated into UPrEPU, a user-centered app supporting HIV PrEP adherence through flexible dosing and personalized reminders. Users could set goals, such as reducing chemsex frequency, supported by tailored feedback. The app includes an emergency alert system, local resources for clean needles and HIV testing, and myth-busting for the chemsex community. GBMSM with recent chemsex experience tested the app between January-December 2024. A one-month evaluation followed

using the mHealth App Usability Questionnaire (1–7 scale, lower score indicates higher usability) and a 30-minute interview to assess usability and impact. Interview transcripts were analyzed based on design themes to gather users' reflections and suggestions for enhancing harm reduction features.

Results: Twenty GBMSM aged 23–46 in Taiwan reported a positive perception of usability (mean = 2.16, SD = 1.14), though HIV PrEP functions were used more frequently than drug-related features. Social networks serve as both a gateway into and a pathway out of chemsex. On one hand, chemsex is often introduced through environmental influences, such as invitations from acquaintance. On the other hand, severing ties with social networks can serve as a key exit strategy for those seeking to abstain from the practice. However, this severing of ties may result in the absence of support. As participants distance themselves from their previous environment, many may be left isolated and without social support. Participants highlighted the potential of digital tools to facilitate self-regulation strategies, including tracking HIV PrEP uptake, setting hydration reminders, and prioritizing self-care. This extended to managing cravings, adhering to dosage limits, and achieving control over their health. However, participants found the app's current structure ineffective, as rigid goal setting created pressure rather than support. They emphasized the need for a more flexible, user-centered approach that adapts to their changing needs. To ensure long-term effectiveness, the app should extend beyond drug-related support and incorporate broader life-planning features that promote overall well-being.

Conclusions: For digital interventions to be effective and sustainable in chemsex management, the design concept should move beyond static goal-setting frameworks and adopt flexible, real-time support systems that align with users' immediate needs. By integrating features such as event tracking, stress monitoring, and relapse prevention tools, the app can enhance self-awareness and provide personalized interventions. Furthermore, addressing broader aspects of well-being ensures that recovery extends beyond abstinence, fostering long-term resilience and health outcomes.



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Optimizing Healthcare Efficiency by Digitizing Recording of HIV Services: The Case of LoveYourself's Community-Led Nuvo Renaissance

Pineda M¹, Domingo R¹, Corciega J¹, Cruda J¹, Guevarra E¹, Pagtakhan R¹, Rosadiño J¹, Abella J¹, Cruz D¹, Manuel R¹, Tamayo K¹, Aspiras G¹

¹LoveYourself Inc, Mandaluyong, Philippines

In the Philippines, facility-based HIV testing begins with accomplishing the government-mandated paper-based HIV Testing Services (HTS) form, a process that is prone to inefficiencies such as time delays, mobility challenges, storage issues, data entry errors, difficulties in data analysis and integration, and security risks. Since January 2024, LoveYourself introduced community-led Nuvo Renaissance efforts to streamline this process by fully digitizing the HIV testing process at Uni (pilot site) and five of the organization's other facilities in Metro Manila.

Initial efforts to digitize LoveYourself's HIV testing services began in 2016 with the digitalization of client demographic data under the first Nuvo version. These data were printed prior to counseling, where risk assessment and behavioral interviews then revert to manual notetaking. Healthcare workers (HCWs) sign off on the mixed electronically-generated and manually-accomplished form for subsequent additional encoding of the form's risk and behavior components.

Nuvo Renaissance, the project's rebirth, improves the abovementioned Nuvo process by fully digitalizing the HTS form to include the risk assessment and behavior sections, and incorporating additional health investigation questions such as condom use, type of sex, mental health, and counseling notes.

First, this enriches counseling session documentation, contributing to more

differentiated, person-centric health information provision and service promotion.

Second, reinforced input validation has reduced entry errors, minimized missed and invalid fields, and eliminated illegible data, ensuring more accurate and complete data collection from 25,352 unique clients to date who attended LoveYourself facilities since Nuvo Renaissance's introduction.

Third, the entire testing process was streamlined, down from 45-60 minutes to 30-40, enhancing both HCW efficiency and client experience. The auto-fill feature for repeat clients was added, reducing time required to complete the HTS form, in particular, from 10-15 minutes to 3-5.

Fourth, the Nuvo Renaissance process concludes with generating a tamper-proof PDF file, boosting data security and integrity. The structured approach to data storage through a database also enables the generation of insights and reports using Structured Query Language (SQL), improving data accessibility, eliminating manual data transfer and encoding, and most importantly, allowing for integration into OHASIS, the Philippines' national reporting platform for HIV, STI & Hepatitis. Additionally, regular database backups are scheduled and automatic failover mechanisms enabled to ensure continuous data availability and resilience in case of system disruptions.

Fifth, Nuvo Renaissance has translated into significant savings for the organization in terms of physical storage spaces, where monthly rental fees previously cost LoveYourself between PhP30,000 to PhP70,000.

Critical to Nuvo Renaissance's seamless implementation are the adjustment of HCW staff and volunteers, client familiarity with web-based applications, turnaround time for new users, and technical maintenance. To this end, technical training and a support group are set up to facilitate smooth operations.

In conclusion, LoveYourself's digitization of the HIV testing process has ensured more reliable and accessible information, enhanced HCW efficiency, and improved overall client experience. LoveYourself looks to expand Nuvo efforts in the future to other paper-based government-mandated forms such as on Pre-Exposure Prophylaxis (PrEP) and HIV case management.

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Balancing Accuracy, Accessibility, and Cost: HIV Testing Strategies for Long-Acting Injectable PrEP: A Systematic Review of Rapid, Self, and Nucleic Acid Testing Strategies

Tieosapiaroen W^{1,2}, Williams E^{3,4}, Johnson C⁵, Baptista Da Silva C⁵, Barr-DiChiar M⁵, Siegfried N⁶, Rodolph M⁵, Prochazka M⁵, Ingold H⁵, Lastrucci C⁵, Sands A⁵, Msimanga B⁵, Chitembo L⁷, Andifasi P⁸, Ong J^{1,2,9}

¹Melbourne Sexual Health Centre, Alfred Health, Melbourne, Australia, ²School of Translational Medicine, Monash University, Melbourne, Australia, ³Victorian Infectious Disease Reference Laboratory, Melbourne, Australia, ⁴Department of Microbiology, Alfred Health, Melbourne, Australia, ⁵Global HIV, Hepatitis and STI Programmes, World Health Organization (WHO), Geneva, Switzerland, ⁶Independent clinical epidemiologist, Cape Town, South Africa, ⁷HIV, Hepatitis and STI Programmes, World Health Organization (WHO), , Zambia, ⁸HIV, Hepatitis and STI Programmes, World Health Organization (WHO), , Zimbabwe, ⁹Faculty of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, , United Kingdom

Background: HIV pre-exposure prophylaxis (PrEP) is an important tool needed to achieve global HIV prevention goals. Advances in long-acting injectable PrEP (LAI-PrEP) present an innovation that could potentially increase access to and uptake of services, however, safe, effective and affordable HIV testing strategies will be needed. This systematic review synthesises evidence on the use of different testing approaches for LAI-PrEP with a focus on rapid diagnostic tests (RDTs), self-tests (HIVST), and nucleic acid testing (NAT).

Methods: We systematically searched four databases for publications or conference abstracts reporting HIV testing strategies in LA-PrEP delivery until 18 October 2024. We also contacted authors and researchers from registered studies identified through a World Health Organisation (WHO) survey until 1 December 2024. Studies were eligible if they reported at least one of the clinical or diagnostic outcomes (shown in the Results section). Meta-analyses of studies reporting

comparable outcomes were conducted using a random-effects model.

Results: Out of 7,698 records identified, 53 reports, representing 22 studies, were included (CAB-LA 20, LEN 2) across 15 countries spanning Africa, Asia, Europe and North and South America. Fourteen were observational studies, six were non-randomised comparator studies, one was a case report, and one was a case series.

Key findings were that there is little to no difference in absolute outcomes among LA-PrEP users when using RDTs for the detection of HIV as compared with NAT (Odds Ratio (OR) 0.7, 95% Confidence Interval (CI): 0.3-1.5, absolute difference of 1 fewer infection detected per 1000 tests (range: 1 fewer to 1 more)). This may have little to no difference in the negative predictive value or the absolute numbers of delayed HIV detection at initiation (OR 7.1, 95% CI: 1.9-26.9), no absolute difference in delayed detection per 1000 tests (range: 0 fewer to 0 more) or testing frequency. No clinical complications or social harm related to RDTs compared to NAT were identified. There was also no direct evidence that different testing approaches in real-world settings could prevent the development of resistance-associated mutations. A study reported that detecting one additional case using NAT, which was missed by RDT at an earlier time point, would require testing 5,305 people using NAT, which would cost approximately \$46,684-451,456 to detect one missing case by RDT. The turnaround time for test results is same-day for RDT and a median of 35 days for NAT. Despite minimal data on HIV self-testing for LA-PrEP, there was evidence that HIVST could increase the flexibility of service delivery and increase or decrease testing frequency when desirable. Average costs ranged from \$3-5 (USD) for HIVST, \$0.17-4 for RDT and \$8.80-85.10 for NAT.

Conclusion: HIV testing strategies and algorithms relying on RDTs largely result in similar or better outcomes for LA-PrEP users at a population level when compared to NAT. Based on the evidence available, the overall benefits of using RDT-based testing strategies outweighed the potential risks compared to NAT techniques. Research is needed on whether, and how, self-testing can be used as part of LA-PrEP delivery.

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PrEP Awareness, Willingness, and Behavioral Characteristics of Men Who Have Sex with Men and Transgender Individuals in the Philippines: A Latent Class Analysis of the PrEP-APPEAL Study

Olete R^{1,2}, Leyritana K¹, Tieosapjaroen W³, Ong J³, Schmidt H^{4,5}, Phanuphak N⁶, Chan C⁷, Bavinton B⁷

¹Sustained Health Initiatives of the Philippines (SHIP) Inc., Mandaluyong City, Philippines, ²Department of Public Health, National Cheng Kung University, Tainan City, Taiwan, ³Faculty of Medicine, Nursing, and Health Sciences, Monash University, Melbourne, Australia, ⁴Joint United Nations Programme on HIV/AIDS (UNAIDS), Geneva, Switzerland, ⁵World Health Organization (WHO), Geneva, Switzerland, ⁶Institute of HIV Research and Innovation (IHRI), Bangkok, Thailand, ⁷Kirby Institute, UNSW Sydney, Sydney, Australia

Background: Despite increasing PrEP enrollment in the Philippines, the number of Filipino men who have sex with men (MSM) and transgender individuals (TGIs) using PrEP remains below the national target. As of September 2024, 48,250 clients were enrolled in PrEP, leaving a gap of 11,750 to meet the 2025 goal of 60,000 while condom use remains low. This research examined distinct demographic and behavioral patterns associated with PrEP awareness, willingness to adopt specific PrEP options, and willingness to pay among Filipino MSM and TGIs.

Methods: A total of 1,662 Filipino respondents were included from the 2022 PrEP-APPEAL Survey in Asia and Australia. A latent class analysis (LCA) was done using STATA's generalized structural equation modelling to segment the population into distinct subgroups based on the associations between key variables, such as PrEP awareness, willingness to pay for PrEP's indirect costs (e.g., PHP1.00-PHP1,000.00 per month), willingness to use various PrEP options (e.g., daily, event-driven, monthly pill, injectables, CAB-LA, and implants), and sexual behaviors (e.g., ≥2 sexual partners and/or condom use during anal sex within 6 months). Subsequently, multinomial logistic regression was employed to identify significant

demographic and behavioral predictors of class membership.

Results: A majority of the respondents were cisgender men (1323/1662, 79.6%) while 5.3% (88/1662) self-identified as transgender individuals (either men or women), mean age was 29.2 years old (SD=8.00); 17.9% (297/1662) reported as PrEP-experienced while 14.0% (297/1662) were currently taking PrEP.

Three distinct profiles of Filipino MSM and TGIs were determined: The LCA revealed three subgroups of Filipino MSM/TGIs: (1) the Unaware and Reluctant (167/1662, 10.0%)—with lowest PrEP awareness (46.8% heard of PrEP), lowest willingness to pay (33.1%), lowest willingness for all PrEP options (i.e., daily=30.5%, CAB-LA=3.9%), lowest condom use (18.2%), and lowest number of sexual partners (2.6%); (2) the Informed Condom-Users (1303/1662, 78.4%)—with higher PrEP awareness (74.1%), moderate willingness to pay (41.3%), moderate willingness to adopt daily and monthly oral PrEP (40.4% and 38.9%, respectively) but low willingness to CAB-LA (6.8%), higher condom use during anal sex (72.1%), and higher number of sexual partners (74.4%); and (3) the Enthusiastic Adopters (192/1662, 11.5%)—with highest PrEP awareness (88.1%), highest willingness to pay (54.9%), highest willingness to adopt various PrEP options (i.e., daily=55.8%, event-driven=56.6%, monthly pill=87.6%, CAB-LA=77%, 6-month injection=98.7%), highest number of sexual partners (81.0%), and high condom use (72.1%).

The Enthusiastic Adopters were more likely to have previously taken PrEP (RRR=3.64, 95%CI=1.79-7.41, p<0.001) while the Informed Condom-Users were more likely from urban areas (RRR=1.84, 95%CI=1.13-3.00, p=0.015).

Conclusion: Person-centered interventions should prioritize increasing PrEP awareness among the “unaware and reluctant” through community outreach, emphasizing free oral PrEP availability and improving education on all PrEP options. Efforts should address indirect barriers among “Informed condom-users”, especially in non-urban areas, including simplified access to free oral PrEP.

For the “Enthusiastic Adopters”, introducing injectables such as CAB-LA with integrated STI test-and-treat programs can mitigate behavioral risks. Holistic strategies that combine education, accessibility, and PrEP innovations are essential to

achieving national PrEP targets among Filipino MSM and TGIs.



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HIV Pre-Exposure Prophylaxis (PrEP) Use Among PrEP-Eligible Men Who Have Sex with Men: A Systematic Review and Meta-Analysis

Zhao Y¹, Li H¹, Huang Y², He Z¹, Agins B³, Zhou Z¹, Ong J⁴, Zou H⁵, She Y⁶, Jiang H¹

¹Guangdong Pharmaceutical University, Guangzhou, China, ²Jinan University, Guangzhou, China, ³University of California, San Francisco, San Francisco, United States, ⁴Monash University, Melbourne, Australia, ⁵Fudan University, Shanghai, China, ⁶Sun Yat-sen University, Guangzhou, China

Background: Scaling up pre-exposure prophylaxis (PrEP) is critical to combating the ongoing AIDS epidemic, especially among PrEP-eligible men who have sex with men (MSM). This study summarizes the global proportion of PrEP-eligible MSM with PrEP use and highlights the contextual differences in eligibility criteria for PrEP across studies.

Methods: A literature search was conducted in PubMed, Embase, Web of Science Core Collection, and APA PsycINFO in July 2023. We determined the proportion of PrEP-eligible MSM with PrEP use and its 95% confidence interval (CI) using a random-effects meta-analysis. β regressions with the logit link were used to show the trends over time for the proportion of PrEP-eligible MSM with PrEP use. Quality appraisal was performed using The Modified Newcastle-Ottawa quality assessment scale. This study is registered with PROSPERO (CRD42023445761).

Results: A total of 50 eligible studies involving 96151 PrEP-eligible MSM were included. The great majority of these studies (44/50) were conducted in high-income countries (HICs). The overall pooled estimate of PrEP-eligible MSM with a history of PrEP use and current PrEP use was 19.3% (95% CI 13.9-26.2) and 21.8% (95% CI: 17.6-26.7). β regressions indicated an increasing trend in both history and current PrEP use from 2006-22 and from 2013-20, respectively. In subgroup analyses, MSM aged 30 years or older, policy support, and studies conducted after 2018 were associated with higher proportions of PrEP-eligible MSM with PrEP use. The proportion of PrEP-eligible MSM with a history of PrEP use was higher in Low- and Middle-

Income Countries, while those with current PrEP use were more prevalent in HICs. Variations in eligibility criteria for PrEP were observed across studies with 19 studies following the United States Centers for Disease Control and Prevention PrEP guidelines, 12 studies referring to their national guidelines, and the remaining 24 studies not specifying their references of criteria.

Conclusions: An overall increase in PrEP use among PrEP-eligible MSM was observed, with disparities mainly based on age and country income level. Emphasis on tailored initiatives to identify PrEP-eligible MSM, particularly young MSM and addressing financial barriers is essential for broader, effective PrEP implementation. The variation in PrEP eligibility criteria highlights the need for greater standardization of PrEP guidelines globally and adapting PrEP guidelines to better accommodate diverse age groups and key populations to ensure alignment with the most recent scientific evidence.

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Bringing Protection to Your Doorstep: A Mixed Methods Study of E-commerce PrEP Purchasing Among MSM in China

Yin Z¹, Dai Y¹, Li C², Marley G¹, Li L¹, Day S³, Tucker J^{1,3,4}, Yang F⁵, Tang W^{1,3}

¹UNC Project-China, Guangzhou, China, ²Tokyo College, University of Tokyo, Tokyo, Japan, ³University of North Carolina at Chapel Hill, Chapel Hill, USA, ⁴London School of Hygiene and Tropical Medicine, London, UK, ⁵Institute of Population Research, Peking University, Beijing, China

Introduction: China's highly developed e-commerce platforms have reshaped people's daily shopping proclivities, including the acquisition of prescription medications. This mixed-methods study investigated perceptions of and decisions behind purchasing HIV pre-exposure prophylaxis (PrEP) medications through e-commerce among Chinese men who have sex with men (MSM).

Methods: From November 2023 to March 2025, we conducted an online survey among MSM participants from a PrEP Phase IV trial in China, administered via WeChat 6 months post-trial with responses collected online. The survey collected information about participants' PrEP use history, PrEP acquisition channels, sexual behaviors, and sociodemographic characteristics. Log-binomial regression was used to identify factors associated with MSM's purchasing of PrEP through e-commerce platforms. We also collected qualitative data via interviews with a purposive sample of survey participants who planned to self-purchase PrEP. Each interview lasted ~45 minutes, and the semi-structured interview guide explored their experiences with and beliefs about e-commerce PrEP purchasing. Interviews were audio-recorded, transcribed verbatim, inductively coded by two coders, and thematically analyzed to identify factors that both facilitate and discourage purchasing PrEP through e-commerce.

Results: Overall, 499 MSM responded to our survey, with a mean age of 31(SD=6.2). Most participants identified as gay and bisexual (471; 94.4%). Of the 196(39.3%) participants who had previously purchased PrEP, the majority (126;

64.3%) had used e-commerce platforms, with 80(63.5%) men having bought from general websites (JD or Taobao.com) and 54(42.9%) having bought from e-commerce in MSM dating apps. Among the 196 PrEP purchasers, 65.3% reported inconsistent condom use in the past 6 months, and 66.3% had casual partners in the past 3 months. Participants who had higher monthly income (>5000RMB vs <5000RMB, RR=1.32, 95%CI:1.01-1.72) and had more than five sexual partners in the past 3 months (RR=3.08, 95%CI:1.14-8.32) were more likely to purchase PrEP from e-commerce. Among the 10 participants who completed in-depth interviews, eight preferred to purchase PrEP through e-commerce. Three themes emerged to explain MSMs' e-commerce PrEP purchasing preferences. First, perceived robust functionality and satisfied e-commerce purchasing experience, including endorsement of online vendors, wide availability, convenient delivery services, low price, easily accessed prescriptions, and privacy protection facilitated online PrEP. Compared to individual sales negotiations, the limited availability of newer regimens and fixed prices hindered the wider adoption of e-commerce. Second, the inconvenience associated with clinic visits contributes to the preference for e-commerce, such as long travel distances, limited appointment availability, and complex consultation and examination processes. Third, prior PrEP use experiences enhance their preference for online purchasing, attributable to their reliance on pre-existing test results (laboratory or self-tested) and confidence in minimal side effects, which stems from lifestyle compatibility and embodied PrEP use feelings.

Conclusion: E-commerce showed great promise in expanding PrEP access and PrEP persistence for China's MSM through its supplier credibility, product availability, transactional convenience, and privacy protection, but their adoption raised inadequate essential medical checks like pre- and after-treatment physical laboratory tests and medical consultations. Future studies should explore strategies to provide tailored education on safe PrEP use and support for people obtaining PrEP medications through various channels.

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Factors Influencing HIV Testing Behavior Among High-Risk Elderly Men: A Mixed-Methods Study

Wang y¹, Tang r², Yang y², Ye r², Zhou q², Duan s²,
Xue H¹

¹National Center for AIDS/STD Control and Prevention, Chinese Center for Disease Control and Prevention, Beijing, China,

²Dehong Dai and Jingpo Autonomous Prefecture Center for Disease Control and Prevention, Yunnan Province, Dehong, China

Objective: Despite China's intensified efforts to promote HIV testing, the proportion of late HIV diagnosis among elderly men remains as high as 50%, with passive testing dominating and active testing remaining significantly low. This study aims to identify key variables influencing HIV testing behaviors among elderly high-risk men through quantitative analysis, and to explore the underlying mechanisms and socio-cultural contexts through qualitative research, providing evidence for targeted interventions.

Methods: A mixed-methods approach using an explanatory sequential design was adopted. Quantitative phase (Sep-Dec 2024): a non-probability sampling method was used to recruit 300 high-risk men aged ≥50 years in Dehong Prefecture, Yunnan Province—the first epicenters of HIV transmission in China. Questionnaires collected sociodemographics, HIV knowledge, risk behaviors, and testing history. A 30-item scale was developed based on the Information-Motivation-Behavioral Skills (IMB) model and Self-Determination Theory to assess influencing factors. Exploratory factor analysis (SPSS 25.0) and a structural equation model (SEM) was constructed using AMOS 23.0 to analyze the pathways and effect sizes. Qualitative phase (Jan-Feb 2025): 30 representative participants (15 active testers and 15 passive/non-testers) were purposively sampled based on quantitative findings. Semi-structured in-depth interviews were conducted to explore cognitive, emotional, and social interaction processes related to HIV testing. NVivo 12 for coding and thematic analysis was applied to interpret qualitative data,

supplementing and explaining the quantitative findings.

Results: Quantitative analysis showed an HIV testing rate of 57.7% (173/300), with passive testing accounting for 68.2% (118/173). Among participants, 56.0% (168/300) engaged in casual sex (non-commercial), of whom 31.0% (52/168) reported not using condoms during their last encounter, primarily due to "reduce sexual pleasure" (42.3%, 22/52). Additionally, 85.3% (256/300) engaged in commercial sex, with 27 participants reporting condomless sex in their last encounter, citing the same reason (44.4%, 12/27). SEM identified "self-efficacy" as the strongest positive predictor of HIV testing behavior (total effect=0.22, $p<0.001$), while "behavioral skills" (-0.22, $p<0.05$) and "HIV information" (-0.14, $p<0.05$) showed significant negative effects. The model fit well (RMSEA=0.068, CFI=0.93). Qualitative findings further elucidated mechanisms: high self-efficacy individuals gained confidence through peers' successful testing experiences, whereas low self-efficacy individuals avoided testing due to stigma associating HIV testing with "moral corruption". Practical barriers to included poorly designed self-testing kits (small fonts on instructions, complex steps) and privacy concerns. Additionally, the paradoxical effect of HIV information was observed—campaigns overemphasized the fatality of HIV, triggering psychological defense mechanisms, while information channels (e.g., WeChat) did not align with older adults' preferences (basic feature phones). Moreover, cultural metaphors also inhibited testing, as rural communities commonly perceived HIV as a "young persons' disease" and believed that "elderly people do not need testing", further reducing testing willingness.

Conclusion: HIV testing behavior among elderly high-risk men is positively driven by self-efficacy but hindered by suboptimal self-test tools, fear-based messaging, and cultural biases. Interventions should prioritize enhancing self-efficacy, redesigning age-friendly self-testing kits, shifting away from fear-based messaging, and integrating HIV screening with chronic disease checkups to counteract cultural biases. These findings provide insights for promoting HIV testing and precision prevention in aging populations.

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Pay-It-Forward to Increase STI Testing Uptake Among Men: A Multi-Site Randomized Controlled Trial in China

Zhu Z^{1,2}, Marley G^{1,2}, Tan R³, Liu Y^{1,2}, Zhou K^{1,2}, Li L^{1,2}, Gray K⁴, Wu D⁵, Van Duin D⁶, Xu R^{2,7}, Ramaswamy R⁸, Forastiere L⁹, Liu C⁹, Fitzpatrick T¹⁰, Tang W^{1,2,6}, Tucker J^{1,6,11}

¹University of North Carolina project China, Guangzhou, China, ²Dermatology Hospital of Southern Medical University, Guangzhou, China, ³Saw Swee Hock School of Public Health, National University of Singapore, Singapore, Singapore, ⁴Kenan-Flagler Business School, University of North Carolina at Chapel Hill, Chapel Hill, USA, ⁵Nanjing Medical University, Nanjing, China, ⁶Institute for Global Health and Infectious Diseases, Department of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, USA, ⁷Southern Medical University, Guangzhou, China, ⁸HIV, Infectious Disease and Global Health Implementation Research Institute Faculty, Cincinnati Children Hospital Medical Center, Cincinnati, USA, ⁹Yale University, New Haven, USA, ¹⁰Harborview Medical Center, University of Washington School of Medicine, Seattle, USA, ¹¹Clinical Research Department, Faculty of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, London, UK

Background: Gonorrhea and chlamydia testing programs among men have poor community engagement and were underfunded. Pay-it-forward offers STI testing as a gift accompanied by personalized messages from a peer and an opportunity to donate to spur testing for other peers. This randomized controlled trial (RCT) evaluated a pay-it-forward strategy to improve chlamydia/gonorrhea test uptake among men compared to standard of care in China.

Method: PIONEER is a multi-site Type-2 cluster RCT that assessed the clinical effectiveness and other implementation outcomes (NCT05723263). Using a transformative mixed-method approach, the study analyzed quantitative data from the cluster RCT, evaluating a pay-it-forward strategy (a donated free test accompanied by personalized messages) to promote chlamydia/gonorrhea testing among men in China, followed by qualitative data from interviews with participants and healthcare providers. Data on reach, adoption, implementation, and sustainability were collected from self-administered surveys, co-creation with gay men, and semi-structured interviews based on the RE-AIM framework. We recruited men ≥18

years old who had not tested for gonorrhea in the last 12 months and were seeking testing and STI services at clinics. GEE analyses compared test uptake between the two groups, followed by a thematic analysis of the qualitative data.

Results: From October 2023 to June 2024, we recruited 1200 men into the standard-of-care (n = 400) and pay-it-forward (n = 800) arms. The mean age was 35 years (±12 S.D.), and 51.8% (n = 621) ever had sex with other men.

Chlamydia/gonorrhea testing uptake was 93.9% (751/800) in the pay-it-forward arm and 3.0% (12/400) in the standard-of-care arm [adjusted probability difference = 90.9%, 95% CI = 90.2~91.8]. Among pay-it-forward recipients, 19.3% (156/800) donated money, and 10.9% (87/800) wrote personalized messages encouraging testing.

Qualitative findings showed that “feeling cared for and loved” and “gratitude toward donors” were motivators for testing, while “warm glow” and “needing to pragmatically help other men in the same community” motivated donation among participants.

For the implementation outcomes, the study successfully reached diverse men at community-led clinics, dermatology clinics, STI clinics, testing sites, and chronic disease stations. 12 out of 14 clinics approached were adopted pay-it-forward. One declined because they already had free gonorrhea testing, and another declined because of limited staff capacity. Interdepartmental collaboration through patient referrals facilitated implementation at public STI clinics, while recruitment by volunteer MSM facilitated implementation in the community-led clinic. We also observed substantial heterogeneity in implementing pay-it-forward between clinic types based on fidelity. Compared to public STI clinics, participants from community-led clinics were more likely to correctly answer the question of where their donated test in Pay-it-forward came from. One pilot MSM pay-it-forward site was subsequently followed by free MSM STI testing supported by public health authorities.

Conclusion: A pay-it-forward strategy increased STI test uptake in community and public STI clinics. These data have implications for designing prosocial interventions in other settings.

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Novel Approaches to ART Distribution through Online CBO Networks and Individual Sharing in China During COVID-19 Lockdowns: A Qualitative Study

Zhao T¹, Chen H¹, Chan C², Yang F², Kennedy C¹

¹Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, United States, ²Institute of Population Research, Peking University, Beijing, China

Background: Disruptions to health services caused by emergencies such as the COVID-19 pandemic can negatively impact the accessibility of antiretroviral treatment (ART). While ART sharing has been described as an informal practice in some settings, limited research has explored its potential to support drug adherence during emergent situations. During COVID-19 lockdowns in China, ART sharing was facilitated among people living with HIV by community-based organizations (CBOs) and online platforms. We sought to understand these uncommon approaches to providing ART to inform future strategies for HIV treatment support.

Material and Methods: We conducted 14 key informant interviews (KIIs) with CBO workers and experienced informants and three in-depth interviews (IDIs) with people living with HIV to explore ART sharing and novel delivery models during COVID-19 lockdowns in China. Transcripts were analyzed using group-based thematic matrix analysis for KIIs and case narratives for IDIs.

Results: While ART sharing and informal distribution networks had existed in limited ways prior to the COVID-19 pandemic, the sudden shocks of COVID-19 lockdowns, concerns about the infectiousness of COVID-19, and strict and frequently changing quarantine policies exacerbated concerns about HIV treatment interruption. Fears of being stranded while traveling, unwanted disclosure, ART shortage, and disrupted mailing services heightened anxiety among people living with HIV, leading to the need for alternative ways to access ART. In response, CBOs facilitated ART distribution and sharing

through online platforms where they connected people in need of ART to individuals with extra pills in their own prescriptions, or to organizations who had stocks and could supply ART. CBOs' involvement ensured that those in need of treatment support received the correct regimen, and that loaned pills were returned to the sharer on time. CBOs also offered complementary services, such as ART delivery and health consultations, seeking to bridge gaps in service provision and information sharing. These efforts mitigated treatment discontinuity for thousands of people living with HIV during extended lockdowns. Participants' attitudes toward CBO-facilitated ART sharing varied. Some participants were hesitant to normalize such informal ART distribution, and raised concerns about CBOs' insufficient medical qualifications, potential disruption to medication registry systems, and worsened delay or loss to follow-up for clinical visits. However, others believed that the benefits outweighed the risks as these locally driven strategies facilitated ART adherence and filled service gaps, especially during emergencies.

Conclusions: CBO-facilitated ART sharing in China demonstrated the potential for a novel service delivery model outside health clinics and through non-governmental actors during COVID-19 lockdowns. ART sharing across people living with HIV, enabled by online networks and organizations, may be a viable strategy for delivering medications in times of crisis. Future research is needed to assess the long-term implications of ART sharing on treatment adherence and health outcomes, and explore the feasibility of integrating these community-driven mechanisms into national HIV response strategies while addressing regulatory challenges and medication safety concerns.

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Changes in STI Diagnosis and Sex Behaviors Among PrEP Users in China – Longitudinal Data from a PrEP Demonstration Trial

Li C¹, Wu S, Li Q³, Yin Z⁴, Fan C⁴, Dai Y⁴, Li L³, Liang K², Huang H⁵, Wang K⁵, Jiang I⁶, Lio J⁶, Hazra A⁶, Tucker J⁷, Tang W⁸, Sherer R⁶

¹The University of Tokyo, Tokyo, Japan, ²Zhongnan Hospital of Wuhan University, Wuhan, China, ³Guangzhou No.8 People's Hospital, Guangzhou, China, ⁴University of North Carolina Project China, Guangzhou, China, ⁵Wuhan LGBT Center, Wuhan, China, ⁶University of Chicago, Chicago, United States, ⁷London School of Hygiene and Tropical Medicine, London, United Kingdom, ⁸University of North Carolina at Chapel Hill, Chapel Hill, United States

Background: Limited data on STIs and sex behavior changes are available from PrEP users in China, where formal PrEP access is highly centralized. Many users access PrEP through online platforms without close monitoring of STIs or regular behavior assessment. The study can inform future intervention designs in assisting PrEP users achieving better sexual health in settings like China.

Methods: We analyzed data on self-reported and laboratory-confirmed STIs, and self-reported sexual behaviors among MSM PrEP users from a PrEP demonstration trial in Guangzhou and Wuhan, China (September 2021 -September 2024). Participants received a 12-month supply of oral PrEP (Emtricitabine/Tenofovir) and clinical follow-ups. Sex behaviors and recent diagnoses of STIs in the past 3 months were assessed at baseline and quarterly follow-up surveys for 12 months. Lab tests included HIV, syphilis, HBV and HCV. Generalized linear mixed-effects models were applied to estimate trends of change and associated predictors.

Results: 1,134 MSM were included (mean age=28.1, SD=5.8). About 76 % self-identified as gay, 17% as bisexual. Seven cases of HIV seroconversion were observed (0.83 per 100 person-years). 739(65%) of participants retained at 12 months. About 60% of the participants switched to event-driven dosing (i.e. "2+1+1"). At

baseline, prevalence of syphilis, HBV and HCV were 9.5%, 1.1% and 0.1%, respectively. During follow-up, 69 new syphilis infections were recorded by lab tests, with an incidence rate of 14.88, 10.71, 9.19 and 9.15 per 100 person-years from M3-M12, respectively. Prevalence of self-reported recent diagnosis of any STIs at M12 was 5.3%. While MSM reported a drop in sexual encounters, more participants reported condomless sex (9.5% at baseline vs. 15.9% at M6 vs. 21.1% at M12). Participants who reported having sex under the influence of substance use (sexUsub) dropped from 52.6% to 42.8% ($p<0.05$). Compared to once-daily PrEP users, event-driven users were less likely to report having sexUsub (aOR=0.62, 95% C.I.=0.40-0.94). No differences were observed between dosing strategies re: STI diagnoses or condom use.

Conclusions: MSM PrEP users in China had a relatively high level of syphilis incidence, which decreased overtime during the study course. A significant increase in condomless sex was also observed. Accessible HIV/STI testing and behavior change monitoring while scaling up PrEP are critical in controlling HIV and other STIs.

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HIV Self-Testing Secondary Distribution Among Index with Different HIV Status in China: A Pooled Analysis of Three Trials

Fan J^{1,3}, Hu S^{1,2,3}, Zhou Y⁴, Jing F^{3,5}, Zhang X^{1,3}, Ai W³, Lv H⁴, He X⁶, Wu D⁷, Tang W^{1,2,3}

¹University of North Carolina Project – China, GUANGZHOU, China, ²Dermatology Hospital of Southern Medical University, GUANGZHOU, China, ³Guangzhou Center for Disease Control and Prevention, GUANGZHOU, China, ⁴Zhuhai Center for Diseases Control and Prevention, Zhuhai, China, ⁵Faculty of Data Science, City University of Macau, Macao SAR, China, ⁶Zhuhai Xutong Voluntary Services Center, Zhuhai, China, ⁷School of Public Health, Nanjing Medical University, Nanjing, China

Background: Secondary distribution of HIV self-testing (HIVST) has the potential to improve HIV testing coverage and facilitate the diagnosis of people living with HIV. However, it remains unclear whether this effect is similar among men who have sex with men (MSM) with different HIV statuses. This study aimed to address this gap by pooling data from three similar trials conducted in China.

Methods: This pooled analysis included data from three trials (ChiCTR1900025433, ChiCTR2000039632, and ChiCTR2200064517) conducted by our study team to evaluate the effectiveness of monetary incentives in promoting the secondary distribution of HIVST among MSM in China. Participants were categorized into four groups based on their HIV status and intervention status: negative control, negative intervention, positive control, and positive intervention group. The control group followed a standard HIVST distribution process in which participants (defined as "index") distributed the HIVST kits to members of their social network (defined as "alter"), while the intervention group received monetary incentives for promoting altered testing. The primary outcome was the mean number of unique alters motivated by each index participant for HIV testing, while secondary outcomes included the number of HIVST kits applied, the number of newly alters tested, and the number of reactive results identified by each index. Data were analyzed using negative binomial regression, adjusted for demographic and behavioral factors.

Results: Between June 2018 and December 2023, 891 unique MSM from 68 cities in China were recruited as index participants, with 55, 54, 390, and 392 were categorized into the positive control, positive intervention, negative control, and negative intervention groups, respectively. A total of 1035 alters tested for HIV, including 962 motivated by 782 HIV-negative index participants and 73 motivated by 109 index participants living with HIV. Negative intervention group motivated significantly more unique alters to test than the negative control group (IRR = 2.46, 95% CI: 1.85, 3.28). With intervention, index living with HIV was less likely to motivate alters for HIV testing (IRR = 0.36, 95% CI: 0.23, 0.57). The interaction was not detected between intervention and HIV status. The proportion of newly tested testers among alters was 52%, 48%, 38%, and 40% in the positive control, positive intervention, negative control, and negative intervention groups. A total of 41 alters were diagnosed with HIV (5 motivated by index participants living with HIV).

Conclusions: Monetary incentives were less effective among MSM living with HIV, despite their tendency to identify alters with reactive results. Integrating HIVST secondary distribution into routine HIV prevention and care services is recommended to enhance its impact.

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The Emotional Context of STI Testing: A Secondary Analysis of Data from a Randomized Controlled Trial Assessing Pay-It-Forward in China

Li L¹, Fitzpatrick T¹, Marley G¹, Liu Y¹, Zhou K¹, Zhu Z¹, Li K², Tang W^{1,3}, Tucker J^{3,4}

¹University of North Carolina Project-China, Guangzhou, China,

²University of California Los Angeles, Los Angeles, USA,

³University of North Carolina at Chapel-Hill, Chapel Hill, USA,

⁴London School of Hygiene and Tropical Medicine, London, UK

Background: Emotional drivers, such as gratitude, are critical factors influencing engagement in sexual health services, yet remain understudied. A randomized controlled trial (PIONEER) evaluated a pay-it-forward intervention to increase chlamydia and gonorrhea testing among men in China. This intervention first provided men with free testing supported by a peer and then asked them to donate funds and create encouraging messages to encourage others to receive testing. The purpose of this secondary analysis is to explore the role of gratitude in shaping testing uptake, monetary donations, and the creation of encouraging messages within the pay-it-forward intervention.

Methods: We analyzed survey responses from PIONEER to explore whether gratitude for the pay-it-forward intervention was associated with test uptake, making donations, and creating encouraging messages. Surveys measured gratitude using a validated three-item scale. Likert-scale questions measured potential mediators of the relationship between gratitude and outcomes: feelings of reciprocal obligation, being cared for, and warmth. Logistic regression and mediation analysis were used to examine relationships between variables. Informed by survey data, a subset of 24 trial participants were interviewed. Inductive thematic analysis explored the role of gratitude in spurring participants to make donations and create encouraging messages.

Results: A total of 783 men were randomized to the pay-it-forward intervention and completed the survey, with 45% identifying as men who have sex with men (MSM). Higher gratitude scores were associated with increased odds of donating money

to the pay-it-forward intervention (OR=1.2, 95% CI=[1.0, 1.6]), creating encouraging messages (OR=1.6, 95% CI=[1.1, 2.2]), and receiving chlamydia and gonorrhea tests (OR=1.2, 95% CI=[0.9, 1.6]). Mediation analysis found reciprocal obligation negatively mediated the relationship between gratitude and donation, while feeling cared for and warmth were positive mediators for making messages encouraging others to receive testing. Qualitative data supported the quantitative findings. In thematic analysis, while participants often felt gratitude, this did not always translate into making a donation because of an unwanted sense of obligation or a misunderstanding about the source of program funds. Motivations for donating were primarily rooted in expressing gratitude to the community-based organisations (CBOs) and healthcare workers that delivered the testing, rather than a desire to “pay it forward” to future peers. Compared to monetary donations, creating messages encouraging testing emerged as a more accessible and acceptable way to translate gratitude into action for others.

Conclusion: Gratitude plays a complex role in pay-it-forward interventions. Our findings highlight the importance of designing interventions that foster authentic emotional connections—such as feelings of being cared for—while being transparent and clear. Cost-shifting interventions like pay-it-forward can leverage existing gratitude toward community-based organisations and healthcare workers, further enhancing their impact. For sexual health programs, using gratitude as a tool for peer-driven promotion may offer a sustainable pathway to amplify reach, particularly in resource-constrained settings.

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Complementing HIV-Related Services: A Qualitative Study on the Adoption of Generative AI Chatbots for HIV Self-Testing Among Men Who Have Sex with Men in China

Yin Z¹, Wang Z², Tang W³, Cao B²

¹UNC Project-China, Guangzhou, China, ²Shenzhen University, Shenzhen, China, ³University of North Carolina at Chapel Hill, Chapel Hill, USA

Background: Generative AI chatbots are increasingly used for HIV prevention and control services. This qualitative study explores their acceptance in facilitating HIV self-testing (HIVST) among men who have sex with men (MSM) in China. Grounded in the Unified Theory of Acceptance and Use of Technology (UTAUT), this study examines how these chatbots are perceived and utilized within this context.

Methods: Between May and October 2024, we conducted in-depth interviews with 15 MSMs recruited through community-based organizations and snowball sampling in China. Before the interviews, participants were instructed to engage with Chinese AI platforms, such as Kimi and ERNIE Bot, on HIVST-related topics. Subsequently, they participated in 45-minute online in-depth interviews. The transcribed data were deductively coded, and two participants reviewed and validated the interpretations. Participants who completed the study were compensated with a reimbursement equivalent to 7 USD. Ethical approval for the study was obtained from the Institutional Review Board at the corresponding author's University (PN-202400070).

Results: The interviewees included 13 gay and 2 bisexual individuals, with an average age of 25.7 years. Twelve participants had prior experience with HIVST, and over half (8 out of 15) had been using AI chatbots for more than one year. Three key domains were identified from the interviews. The first domain, performance expectancy, highlights how the AI chatbot effectively provided comprehensive and synthesized knowledge on HIVST while addressing personalized queries.

Through its human-centric design, the chatbot reduced stigmatization, promoted safe sex practices, and enhanced user confidence. However, its limitations as a non-medical entity reduced its credibility for diagnosis and its ability to support real testing. It also failed to provide emotional support during HIVST tutorials and was restricted by regulations governing sensitive topics. The second domain is effort expectancy. The chatbot's destigmatizing discourse and anonymity alleviated users' privacy concerns and encouraged self-disclosure during HIV consultations. Its functionality mirrored the usability of familiar tools like search engines, enabling ease of interaction. Nevertheless, the quality and coherence of responses heavily relied on the user's ability to formulate precise and consistent prompts, underscoring the importance of user communication skills. The third domain focuses on social influence and facilitating conditions. The increasing integration of AI technologies in healthcare has enhanced the acceptance of chatbots for HIVST, particularly among first-time self-testers. However, limited adoption within the broader community has created social barriers, impeding the widespread normalization and diffusion of this technology.

Conclusion: The acceptance of AI chatbots for HIVST among MSM in China was boosted by their strength in health education on HIV, providing personalized solutions to HIVST inquiries, and reducing HIVST stigma. Future efforts should prioritize optimizing chatbot models, improving users' media literacy, and fostering integration within community practices to further enhance their impact. These advancements could expand the role of AI chatbots in medical support while strengthening their advisory and emotional support functions.

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Mental Health Help-Seeking Behaviors Among Gay and Bisexual Men Living with HIV: A Cross-Sectional Retrospective Study

Hu H^{1,2}, Zhao P¹, Wu D¹

¹Department of Social Medicine and Health Education, School of Public Health, Nanjing Medical University, Nanjing, China,

²Nanjing Drum Tower Hospital, Clinical College of Nanjing Medical University, Nanjing, China

Purpose: To assess the mental health help-seeking behaviors among gay and bisexual men living with HIV (PLWH), using Andersen health care utilization model.

Methods: We conducted a cross-sectional, matched case-control study, using baseline data from Chengdu Regional Sexual Minority Mental Health Cohort; Gay and bisexual men (GBM) aged 16 years or older and living with HIV were matched to controls using propensity score matching to control for predisposing and enabling factors; Latent class analysis was conducted based on mental health help-seeking behaviors; Chi-square tests were used to compare difference in demand factors (self-rated health, suicide, smoking, drinking, depression) between GBM with and without HIV. Multivariate logistic regression models were used to compare differences in mental health help-seeking behaviors.

Results: The final study sample consisted of 282 GBM with HIV and 456 HIV negative participants after propensity score matching. We identified four classes with distinct mental health help-seeking preferences: the multiple help-seeking group (15.58%), the formal help-seeking group (10.97%), the informal help-seeking group (13.14%), the friend help-seeking group (60.30%). GBM with HIV were more likely to report poorer self-rated health; lower percentages of smoking, drinking, depressed mood and suicide planning in comparison with the matched controls. Multivariate logistic regressions showed significant differences in mental health help-seeking behaviors between GBM with and without HIV. Compared to the formal help-seeking group, HIV gay and bisexual men were more likely to seek

help from friends (aOR=2.603; 95% CI: 1.396-4.852) and other informal help (aOR=3.180; 95% CI: 1.536-6.583). Compared to the multiple help-seeking group, HIV gay and bisexual men were also more likely to seek help from friends (aOR=2.511; 95% CI: 1.491-4.230) and other informal psychological help (aOR=3.068; 95% CI: 1.617-5.824).

Conclusion: This study found that despite reporting poorer self-rated health, PLWH exhibited better health behaviors and mental health outcomes compared to the control group. Notably, among gay and bisexual men, PLWH demonstrated a greater propensity to seek emotional or mental health support from non-professional sources, such as friends (including sexual minorities), parents, and relatives. These findings suggest potential unmet need for professional mental health services among HIV gay and bisexual men. Consequently, it is imperative to develop tailored psychological support strategies that are closely aligned with the psychosocial adaptation status of PLWH.

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Exploring User Preferences for PrEP Service Delivery Models in Japan Among Men Who Have Sex with Men: A Discrete Choice Experiment

Li C¹, Wang K², Tanuma J³, Shibamura A⁸, Gilmour S⁴, Chan C⁵, Phanuphak N⁶, Ong J⁷, Tiesopajaroen W⁷, Bavinton B⁵

¹Tokyo College, the University of Tokyo, Tokyo, Japan, ²Centre for Health Systems and Policy Research, Jockey Club School of Public Health and Primary Care, Faculty of Medicine, the Chinese University of Hong Kong, Hong Kong, China, ³Department of Global Health and Infectious Diseases, Graduate School of Public Health, the International University of Health and Welfare, Japan, ⁴Graduate School of Public Health, St Luke's International University, Japan, ⁵Kirby Institute, University of New South Wales, Sydney, Australia, ⁶Institute of HIV Research and Innovation, Bangkok, Thailand, ⁷Melbourne Sexual Health Centre, Alfred Health, Carlton, Australia, ⁸Department of Community and Global Health, Graduate School of Medicine, the University of Tokyo, Japan

Background: Oral PrEP is officially available in Japan; however, the lack of government subsidies, high costs, and limited availability through domestic healthcare institutions continue to hinder its uptake, particularly among those at high risk of HIV infection. Men who have sex with men (MSM), who are disproportionately affected by the HIV epidemic in Japan, face significant barriers to accessing PrEP. This study aims to examine PrEP use behaviors and preferences for PrEP service options among MSM living in Japan.

Methods: We used data from respondents residing in Japan of the PrEP APPEAL Study, a cross-sectional online survey with a discrete choice experiment (DCE) among adult MSM (18 years old or above) conducted in 15 Asian countries between May–November 2022. The six attributes included in the DCE were identified through literature review and extensive formative work, including: (1) types of PrEP (options varying by dosing and delivery methods); (2) location to access PrEP (options varying by hospital/clinic settings, telehealth, or community-led clinics); (3) out-of-pocket cost; (4) potential side effects (options varying by severity, drug interaction and location); (5) PrEP visit frequency (ranging from once every two months to once a year); and (6)

availability of additional services. Mixed logit modeling and latent class logit modeling with effect coding of attributes and levels were applied to estimate preference weightings and individual segments with heterogeneous preferences.

Results: A total of 1,358 respondents were included (mean age=39.3, SD=11.2). The majority (98.5%) reported being assigned male at birth, while 78.4% identified as gay men and 19.6% as bisexual or pansexual. Only 13.5% (n=184) were current PrEP users, and a further 3.5% (n=48) claimed having paused PrEP. The perceived relative importance of PrEP service characteristics is: service cost (46.2%), potential side effects (21.7%), types of PrEP (14.5%), location of services (6.3%), visit frequency (5.8%), and availability of extra services (5.6%). Overall, participants preferred PrEP options with no/minimal side effects ($\beta=0.63$, $p<0.05$), favored on-demand ($\beta=0.32$, $p<0.05$) or monthly oral dosing while strongly disfavoring slow-release removal implants ($\beta=-0.49$, $p<0.05$), and were highly sensitive to every 1000-JPY increase in monthly service cost ($\beta=-0.33$, $p<0.05$). Participants preferred PrEP care through community clinics operated by MSM ($\beta=0.21$, $p<0.05$) or pharmacies ($\beta=0.12$, $p<0.05$) rather than traditional clinical/hospital settings ($\beta=-0.15$, $p<0.05$). In terms of follow-up visit frequency, participants were generally neutral toward the current standard of every three months, favoring longer intervals while expressing disfavor toward a shorter interval of every two months ($\beta=-0.22$, $p<0.05$). Lastly, among additional services, participants highly valued comprehensive STI testing ($\beta=0.19$, $p<0.05$) but did not prefer mental health counselling ($\beta=-0.13$, $p<0.05$).

Conclusions: Affordable PrEP options with minimal side effects and less intrusive delivery methods (e.g., injection or implant), and care provision through community-led clinics were generally preferred in this Japanese MSM sample. Developing a more affordable and decentralized PrEP delivery model that aligns with user preferences is essential to help Japan accelerate its goals to end the HIV epidemic by 2030.

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“U=U” and Facilitators for Mental Health Resilience: Experiences from Chinese People Living with HIV

LEI Z¹, SHI Y², HU H³, WU D³

¹The University of Hong Kong, Hong Kong, Hong Kong, ²Center for Global Health Equity, New York University Shanghai, Shanghai, China, ³Department of Social Medicine and Health Education, School of Public Health, Nanjing Medical University, Nanjing, China

Background: People living with HIV (PLHIV) in China continue to face significant burdens of mental health challenges, with limited access to professional mental health services. The mental health resilience triggers and the coping strategies after diagnosis among PLHIV remain unclear in the era of “U=U” (Undetectable equals Untransmittable). This study explored the factors that facilitate building mental health resilience from the experience of Chinese PLHIV.

Methods: This qualitative study adopts the phenomenology approach. 26 Online in-depth semi-structured interviews were conducted in China between November 2023 and March 2024. The interviews explored participants’ experiences regarding HIV diagnosis, mental health coping, and related factors that facilitate mental health resilience. Data was coded through NVivo 14 employing the resilience framework (Kumpfer, 1999), framing resilience as a process.

Results: “U=U” emerged as the cutting-edge scientific evidence that facilitates mental health resilience for PLHIV in the social context. The participants’ narratives show that “U=U” fosters treatment initiation, enhances self-esteem, and mitigates concerns regarding HIV transmission. Social support from peers and families, and medical support from nurses, CDC and CBO workers, and psychotherapists are the facilitators in the person-environment transactional process. Active coping strategies are the facilitators in the resiliency process, such as resource access, social engagement, behavior change, and religious involvement. Knowledge of HIV/AIDS science, personal capacity, and positive belief are identified as internal resiliency factors.

Conclusion: This study underscores the pivotal role of “U=U”, social support, and active coping as the mental health resilience trigger for PLHIV to enhance treatment adherence, self-esteem, and quality of life. It emphasizes the need for integrating “U=U” as a mental health intervention in Chinese HIV care settings.

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Interplay of HIV Infection and Dual Stigma: Synergistic Effects on Suicidal Ideation in Chinese LGBTQ+ Communities

Mu J¹, Song H², Wu D¹

¹Nanjing medical university, Nanjing, China, ²Medical Big Data Center, Sichuan University, Chengdu, China

Background: Suicidal ideation disproportionately affects LGBTQ+ populations, particularly in contexts where structural stigma intersects with HIV infection. While prior studies have established independent associations between HIV status, minority stress (e.g., stigma related to sexual orientation and gender identity [SOGI]), and suicidality, the synergistic mechanisms of these factors remain understudied in non-Western settings. This study examines how the interaction between HIV infection and SOGI-related stigma exacerbates suicide risk within China's sociocultural context, where LGBTQ+ identities remain stigmatized and mental health resources are limited.

Material and Methods: The data were derived from the TREASURE study, a cohort study investigating mental health, social determinants, and health outcomes among the sexual minority community in Chengdu, southwest China. A total of 7,977 sexual minority participants were recruited via online baseline surveys between November 2023 and December 2024. Suicidal ideation outcome was defined as having ever developed a suicide plan or engaged in suicidal behavior. Exposure variables included self-reported HIV status and lifetime SOGI-related stigma experiences. Group differences by suicidal ideation status were assessed using Chi-square and Mann-Whitney U tests. Generalized Linear Regression (GLM) was used to estimate the association between HIV, SOGI-related stigma, and suicidal ideation. Odds ratios (OR) and 95% confidence intervals (CI) were calculated. Covariates encompassed sociodemographic (age, sex, education, income, marital status, occupation) and behavioral factors (coming out, smoking, drinking, and Illicit drug use). Moreover, multiplicative and additive interaction analyses were conducted using the multiplicative scale,

relative excess risk due to interaction (RERI), attributable proportion due to interaction (AP), and synergy index (SI). All analyses were computed using R 4.4.0, with a standard two-tailed $P < 0.05$.

Results: The prevalence of suicidal ideation was 16.2% ($n = 1,289$). Participants were predominantly cisgender male (69.9%) and men who have sex with men (85.5%), with a median age of 26 (IQR: 23–31). Adjusted GLM revealed differential effects: HIV infection alone showed no significant association with suicidal ideation (OR = 1.149, 95%CI: 0.853–1.529, $P = 0.349$), whereas experienced SOGI-related stigma was associated with increased risk of suicidal ideation (OR = 1.560, 95%CI: 1.355–1.794, $P < 0.001$). Further, exposure to both HIV infection and SOGI-related stigma exhibited a supra-additive effect (OR = 3.562, 95%CI: 2.203–5.761, $P = 0.001$). Additionally, multiplicative interaction was significant (multiplicative scale = 1.987 95%CI: 1.389–2.585, $P < 0.001$), with additive interaction indices confirming synergy: RERI = 1.853 (95%CI: 1.274–2.433, $P < 0.001$), AP = 0.520 (95%CI: 0.343–0.697, $P < 0.001$), and SI = 3.613 (95%CI: 1.224–6.002, $P = 0.003$). This, indicating that 52% of the excess suicide risk was attributable to the interaction between HIV infection and SOGI-related stigma.

Conclusion: In Chengdu's LGBTQ+ population, both multiplicative and additive interactions between HIV infection and SOGI-related stigma significantly amplified suicidal ideation risk. This synergy underscores the critical need for integrated interventions addressing both HIV-related health disparities and structural stigma to mitigate suicide risk in this vulnerable group.

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Anxiety Responses and Testing Intentions Among Gay and Bisexual Men Using an AI-Powered Risk Assessment Tool for Sexually Transmitted Infections: A Quasi-Experimental Study

Latt P^{1,2}, Soe N^{1,2}, Xu X^{2,3}, Bao Y^{2,4}, Lee D², Ong J^{1,2,5}, Chow E^{1,2,6}, Zhang L^{1,2,7}, Fairley C^{1,2}

¹Monash University, Melbourne, Australia, ²Melbourne Sexual Health Centre, Melbourne, Australia, ³School of Public Health, Shanghai University of Traditional Chinese Medicine, Shanghai, China, ⁴China-Australia Joint Research Centre for Infectious Diseases, School of Public Health, Xi'an Jiaotong University Health Science Centre, Xi'an, China, ⁵Department of Clinical Research, London School of Hygiene and Tropical Medicine, London, United Kingdom, ⁶Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia, ⁷Clinical Medical Research Centre, Children's Hospital of Nanjing Medical University, Nanjing, China

Introduction: Web-based tools for the assessment of the risk of sexually transmitted infections (STI) may increase testing but also may induce anxiety. We evaluated anxiety responses and testing intentions among gay, bisexual and other men who have sex with men (GBMSM) using MySTIRisk, an artificial intelligence-powered STI risk assessment tool, compared to a standard sexual health information webpage for GBMSM.

Methods: We conducted a quasi-experimental pre-post study at the Melbourne Sexual Health Centre between April and October 2024. Participants were allocated to either MySTIRisk, which provides personalised STI risk assessment, or a standard webpage providing general sexual health information for GBMSM on alternating days. We measured anxiety using the State-Trait Anxiety Inventory (STAI-6) before and after participants viewed their assigned websites. We defined clinically significant anxiety changes as ≥ 3 points on STAI-6. We used multivariable ordinal logistic regression analysis to evaluate clinically significant anxiety changes while controlling for baseline scores and demographic variables.

Results: Our study population had a median age of 34 years (IQR: 28-42); 48% were born in Australia, and 69.7% had tertiary education. The baseline characteristics were similar between MySTIRisk (n=150) and control groups (n=150). In the MySTIRisk group, STAI-6 scores increased significantly from baseline (median [IQR]: 10 [8, 12]) to post-intervention (11 [8, 13], $P = 0.001$). The control group showed a decrease from baseline (11 [9, 12]) to post-intervention (10 [8, 13], $P = 0.01$). Despite increased anxiety, MySTIRisk users maintained high user acceptability (92.0%) with similar testing intentions between groups (87.3% vs 82.7%, $P = 0.6$). The multivariable ordinal logistic regression analysis showed that the intervention's effect on anxiety was independent of demographic characteristics, except for employment status.

Conclusions: While MySTIRisk increased anxiety in some users, it maintained high acceptability and did not deter testing intentions. These findings support implementing such tools with appropriate anxiety management strategies.

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Prevalence and Characteristics of Illicit Drug Use Among People Living with HIV at Chiba University Hospital: A Retrospective Study on Methamphetamine Use and Its Associated Risks

Yoshikawa H¹, Taniguchi T¹, Ashina K¹, Yahaba M¹, Igari H¹

¹Chiba University, Chiba City, Japan

Objective: Illicit drug use, particularly methamphetamine, is strongly associated with human immunodeficiency virus (HIV) infection. However, data on the prevalence of illicit drug use among people living with HIV (PLWH) in Japan are limited. This study aimed to investigate its frequency and related risks at Chiba University Hospital.

Methods: To minimize underreporting, we conducted a retrospective study using structured interviews and medical records. The study included HIV-infected outpatients aged 18 years or older who had been attending Chiba University Hospital for at least six months between April 2014 and January 2025.

Results: A total of 453 PLWH receiving antiretroviral therapy (ART) were included. Among them, 56 (12.4%) reported illicit drug use, with 31 (6.8%) using methamphetamine. Among illicit drug users, 22 (39.3%) had visited a public venue for casual sexual encounters among men who have sex with men (MSM), a significantly higher rate than among non-drug users (14.9%). Additionally, 34 (60.7%) of illicit drug users had skipped clinic appointments, with methamphetamine users showing an especially high rate (26 out of 31, 83.9%). Furthermore, 8 (25.3%) methamphetamine users tested positive for hepatitis C virus (HCV) antibodies.

Conclusion: Illicit drug users, particularly methamphetamine users, had high rates of missed clinic visits and HCV antibody positivity. Many cases were identified through self-reporting or

arrest records, suggesting that actual drug use may be underreported. Frequent unscheduled clinic visits and HCV antibody positivity should raise suspicion of methamphetamine use in PLWH.

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HIV/STI Risk Perception in Relation to Risky Sexual Behavior, and Mental Health Issues Among Nepalese Migrants Living in Japan

Shakya S¹, Shrestha D², KC Bhandari A², Shakya P³, Kitajima T⁴

¹Japan Foundation For AIDS Prevention, Tokyo, Japan, ²St. Luke's International University, Tokyo, Japan, ³Independent Resaercher, kathmandu, Nepal, ⁴Kyorin University, Tokyo, Japan

Background: As of June 2024, 206,898 Nepalese live in Japan, with 64,023 in the Tokyo metropolitan area. Migrants are often prone to health risks such as HIV/sexually transmitted infections (STIs), risky sexual behavior and mental health issues like stress due to social, economic and language changes, limited access to healthcare and lack of awareness. Hence, this study aims to investigate HIV/STIs risk perception in relation to risky sexual behaviors, and mental health issues to help guide interventions to improve migrant's health.

Materials and Methods: A cross-sectional, self-administered online survey was conducted among 393 Nepalese migrants aged 18 and above in the Tokyo metropolitan area using convenience sampling. The primary outcome, HIV/STIs risk perception, reflected how individuals assessed their risky sexual behavior and mental health-related vulnerability to these infections. logistic regression analysis was used to examine factors associated with self-perceived HIV and STI risk.

Results: The mean age of the participants was 30.58 years (± 7.07), with a majority being male (64.12%). Most were married (60.56%), and had completed higher secondary education (39.69%). The study indicated that (45) 11.45% of participants perceived themselves at HIV risk, and (43) 10.94% perceived themselves at STIs risk. The logistic regression analysis revealed non-heterosexual participants (aOR = 3.75; 95% CI: 1.77–7.97), those interested in HIV testing (aOR = 5.26; 95% CI: 2.14–12.94), and those who had irregular (aOR = 2.96; 95% CI: 1.19–7.32) or always used condoms (aOR = 2.67; 95% CI: 1.11–6.41)

were more likely to perceive HIV risk. Conversely, those with annual checkups (aOR = 0.40; 95% CI: 0.18–0.87) or willing to seek mental health care in Japan (aOR = 0.43; 95% CI: 0.19–0.99) were less likely to perceive HIV risk.

For STIs, non-heterosexuals (aOR = 3.27; 95% CI: 1.52–7.03), used condom irregularly (aOR = 2.70; 95% CI: 1.07–6.80), those with higher risk scores (aOR = 3.07; 95% CI: 1.42–6.65), and those interested in syphilis testing (aOR = 6.48; 95% CI: 2.51–16.71) perceived themselves at higher risk. While those with good access to healthcare (aOR = 0.28; 95% CI: 0.13–0.61) perceived lower risk.

Conclusion: Our study reveals that, although stress levels and social support were not significantly associated with HIV/STIs risk perception, individuals willing to seek mental health consultations were less likely to perceive themselves at risk. Findings from the analysis reveal factors influencing risk perception and emphasize the need for interventions. Improving healthcare access with language support, providing accurate information and awareness to help individuals understand their risk, encourage testing for those who perceive themselves at risk, offering mental health counselling and addressing stigma are crucial steps to promote the preventive aspect and to reduce risk perception.

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Never Testing, Group Sex and Sex Exchange Among YMSM in Northeastern Thailand: Baseline Findings from the HUG-M Cohort

Guadamuz T¹, Kongjareon Y¹, Waratworawan W¹, Samoh N¹, Lim S², Kegeles S³

¹Mahidol Center for Health, Behavior, and Society, Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand, ²Centre of Excellence in Research on AIDS and Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia, ³Center for AIDS Prevention Studies, School of Medicine, University of California San Francisco, San Francisco, United States of America

Background: HIV and sexually transmitted infections (STIs) remain significant public health concerns, particularly among young men who have sex with men (YMSM), who are at high risk of infection. Regular testing is crucial for early detection and prevention; however, many YMSM have never undergone HIV or STI testing. Understanding the factors associated with never having been tested can help develop targeted interventions and improve access to screening services. This study aims to examine the prevalence and behavioral factors associated with never having been tested for HIV and STIs among YMSM in the HUG-M cohort—a community randomized controlled multilevel intervention trial based on empowerment to increase engagement in the HIV prevention and care continuum.

Methods: Guided by a community advisory board, we conducted a cohort study among 636 YMSM aged 15–29 years in Ubon Ratchathani and Mahasarakham, two major provincial cities in Northeastern Thailand recruited through community outreach activities and social media. The study included a self-administered behavioral survey on tablets. For this analysis, we used data collected at baseline. This study focused on questions related to HIV and STI testing history as well as sexual behavior. Never HIV testing and never STI testing were defined as never having undergone HIV or STI testing (lifetime), respectively. We conducted separate multivariable logistic regression models to identify independent

factors associated with HIV testing and with STI testing.

Results: Among 636 participants, 557 (87.6%) reported having anal sex with another man. Overall, 45.6% had never undergone HIV testing, and 62.3% had never undergone STI testing. In the multivariable logistic regression analysis for never HIV testing (AOR=1.69, 95% CI: 1.01–2.80), participants who had never engaged in group sex or never received money, goods, or opportunities in exchange for sex (AOR=1.93, 95% CI: 1.14–3.30) were significantly more likely to have never tested for HIV, compared to those who had. For never STI testing, participants who had never engaged in group sex (AOR=1.75, 95% CI: 1.08–2.84); never received money, goods, or opportunities in exchange for sex (AOR=1.86, 95% CI: 1.13–3.09), and had never sought sexual partners online were more likely to never STI testing than those who had. Interestingly, about one-third of YMSM who had participated in group sex had never tested for HIV and almost half had never tested for STI. Among YMSM who received money, goods or opportunities in exchange for sex, about one-third and almost half had never tested for HIV and for STI, respectively. Finally, more than one-third of YMSM who sought sexual partners online and almost half of YMSM who sought sexual partners online had never tested for HIV and for STI, respectively. Notably, never HIV testing was significantly associated with non-disclosure of sexual orientation among YMSM (59.6% vs. 40.1%, $p=0.03$).

Conclusions: The findings underscore the need for targeted HIV and STI testing initiatives, especially for YMSM engaging in high-risk behaviors. Policies should focus on increasing accessibility to testing and addressing barriers. Innovative strategies are needed to increase engagement and motivations for HIV and STI testing among YMSM engaging in high-risk behaviors.

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Partner-Centered Sexual Satisfaction and Relationship Quality in HIV-Serodiscordant MSM Couples: A Dyadic Analysis

Chai E¹, Huang D^{2,3}, Li C⁴, Ku S^{2,3}, Huang P⁵, Wu H⁶, Strong C⁷

¹Department of Psychology, College of Social Science, National Cheng Kung University, Tainan, TAIWAN, ²Division of Infectious Diseases, Department of Medicine, Taipei City Hospital Renai Branch, Taipei, TAIWAN, ³HIV Education And Research Taiwan (HEART) Association, TAIWAN, ⁴Center for Infection Control and Department of Internal Medicine, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, TAIWAN, ⁵Institute of Health Behavior and Community Sciences, National Taiwan University, Taipei, TAIWAN, ⁶Kirby Institute, University of New South Wales, Sydney, AUSTRALIA, ⁷Department of Public Health, College of Medicine, National Cheng Kung University, Tainan, TAIWAN

Background: Although U=U is a widely accepted concept, the anxiety and stigma associated with HIV still impact the sexual satisfaction of HIV serodiscordant couples. There is limited research on how sexual satisfaction affects the quality of relationships in this group. This study examined the individual and cross-partner associations of sexual satisfaction on relationship quality among HIV serodiscordant couples using a dyadic approach. We also explored whether sexual satisfaction differed between people living with HIV and their HIV-negative partners.

Methods: Participants were recruited from outpatient clinics between May 2019 and December 2020. Eligibility criteria included men-who-have-sex-with-men (MSM) being aged 20–59 years, being in a stable relationship (open or non-open) for over three months, and, for people living with HIV, having an undetectable viral load within the past year and stable medical care. Participants completed the New Sexual Satisfaction Scales, a 20-item self-report measure assessing sexual satisfaction across three dimensions: ego-focused, sexual activity-centered, and partner-focused. Responses were rated on a 5-point Likert scale from 1 (not at all satisfied) to 5 (extremely satisfied). Relationship quality was measured by the Couples Satisfaction Index, which includes four items: the first rated on a 7-point Likert scale (0 =

extremely unhappy to 6 = perfect) and the remaining three on a 6-point Likert scale (0 = not at all to 5 = completely). The association between sexual satisfaction and relationship quality was analyzed separately for people living with HIV and their HIV-negative partners using two-step hierarchical regression. In the first step, the participant's own sexual satisfaction score predicted relationship quality. In the second step, both the participant's and their partner's sexual satisfaction scores were included in the analysis as independent variables.

Results: This cross-sectional study included 50 HIV-serodiscordant MSM dyadic couples (100 participants, mean age = 36.4, SD age = 8.3). Among participants, 53% lived with a partner or spouse, 17% were in an open relationship, and 47% spent time with their partner daily. Relationship duration varied: 30% of participants had been together for ≤1 year, 29% for 1–4 years, and 41% for >4 years. Ninety-two percent engaged in anal sex, with 67% reporting a frequency of 1–5 times/month, 33% ≥6 times/month, and 14% engaging in chemsex. Among HIV-negative participants, 46% were using PrEP. No significant differences in sexual satisfaction were observed between people living with HIV and their HIV-negative partners. For both groups, partner-centered sexual satisfaction was the only factor significantly associated with relationship quality ($\beta = 2.012$ in the first step and $\beta = 1.932$ in the second step for people living with HIV; $\beta = 2.154$ in the first step and $\beta = 2.096$ in the second step for HIV-negative partners).

Conclusions: Regardless of one's HIV status, partner-centered sexual satisfaction—how one perceives their partner's sexual satisfaction—is the most important factor determining relationship quality. This finding highlights the importance of fostering open communication and mutual understanding about sexual needs and satisfaction to strengthen relationship quality, regardless of HIV status.

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Perspectives on Analytical Treatment Interruptions and Prospects of an HIV Cure Amongst People Living with HIV in Singapore

Choy C^{1,2}, Hao Y³, Toh M³, Archuleta S⁴, Tan Y⁵, Sng E⁶, Kumar P², Wong C^{1,2,7}, Lee P^{1,2}, Ferdous Z², Tan Z², Le T⁴, Chia T⁴, Hamid L⁵, Lee S⁵, Lee A⁶

¹Tan Tock Seng Hospital, Singapore, Singapore, ²National Centre For Infectious Diseases, Department of Infectious Diseases, Singapore, Singapore, ³National Centre For Infectious Diseases, National Public Health and Epidemiology Unit, Singapore, Singapore, ⁴National University Hospital, Singapore, Singapore, ⁵Singapore General Hospital, Singapore, Singapore, ⁶Changi General Hospital, Singapore, Singapore, ⁷National University of Singapore, Yong Loo Lin School of Medicine, Singapore, Singapore

Background: Singapore has yet to conduct an HIV cure trial, and studies involving analytical treatment interruption (ATI) may face scepticism from the community. This study aims to understand the perspectives of people living with HIV in Singapore regarding participation in functional cure research with ATI.

Methods: Participants were recruited from an HIV care facility in Singapore through study advertisements at study sites. The self administered survey collected demographic information, participants' views on ATI and HIV cure, their acceptability of ATI, and tolerance for CD4 decline and viral load fluctuations during ATI. Descriptive analysis, univariate analysis, and multivariable logistic models were performed to identify barriers and motivational factors influencing cure study participation.

Results: Of the 200 participants, 116 (58%) indicated they were likely to participate in a cure trial, while 84 (42%) were not. A majority, 94.5% (189/200), had never participated in an HIV clinical study previously. No significant differences in age, gender, sexuality, or duration of HIV diagnosis were observed between those likely to participate and those unlikely to do so. Key factors predicting participation included having at least a tertiary education (aOR 2.99, 95% CI 1.33-7.06) and identifying altruistic motivations, such as advancing research or benefiting others and

oneself (aOR 2, 95% CI 1.57-2.61). Participants less tolerant of potential increases in viral load or decreases in CD4 count during an ATI study were 23% less likely to participate (aOR 0.77, 95% CI 0.67-0.87). The frequency of monitoring, availability of self-testing, and home visits did not significantly influence the likelihood of participation. The primary concern among participants was the risk of HIV transmission during an ATI study, with 82.5% (165/200) expressing concern.

Conclusions: Those more likely to participate in a cure trial involving ATI tend to have higher education, altruistic motivations, and fewer concerns about viral load or CD4 count outcomes. Increased outreach and education are vital to engage the community, build trust, and foster support for future ATI studies and HIV cure research.



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Breaking Barriers: Understanding Challenges to Regular HIV/STI Testing Among Men Who Have Sex with Men in Hong Kong

Choi E¹, Choi K^{1,2}, Ng J^{1,2}, Chow E^{3,4,5}

¹School of Nursing, The University of Hong Kong, Hong Kong, Hong Kong, ²Sticky Rice Love, Hong Kong, Hong Kong, ³Melbourne Sexual Health Centre, Alfred Health, Melbourne, Australia, ⁴School of Translational Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia, ⁵Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia

Background: The rising incidence of HIV and sexually transmitted infections (STIs) among men who have sex with men (MSM) in Hong Kong is a pressing public health concern. High rates of risky sexual behaviors, coupled with low regular testing rates, underscore the need to better understand the motivations and barriers influencing HIV/STI testing behaviors among MSM. This study explores the factors driving or hindering regular testing, aiming to inform strategies to improve testing uptake and reduce transmission within this community.

Material and Methods: In 2024, semi-structured interviews were conducted with 30 sexually active MSM in Hong Kong. Purposive sampling ensured diversity in sexual behaviors, including PrEP use, chemsex, condomless anal sex, and varying HIV/STI testing patterns. Interviews explored barriers (e.g., stigma, lack of awareness, accessibility) and motivations for testing. Audio recordings were transcribed verbatim, and thematic analysis was employed to identify key themes related to testing behaviors and challenges.

Results: All participants were cisgender males with a median age of 30 (IQR 22 to 34) years, HIV-negative. While 83.3% (N=25) had tested for HIV and 73.3% (N=22) for other STIs in the past 12 months, thematic analysis revealed persistent barriers to regular testing. Key themes included:

1. **Structural Barriers:** Participants reported insufficient information on testing locations and confusion about available resources, such as the types of tests provided for free for MSM. Inconvenient testing site locations and operating hours, often conflicting with work schedules, further limited access.
2. **Perceived Stigma and Judgment:** Many participants described unwelcoming or judgmental attitudes from staff at STI-specialized clinics, deterring them from seeking regular testing.
3. **Psychological Avoidance:** Some participants admitted avoiding testing to escape the possibility of a positive diagnosis, equating not testing with not being infected.
4. **Complacency in Relationships:** Participants in closed relationships often discontinued regular testing, citing trust in their partners and reliance on initial testing at the start of the relationship. Despite these barriers, participants expressed a strong interest in improving their sexual health literacy. Many highlighted the need for accessible risk assessment tools, education on STIs, and rapid-response hotlines for post-exposure guidance.

Conclusions: This study identifies significant structural, psychological, and relational barriers to regular HIV/STI testing among MSM in Hong Kong, despite relatively high testing rates in the past year. Addressing these barriers requires multifaceted interventions, including improved accessibility of testing services, staff training to reduce perceived stigma, and targeted educational campaigns to combat complacency and misinformation. Enhancing sexual health literacy and providing responsive support systems could further promote regular testing and safer sexual practices, ultimately reducing HIV/STI transmission in the MSM population.

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Stigma Against Hepatitis B and C Among Medical Students in China: A Cross-Sectional Study

Wang Y¹, Marley G², Fitzpatrick T⁵, Zhang S¹, Tucker J^{2,3,4}, Wu D¹

¹School of Public Health, Nanjing Medical University, Nanjing, China, ²University of North Carolina at Chapel Hill - Project China, Guangzhou, China, ³University of North Carolina at Chapel Hill, Chapel Hill, USA, ⁴London School of Hygiene and Tropical Medicine, London, UK, ⁵Department of Medicine, University of Washington School of Medicine, Seattle, USA

Backgrounds: Hepatitis B (HBV) and hepatitis C (HCV) are major public health issues, affecting 5-7% and 0.05% of people respectively in China. Stigma towards HBV and HCV can hinder both testing and ongoing care. As future healthcare providers, the perceptions of medical students towards people living with hepatitis may affect testing uptake, treatment adherence, and clinical outcomes. However, research on attitudes towards HBV and HCV in this group is limited. This study aims to explore the attitudes and perceptions that medical students in China hold toward HBV and HCV, and to assess whether stigma-reduction initiatives should be implemented for this group.

Methods: An online survey was carried out among medical students in their final three years at a Chinese medical university from November 2024 to February 2025. The survey collected data on sociodemographic, knowledge of viral hepatitis, viral hepatitis testing and infection history. HBV and HCV stigma scores were measured using two batteries of 18 Likert scale questions on a scale of 1-5 each one, with higher scores indicating higher levels of stigmatization. Scores over 108 are considered to be stigmatizing. Univariate and multivariate linear regression analyses identified factors associated with higher stigma scores.

Results: Among the 354 responses received, only 323 were valid and included in the analysis. The respondents included 148 males and 175 females; 143 clinical medicine majors, 61 dentistry majors, 59 nursing majors, and 60 preventive medicine majors; and a total of 242 had clinical exposure. 63.47% (n = 205) perceived that HBV infection was less serious than HIV infection, and 40.56% (n =

131) reported prior HBV testing. 68.42% (n = 221) perceived that HCV infection was less serious than HIV infection, and 17.65% (n = 57) had tested for HCV. Results of multiple linear regression analysis showed that individuals who had not tested for HCV had significantly lower stigma score towards people living with hepatitis, than those who had tested ($t = -2.61$, $P = 0.0095$).

The total score for hepatitis stigmatization in this survey was 180, of which the average score was 105 (standard deviation ± 15.6). 126 respondents show stigmatization of people living with hepatitis. Overall stigma toward HBV did not differ significantly from stigma towards HCV ($P = 0.058$). Although 87.3% of participants believed that people living with hepatitis should receive the best of medical care, 75.3% were concerned about getting infected when treating wounds of people living with hepatitis. 72.8% and 72.2% were willing to provide medical care to people living with hepatitis B and hepatitis C, respectively, yet 63.5% and 62.3% would overprotect themselves when providing care to them, such as wearing two layers of gloves.

Conclusion: Stigmatizing attitudes toward HBV/HCV were common among Chinese medical students, particularly manifesting in perceived clinical behaviors. Integrating evidence-based stigma-reduction interventions into medical curricula may be important to foster equitable care and improve outcomes for people living with HBV and HCV.

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Knowledge on HIV Prevention and Treatment Associated with the Demographics Among High Risk Population Aged 15 to 49 Years Old

Leonor E¹, Macalalag A¹, Cataluna M¹, Labiano R^{1,2}

¹Team Dugong Bughaw, Iloilo, Philippines, ²Mother Candide Center, St. Paul's Hospital of Iloilo, Inc., Iloilo, Philippines

Introduction: The HIV epidemic remains a significant public health concern in the Philippines, with the country experiencing one of the fastest-growing rates of new HIV infections in the Asia-Pacific region. HIV education and awareness are crucial in the fight against the spread of the virus. Hence, the study aimed to assess the knowledge on HIV prevention and treatment associated with the demographics among high risk population aged 15 to 49 years old.

Methods: A total of 562 high risk population of Western Visayas, Philippines, ages between 15 to 49 years old were the participants in the study. They were classified as at high risk due to their vulnerability to HIV infection. They were sex workers, LGBTs, pregnant women and young adults. Majority of them were residents (47%) of Iloilo City. A validated 18- item knowledge questionnaire pertaining to the awareness and understanding on HIV prevention and treatment was utilized. The participants answered in the 'True / False / I don't know' format with a given 1 point to the correct answer. Scores of 10 to 18 (just above two thirds of correct answers) indicated high level of HIV/AIDS knowledge. Chi square test was employed to determine the association between the level of knowledge and the willingness of the young adults to have HIV testing and their socio-demographics. The level of significance was set at .05 alpha.

Results: Among the participants assessed to have high knowledge, LGBT group (33%) took the lead, then females, males and pregnant women. 35% participants from Iloilo Province had high knowledge to HIV prevention and treatment among others from different provinces in Western Visayas region. More participants aged 16-24 years

(35%) were knowledgeable in HIV than those older participants. More single (32%) students (37%) took advance from getting the high scores in the survey as to employed and unemployed participants. College level/ graduate (32%) participants had high knowledge as to those at high school level. More participants belonged to high income families (41%) got high scores in the survey to assess their knowledge in HIV prevention and treatment. The associations between HIV knowledge and participants' age ($p < .001$), sexual orientation ($p = .010$), employment status ($p = .001$), civil status ($p = .023$), and monthly family income ($p = .021$) were found statistically associated. The level of significance was set at .05 alpha.

Conclusions: HIV knowledge and prevention are important for the high-risk population to be aware and understood. Given in the situation of being too susceptible to HIV infection, high risk individuals must guard themselves by full awareness and knowledge of how to protect themselves of getting HIV infection.

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Characteristics and Outcomes of Newly Diagnosed People with HIV in Taiwan: 2018-2023 – Where Are We Now on the Road to “95-95-95”?

Tsai T¹, Huang S^{1,2}, Wu T³, Liu W^{1,4}, Sun H¹, Sheng W^{1,2}, Hsieh S¹, Pan S¹, Chuang Y¹, Cheng A¹, Huang Y¹, Lin K¹, Hung C^{1,3}

¹Department of Internal Medicine, National Taiwan University Hospital and National Taiwan University College of Medicine, Taipei, Taiwan, ²Department of Internal Medicine, National Taiwan University Hospital Hsinchu Branch, Hsinchu, Taiwan, ³Department of Internal Medicine, National Taiwan University Hospital Yunlin Branch, Yunlin, Taiwan, ⁴Department of Medicine, National Taiwan University Cancer Center, Taipei, Taiwan

Background: The rapid initiation of combination antiretroviral therapy (cART) in 2018 enabled Taiwan to achieve the UNAIDS goal of “90-90-90” by 2023. Taiwan is now progressing toward the “95-95-95” target. To achieve this milestone, understanding the characteristics of the newly diagnosed people with HIV (PWH) is crucial to identify and address gaps in current practices. The study aimed to describe the characteristics of PWH diagnosed after 2018, providing insights for fine-tuning clinical approaches that have been widely implemented since the early-ART era.

Methods: We conducted a multicenter retrospective study to collect data of newly-diagnosed PWH from 2018 to 2023. Data were collected at diagnosis, at the first month of follow-up, and then every 3 months for 1 year. Since second-generation integrase strand-transfer inhibitor (INSTI)-based regimens have become the mainstream of ART in Taiwan after 2020, the PWH were categorized into Group A (diagnosed before January 1, 2020) and Group B (diagnosed on or after January 1, 2020). PWH who were previously on successful ART or enrolled for trial screening at diagnosis were excluded.

Results: A total of 464 PWH were included, of whom 88.9% (409/460) initiated cART within 7 days and 98.9% (447/452) achieved plasma viral load (PVL) <200 copies/mL within 1 year. Of them, 224 (48.3%) were categorized into Group A, while

240 (51.7%) were into Group B. Compared to Group A, PWH in Group B were older at diagnosis (median age, 33 vs 31 years), had lower median CD4 counts (215 vs 269 cells/mm³), had higher percentage with PVL >100,000 copies/mL (62.1% vs 46.6%), and were more likely to initiate second-generation INSTI-based regimens (98.3% vs 30.2%) (all p<0.05). PWH with AIDS were 37.1% in Group A and 46.7% in Group B (p=0.036). PWH initiated cART within 7 days after diagnosis were 82.4% in Group A and 95.0% in Group B (p<0.0001). PWH in 2 groups had a similar percentage reaching a 100-fold decline in PVL 1 month after cART initiation (97.1% vs 95.5%) and achieving PVL <200 copies/mL by the end of the first-year (98.6% vs 99.1%). The 1-year mortality rate of Group B was numerically higher (5.0% vs 2.4%, p=0.152). The non-survivors all had an initial CD4 count lower than 200 cells/mm³ and 93.8% presented with AIDS-defining illnesses.

Conclusions: Although the rapid initiation of cART and introduction of second-generation INSTI-based regimens achieved high rates of virologic response, the percentage of late presenters remained high, and the mortality rate was not reduced. Our findings highlight the urgent need to expand HIV screening efforts to improve early diagnosis of HIV infection.

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Chlamydia and Gonorrhea Infection Among Men in Southern China: Secondary Analysis of Data from a Clinical Trial

Liu Y¹, Li L¹, Marley G¹, Fitzpatrick T⁵, Tang W^{2,4}, Liu C², Wang R^{2,3}, Tucker J^{2,3}

¹UNC Project China, Guangzhou, China, ²University of North Carolina at Chapel Hill, , America, ³London School of Hygiene and Tropical Medicine, London, UK, ⁴Southern Medical University, Guangzhou, China, ⁵University of Washington, , America

Background: Chlamydia and gonorrhea are common sexually transmitted infections (STIs) among men in China, yet testing rates remain poor. This study examines correlates of chlamydia and gonorrhea among men participating in a randomized controlled trial (RCT) assessing a pay-it-forward intervention to increase STI test uptake.

Methods: We conducted a secondary analysis of data from an RCT assessing a pay-it-forward intervention. Participants received free STI testing and were invited to donate money or write encouraging messages to support testing for others. Eligible participants were aged ≥18 years, assigned male at birth, and had not tested for gonorrhea within the past 12 months. Men were recruited from public STI clinics and community-led STI clinics in Guangdong Province, China. A baseline questionnaire collected data on demographic characteristics, sexual behaviors, community engagement (six item scale), and gratitude. Gratitude was measured using ten items related to being thankful for free testing and being cared for by others. Participants provided oral, anal, and urine samples for gonorrhea and chlamydia PCR testing. Correlates of STI (chlamydia or gonorrhea) were identified using logistic regression, adjusted for age, site, prosocial behavior, and community engagement.

Result: Among the 760 men who received the intervention, the mean age was 36 years old and 50.9% were men who had sex with men. Most men had an annual income greater than \$8,280. The prevalence of chlamydia was 12% (93/763) and gonorrhea was 3% (23/763). Men at

community-led clinics had higher odds of an STI compared to men at public STI clinics (aOR: 2.09, 95% CI: 1.31-3.41). Men with higher gratitude had higher odds of an STI (aOR: 1.28, 95% CI: 1.01-1.64). We observed a trend towards men who donated either money or messages encouraging testing having a greater odds of STI (aOR: 1.56, 95% CI: 0.99-2.45).

Conclusion: Community-led clinics in China may have a higher burden of chlamydia and gonorrhea compared to public STI clinics. Men with a higher risk of STI could be more thankful for STI testing because of the greater perceived need to test. Further research is needed to better understand the relationship between gratitude, donations, and STI risk.

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Prevalence of Sexually-Transmitted Infections and Linkage-to-Care Rates in a Southeast Asian Transgender Cohort Study

Payuha T¹, Janamnuysook R^{1,2}, Pumphosuwat P¹, Suriwong S¹, Tasomboon W¹, Saiwaew S³, Pagtakhan R⁴, Le T⁵, Phanuphak N^{1,2}, Sangpasert T³, Mongkol K³, Ruanto J⁴, Black Z⁴, Tran M⁵, Lu T⁵, Samitpol K^{1,2}, Amatsombat T¹, Ramautarsing R¹, Ross J⁶

¹Institute of HIV Research and Innovation (IHRI), Bangkok, Thailand, ²Chulalongkorn University, Center for Excellence in Transgender Health (CETH), Bangkok, Thailand, ³Rainbow Sky Association of Thailand (RSAT), Bangkok, Thailand, ⁴LoveYourself Inc., Mandaluyong, the Philippines, ⁵Glink Vietnam Social Enterprise Company Limited, Ho Chi Minh City, Vietnam, ⁶The Foundation for AIDS Research, amfAR's TREAT Asia, Bangkok, Thailand

Background: Transgender persons in Asia experience a disproportionate burden of HIV and sexually-transmitted infections (STIs), and their access to related healthcare services are limited. We established Asia's first prospective observational transgender cohort study to assess HIV, STI and other health risks and impacts.

Methods: Between December 2022 to October 2024, transgender persons aged ≥18 years were enrolled as they attended the Rainbow Sky Association of Thailand and Tangerine Clinic in Thailand, Glink in Vietnam, and Victoria by LoveYourself in the Philippines. Six-monthly study visits were conducted, which included HIV testing and STI screening. Multi-compartment chlamydia (CT) and gonorrhea (NG) testing were performed using self-collected pooled specimens, and syphilis and viral hepatitis C (HCV) testing conducted using blood specimens collected at each study visit. STI treatments were documented according to each setting's standard of care. Data were analyzed using Stata.

Results: Of 415 transgender persons enrolled by October 2024, median (interquartile range, IQR) age was 28 (23-33) years, 92% (n=381) were transgender women, 7% (n=31) transgender men, and 1% (n=3) non-binary. Overall, 29% (n=121)

were living with HIV, 35% (n=145) were on PrEP, and 36% (n=149) did not use PrEP. The prevalence of any baseline STI among these was 39% (n=47), 22% (n=32), and 14% (n=21) respectively. At baseline visit, 100 (24%) had at least one STI. Prevalence of CT was 15% (n=61) NG 8% (n=33), syphilis 9% (n=36), and HCV 1% (n=3). Linkage-to-care rate for CT was 64% (39/61), NG 52% (17/33), syphilis 50% (18/36), and HCV 67% (2/3). Median (IQR) days to treatment initiation was 0 (0-4) for CT, 3 (0-7) for NG, 2 (0-6) for syphilis, and 50.5 (29-72) for HCV.

Conclusions: STIs were prevalent among our transgender cohort, with CT most prevalent, and the prevalence of any STI highest among those with HIV. We identified gaps in STI diagnosis, linkage and treatment initiation across all settings. Our findings highlight the need to explore and address barriers to STI diagnosis, linkage, and care for transgender communities in Southeast Asia.



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Prevalence and Factors Associated with Sexually Transmitted Infections Among Men Who Have Sex with Men from Pre-Exposure Prophylaxis Registry Program in Thailand

Inta C¹, Chottanapund S², Hinsheranan S¹, Ungcharoen R^{3,4}, Han W⁵, Teeraananchai S^{1,4}

¹Department of Statistics, Faculty of Science, Kasetsart University, Bangkok, Thailand, ²Bureau of AIDS and STIs, Department of Disease Control, Ministry of Public Health, Nonthaburi, Thailand, ³Faculty of Public Health, Kasetsart University Chalermphrakiat Sakon Nakhon Province Campus, Sakon Nakhon, Thailand, ⁴Master of Biomedical Data Science Program, Faculty of Science, Kasetsart University, Bangkok, Thailand, ⁵Kirby Institute, University of New South Wales, Sydney, Australia

Background: Sexually transmitted infections (STIs) remain a major public health concern among men who have sex with men (MSM), particularly those at high risk for HIV. Despite the expansion of HIV prevention programs, including pre-exposure prophylaxis (PrEP) under Universal Health Coverage (UHC) program in Thailand. This study aimed to examine the prevalence and factors associated with STIs among MSM enrolled in the PrEP registry within the UHC program.

Methods: This cross-sectional study included MSM aged ≥ 15 years who were enrolled in the PrEP registry and underwent STI testing between January 2020 and August 2024. STI diagnoses were categorized into syphilis and other STIs (gonorrhea, chlamydia, and chancroid) based on UHC program. We analyzed characteristics such as age at STI testing, testing frequency, prior PrEP use, substance use history, and hepatitis B (HBV) and hepatitis C (HCV) status. Multivariate logistic regression was used to estimate adjusted odds ratios (aOR) with 95% confidence intervals (CI) for factors associated with STIs.

Results: Among 24,606 MSM enrolled in the PrEP registry, 9% (n=1,974) were diagnosed with STIs, including 8% (n=1,911) with syphilis and 1% (n=63) with other STIs. The median age at STI testing was 28 years (IQR: 23–34), with the largest proportion in the 25–34 age group (46%). Most participants

(89%) were tested only once at enrolment, and 17% reported prior PrEP use. STI prevalence was highest among MSM aged 35–49 years (8.7%) and aged 20–24 years (8.6%). Those with prior PrEP use had a higher STI prevalence (9.7%) than those who had never used PrEP (7.7%). STI prevalence was 24.0% among MSM with HCV positive and 12.8% among those with HBV positive. In multivariate analysis for STIs, MSM aged 20–24 years (aOR 1.21, 95% CI: 1.08–1.36) and 35–49 years (aOR 1.14, 95% CI: 1.01–1.29) had significantly higher odds of STIs compared to those aged 25–34 years. MSM with prior PrEP use (aOR 1.27, 95% CI: 1.11–1.45) and those with HCV positive (aOR 3.16, 95% CI: 1.95–5.14) had significantly higher odds of STIs. For syphilis specifically, prevalence was highest among MSM aged 35–49 years (8.5%) and 20–24 years (8.3%). The syphilis prevalence among MSM with substance use was 17.5% and 9.6% in those who had prior PrEP users. In the multivariate analysis for syphilis alone, MSM aged 20–24 years had increased odds (aOR 1.19, 95% CI: 1.06–1.34) compared to those aged 25–34 years. MSM with prior PrEP use (aOR 1.30, 95% CI: 1.14–1.49) and those with HCV positivity (aOR 2.92, 95% CI: 1.77–4.82) had a higher risk of syphilis. Our findings indicate that HBV status was not associated with STIs or syphilis.

Conclusions: These findings highlight that MSM aged 20–24 years with prior PrEP use and HCV positive are at a higher risk for STIs, particularly syphilis. The results emphasize the need for targeted prevention efforts, expanded STI screening, and risk reduction strategies for high-risk MSM populations in Thailand.

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Prevalence and Predictors of Asymptomatic Chlamydia Trachomatis and Neisseria Gonorrhoeae Infections Among Well-Suppressed People with HIV in Thailand

Phonphithak S¹, Toomcharoen P¹, Amornritvanich P^{1,2}, Hiranburana N¹, Thammapiwan S¹, Lwin H¹, Nochaiwong T¹, Sophonphan J¹, Wongvoranet C¹, Avihingsanon A¹

¹The HIV Netherlands Australia Thailand Research Collaboration (HIV-NAT), the Thai Red Cross AIDS Research Centre, Bangkok, Thailand, Pathumwan, Thailand, ²Cardiovascular unit, Department of Internal Medicine, Police General Hospital, Bangkok, Thailand, Pathumwan, Thailand

Background: Sexually transmitted infections (STIs), particularly Chlamydia trachomatis (CT) and Neisseria gonorrhoeae (NG), remain a significant public health concern among people with HIV (PWH), especially among men who have sex with men (MSM) and transgender women (TGW). These infections can facilitate HIV transmission and worsen disease progression, highlighting the need for effective surveillance and intervention strategies. An increasing burden of asymptomatic rectal and pharyngeal infections in MSM and TGW further fuels ongoing STI transmission. This study aimed to establish the prevalence and factors associated with CT and NG infections among PWH in Thailand who do not exhibit STI symptoms.

Methods: A prospective longitudinal cohort study on STIs among PWH aged ≥18 years is ongoing at HIV-NAT, Thai Red Cross AIDS and Infectious Diseases Research Centre in Thailand. Follow-up testing for CT and NG continues to assess treatment outcome, relapse, and drug resistance. Asymptomatic PWH in the following categories were offered testing: young adults, MSM, and TGW. Participants provided first-void urine as well as self-collected oral, rectal and vaginal (for female) swabs for testing of NG and CT by polymerase chain reaction using the Cepheid GeneXpert CT/NG (Xpert) assay. Participants also completed a questionnaire. For this analysis, baseline data collection from January 2023 to January 2025 were utilized. Poisson regression

analysis was used to identify factors associated with CT, NG and dual CT/NG infections. Associations between predictors and the presence of CT, NG, and dual CT/NG co-infections are presented as incidence rate ratios (IRRs).

Results: A total of 657 participants were included in this analysis. The median age was 34.9 years (IQR: 28.7-42.6). The majority were MSM (78.1%), followed by cisgender males (9.7%), females (8.8%), and transgender individuals (3.3%). Almost 91.4% had a VL < 50 copies/mL, and the median duration of antiretroviral therapy was 3.9 years (IQR: 2.2-10.5). At baseline, the prevalence of CT, NG, and dual CT/NG infections were 12.2%, 6.8%, 16%, and 3%, respectively. Overall, 50.4% of participants had prior history of STIs, and 35.5% reported consistent condom use. Substance use was reported by 6.5% of participants, with 3.3% identified as people who inject drugs (PWID). In the multivariate analysis, factors associated with CT or NG infection included age ≤30 years P-value = 0.04 (adjusted incidence rate ratio [aIRR]: 1.90, 95%CI: 1.36-2.63), history of STIs (aIRR: 2.28, 95%CI: 1.58-3.28), and condom slippage (aIRR: 2.31, 95%CI: 1.25-4.26). Factors associated with dual CT/NG infection included age ≤30 years (aIRR: 2.35, 95% CI: 1.06-5.21) and PWID (aIRR: 3.34, 95% CI: 1.05-10.58).

Conclusion: In this cohort of well-suppressed PWH without STI symptoms in Thailand, we observed a substantial burden of CT and NG infections, particularly among younger individuals, those with a history of STIs, and those who experienced condom slippage or engaged in injection drug use. These results underscore the need for targeted interventions, including enhanced STI screening, Doxy PEP, partner treatment, and harm reduction programs. Future research should also address the limitations of this study, such as the self-reported data.

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Silent Infections, Loud Consequences: The Role of PCR in STI Diagnosis

Pipattaweepon T¹, Phanjaroen K¹, Srila-or I¹, Eiamyoung W¹, Leabchan T¹, Barisri S¹, Jomja P¹, Teptaseang W¹, Tantawichien T¹, Putcharoen O^{1,2,3}, Chumpa N³

¹Thai Red Cross Aids Research Centre (anonymous Clinic), Bangkok, Thailand, ²Chulalongkorn University, Division of Infectious Diseases, Department of Medicine, Bangkok, Thailand, ³Thai Red Cross Emerging Infectious Diseases Clinical Center, King Chulalongkorn Memorial Hospital, Bangkok, Thailand

Introduction: Sexually transmitted infections (STIs) often present with mild or nonspecific symptoms, making diagnosis challenging with conventional methods like Gram stain and culture. While clients with classic signs—such as purulent urethral discharge—can be diagnosed and treated promptly, those with atypical symptoms, such as dysuria without discharge, frequently receive empirical treatment. The introduction of multiplex polymerase chain reaction (PCR) has revolutionized STI diagnosis, enabling precise pathogen identification. This study evaluates the impact of PCR testing in detecting STIs among symptomatic clients at an anonymous clinic, particularly those who would have had difficulty diagnosing using traditional methods.

Methods: A retrospective analysis was conducted on clients who underwent multiplex PCR testing at the Anonymous Clinic, Thai Red Cross, from March to December 2024. The study focused on individuals with urogenital or anogenital symptoms that could not be diagnosed using standard laboratory tests. Clients were categorized into four groups: urethral syndrome, vaginal symptoms, anal symptoms, and anogenital ulcers. PCR was used to detect *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (NG), *Trichomonas vaginalis* (TV), *Treponema pallidum* (TP), Herpes simplex virus-1 (HSV-1), and Herpes simplex virus-2 (HSV-2).

Results: Among 526 symptomatic clients, 163 (30.99%) tested positive for at least one STI pathogen. The study population included 74 females (45.4%), 49 heterosexual males (30.1%),

and 40 men who have sex with men (MSM; 24.5%), with median ages of 28, 31.5, and 33.5 years, respectively. Among 85 cases with urethral syndrome, the most frequently detected pathogens were CT (36.5%), NG (16.5%), and MG (25.9%), with NG and HSV-1 being significantly associated with females compared to heterosexual males ($p = 0.04$ and $p = 0.013$, respectively). Among 72 cases with vaginal symptoms, CT (44.4%) and TP (22.2%) were the most prevalent, while in 19 MSM with anal symptoms, NG (31.6%) was the leading cause. Among 34 anogenital ulcer cases, HSV-2 was the most common (64.7%), and co-detection with TP occurred in 8.82%. Notably, females had a higher detection rate of treatable STIs (CT, NG, TP, and TV) compared to heterosexual males ($p < 0.05$), underscoring the importance of PCR testing in women, where clinical symptoms may be subtle or nonspecific. Coinfections were found in 26.4% of cases, with CT+NG (7.4%) being the most common combination. The highest number of co-detected pathogens in a single case was four (CT+NG+TP+HSV-1) in a vaginal symptom case.

Conclusion: Nearly one-third of symptomatic clients with unclear clinical diagnoses harbored at least one STI pathogen, with CT and MG being among the most common infections—both of which are undetectable by routine microscopy. Notably, treatable STIs were detected more frequently in females than in heterosexual males, reinforcing the need for routine PCR testing, particularly in women who may lack overt symptoms. The findings highlight the crucial role of multiplex PCR in detecting STIs that may otherwise be missed, allowing for more accurate diagnosis and targeted treatment. Despite its clinical advantages, barriers such as cost and limited availability remain challenges for widespread implementation. Expanding PCR testing could significantly enhance STI management, reduce unnecessary antibiotic use, and prevent complications.

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Time to Lost to Follow-up and Associated Factors Among Women with HIV in a General Hospital in Bandung, Indonesia

Raya R³, Hanum N^{1,2}, Suryati E⁴, Ismawati E⁴, Nugraha O⁴, Samsudin H⁴

¹Pharmacology and Clinical Pharmacy – School of Pharmacy, Bandung Institute of Technology, Bandung, Indonesia,

²Biosciences and Biotechnology Research Center, Bandung Institute of Technology, Bandung, Indonesia, ³Faculty of Health Sciences - Aisyiyah University Bandung, Bandung, Indonesia,

⁴Bandung City Regional Hospital, Bandung, Indonesia

Background: In Indonesia, women of reproductive age account for 40% of new HIV cases each year, and housewives account for 35% of case transmission, which is greater than HIV cases in other high-risk groups. Due to the danger of loss to follow-up (LTFU) and mother-to-child transmission during pregnancy, women with HIV require extra care, while data from Indonesia is lacking. The purpose of this study is to evaluate time to LTFU and its predictors among women with HIV patients at Bandung General Hospital, Indonesia.

Methods: A retrospective cohort study using electronic health records was conducted at Bandung General Hospital. Adult women with HIV patients who started ART from 2006 until 2023 were included. We assessed the profile of the women patients and calculated the rates of LTFU during follow-up (defined as failing to return for treatment consultation for three consecutive months, without no evidence of transferring care). Age-adjusted Cox proportional hazard models were used to identify factors linked to LTFU after starting ART.

Results: In total, 144 patients were included in this historical cohort (median age when starting ART 28 [interquartile range, IQR 24 – 32], 78% were housewives, 74% had high-school diplomas, and 95% began ART within one month after HIV diagnoses). 38 women (25.5%) were LTFU, with a median time to LTFU of 10.5 months (IQR 3-21). The incidence density of LTFU was 6.27 per 100 PYs (95% confidence interval [CI] 4.47 – 8.51). Among those LTFU, all (100%) had an injection drugs history and did not have a university degree,

while none of them were married nor pregnant at the last visit before LTFU. Predictors of subsequent LTFU were: younger than 25 years (hazard ratio, HR 2.28, 95% CI 1.21 – 4.33 versus 25 years and older, $p=0.011$), more recent calendar year when starting ART (age-adjusted hazard ratio, aHR 1.08, 95% CI 1.01 – 1.16, $p=0.028$), especially among those who started ART between 2011 and 2020 versus 2010 and before (aHR 3.15, 95%CI 1.00 – 10.39), early clinical stage of HIV (aHR for clinical stage 4: 0.25, 95% CI 0.09 – 0.66 versus clinical stage 1, $p=0.014$), and ARV based regimen (patients who received efavirenz-based therapy were more likely than those who received nevirapine or dolutegravir based therapy to be LTFU, aHR 13.12, 95% CI 1.80 – 96.32, $p=0.01$).

Conclusion: Our results identified risk factors for LTFU in women that need immediate attention from medical professionals. There is an urgent need for tailored interventions for women who were more likely to be LTFU. Knowing these correlates can help determine the timing to provide more support for care retention.

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The Role of Community-Based Organizations in Kazakhstan's HIV Testing

Raushanbek A¹, Kubatova A, Stankevitz K, Fischer Walker C, Mambetov T, Rsaldinova A, Samoylova O, Kassymbekova S

¹Fhi360, Almaty, Kazakhstan

Background: HIV case finding and linkage to treatment are key challenges in Kazakhstan's HIV response. Community-based organizations (CBOs) are working closely with local communities to improve detection and support HIV efforts. The Meeting Targets and Maintaining Epidemic Control (EpiC) project in Kazakhstan, funded by USAID and PEPFAR, supports epidemic control through innovative testing approaches. EpiC supports CBOs to provide HIV testing and treatment in a stigma-free environment, critical for serving key populations. We sought to determine whether there are differences in the client populations served by CBOs vs. facilities for HIV testing in the Pavlodar and East Kazakhstan oblasts.

Methods: Using electronic databases of EpiC and the Kazakh Scientific Center for Dermatology and Infectious Diseases, we abstracted sociodemographic data, HIV risk characteristics, and HIV testing location for all adult clients diagnosed with HIV between October 1, 2020, and May 31, 2024. Using descriptive statistics and logistic regression modeling, we characterized clients by HIV testing location, using adjusted odds ratios (aORs) to quantify differences.

Results: In total, 2,971 people were diagnosed with HIV during the analysis period, with 674 clients (22.7%) diagnosed at CBOs. There was no difference in gender distribution between CBOs and facilities. In the multivariate model, we found EpiC CBO sites were more likely to reach people who identified as belonging to key populations (aOR=1.56, 95% CI: 1.13–2.16, p=0.007), reported sexual contact with an HIV-positive person (aOR=1.53, 95% CI: 1.27–1.85, p<0.001), or reported drug use in the last 12 months (aOR=1.49, 95% CI: 1.06–2.08, p=0.02). Clients seeking care at CBOs were less likely to be employed (OR 0.64, 95% CI: 0.53–0.79, p<0.001)

and less likely to have tested for HIV in the past (aOR=0.86, 95% CI: 0.74–0.99, p=0.04). After testing positive, CBO-supported clients were more likely to start treatment (aOR=2.99, 95% CI: 1.99–4.49, p<0.001).

Conclusions: CBOs may be able to identify clients with risk profiles different from those identified by health facilities. As countries work toward closing critical HIV testing and treatment gaps, collaboration with local CBOs may be important in reaching those who might not be reached by traditional facilities.

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HIV Seroconversion Among Key Populations in Jakarta, Indonesia: A Secondary Data Analysis of Routine Program Data up to 12 Months After Initial HIV Testing

Putro B¹, Sulami S¹, Safitri E², Ferradini L¹, Francis C¹, Aditya E¹

¹FHI360, Jakarta, Indonesia, ²Jakarta Provincial Health Office, Jakarta, Indonesia

Background: Key populations (KPs), including men who have sex with men (MSM), sex workers (SWs), people who inject drugs (PWID), and transgender individuals, are disproportionately affected by HIV. Understanding HIV seroconversion in these groups is crucial to better target prevention strategies. This analysis aimed to assess HIV seroconversion among KPs up to 12 months after their initial HIV tests in Jakarta, Indonesia.

Methods: A secondary data analysis was conducted using routine program data from 48 HIV testing sites supported by the PEPFAR and USAID-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project in Jakarta, covering the period from October 1, 2023, to September 30, 2024. Clients from KPs who initially tested HIV-negative between October 1 and December 31, 2023, and who then returned for repeat HIV testing by September 30, 2024, were identified and included in this analysis. HIV incidence rates were calculated using the mid-P exact test.

Results: A total of 5,596 clients were included in the analysis, comprising 3,309 MSM (59.1%), 1,833 SWs (32.7%), 258 PWID (4.6%), and 196 transgender individuals (3.5%). Among them, 35.6% (1,991 out of 5,596) were retested within 12 months. A total of 60 HIV seroconversions were recorded among a total of 1,991 retested clients. Specifically, 56 (93.3%) of the seroconversions were MSM, one (1.7%) was a transgender individual, and three (5.0%) were SWs. The overall HIV incidence rate was 5.02 per 100 person-years (95% CI: 3.86–6.42). The highest incidence rates were observed among MSM (6.93 per 100 person-years, 95% CI: 5.29–8.93), followed by transgender

individuals (1.31 per 100 person-years, 95% CI: 0.06–6.48) and SWs (1.06 per 100 person-years, 95% CI: 0.27–2.89).

Conclusions: This study revealed substantial HIV seroconversion among KPs, especially MSM, within 12 months after initial testing in Jakarta, Indonesia. The findings underscore the need for more intensive, tailored HIV prevention interventions for KPs, especially MSM, including increased access to pre-exposure prophylaxis, newly developed long-term strategies, and behavior interventions, in addition to regular HIV testing and linkage to essential prevention services.

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Changing HIV Epidemiology in Men Who Have Sex with Men – Comparison Between Community-Based Surveys in 2017 and 2022 in Hong Kong

Wong N¹, Yip L², Wong B², To K², Lee S¹

¹The Chinese University of Hong Kong, Hong Kong, China,

²Department of Health of Hong Kong Special Administrative Region Government, Hong Kong, China

Background: Hong Kong has recorded a consecutive 7 years' drop in annual MSM HIV diagnoses since the peak in 2017. While HIV case-reporting is an important part of epidemiologic surveillance, the lag effect between infection and diagnosis may affect epidemic interpretation from the results. Community-based study with HIV testing could complement conventional surveillance, especially for men-who-have-sex-with-men (MSM) community. In this study, we compared surveillance results over time to understand the declining epidemic.

Materials and Methods: Two cross-sectional community-based studies (PRiSMTG) were conducted by Department of Health in Hong Kong in 2017 and 2022, where MSM were recruited through the Internet, social media, gay apps, non-governmental organisations, and venues frequented by them. They were invited to complete a self-administered e-survey, with submission of urine sample for HIV testing. MSM who reported anal sex in the past 6-month were included for analysis. Their characteristics between 2017 and 2022 were compared in bivariable logistic regression.

Results: In analysis, 3027 and 1477 MSM respondents in 2017 and 2022, respectively, were included. Comparing with 2017, MSM in 2022 were older (OR=1.02, 95%CI=1.01-1.03), reported higher monthly frequency of anal sex with casual sex partners in the past 6 months (OR=1.17, 95%CI=1.14-1.19), and more sexually transmitted infections in the past 12 months (OR=5.24, 95%CI=4.49-6.11). Respondents in 2022 were more likely to report HIV testing within the past 1-year (OR=1.28, 95%CI=1.12-1.45) and PrEP

initiation (OR=8.51, 95%CI=6.73-10.76). The adjusted HIV prevalence was 6.5% in 2017 and 6.7% in 2022. During this period, the cascade of HIV care among MSM with HIV showed an increase in HIV status awareness from 79% to 94%, and ART coverage from 79% to 81% respectively. There was significant increase on awareness (OR=4.39, 95%CI=1.66-11.64), but no significant change on the ART coverage.

Conclusion: A significant improvement in the care cascade achieving Treatment-as-Prevention (TasP) and expanded PrEP coverage might have contributed to the consecutive decline in HIV diagnosis and stable HIV prevalence over a 5-year period among MSM.

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Assessment of Oral Environment and Oral Function in HIV-Negative and HIV-Positive Hemophilia People

Shintani T¹, Okada M², Kawagoe M², Iwata T³, Yamasaki N⁴, Kajiya M¹, Fujii T⁴, Shiba H⁵

¹Center of Oral Clinical Examination, Hiroshima University Hospital, Hiroshima, Japan, ²Division of Dental Hygiene, Department of Clinical Practice and Support, Hiroshima University Hospital, Hiroshima, Japan, ³Department of Periodontal Medicine, Graduate School of Biomedical & Sciences, Hiroshima University, Hiroshima, Japan, ⁴Division of Transfusion Medicine, Hiroshima University Hospital, Hiroshima, Japan, ⁵Department of Biological Endodontics, Graduate School of Biomedical and Health Sciences, Hiroshima University, Hiroshima, Japan

Background: Since people with hemophilia (PWH) have prolonged bleeding and hemostasis difficulties after tooth brushing and tooth extraction, it can be inferred that the incidence of dental diseases is higher in people with hemophilia than in those without hemophilia due to problems such as inadequate self-care and failure to visit the dentist. Hiroshima University Hospital is a hemophilia treatment center in Chugoku-Shikoku region certified by the Japanese Society of Thrombosis and Haemostasis. It has provided specialized and comprehensive medical care by a multidisciplinary team to PWH as well as HIV-positive individuals. We have reported that the oral environment of HIV-positive individuals is worse than that of healthy individuals and that there is a positive correlation between the CD4 count before the start of initial periodontal therapy and its therapeutic effect in HIV-positive individuals (AIDS Care, 2020 and J. Clin. Periodontol. 2023). In the present study, we first evaluated the oral environment and oral function of PWH. Then we compared the oral environment of HIV-negative PWH with that of HIV-positive PWH.

Subjects and Methods: Subjects were 29 PWH (median [interquartile range]: 45 [37-53] years) who had visited our hospital from 2022 to the present (Ethics Review Committee of Hiroshima University for Epidemiological Research, Approval No.: E-4241). Twenty-four subjects had hemophilia

A and 5 had hemophilia B. There were 24, 3, and 2 subjects with severe, moderate, and mild disease, respectively. Their oral environments were evaluated by PISA (Periodontal Inflammatory Surface Area). Oral function was evaluated by the oral function tests required for the diagnosis of oral hypofunction (tongue coating rate, oral bacterial count, oral dryness, occlusal force, tongue-lip motor function, tongue pressure, masticatory function, and swallowing function; oral hypofunction is diagnosed when three or more items are poor or decreased).

Results: Of the 29 subjects studied, five were diagnosed with oral hypofunction based on the oral function tests. There was no significant difference in PISA between the oral hypofunctional group (156.0 [86.5-423.0] mm², n=5) and the non-hypofunctional group (116.0 [31.5-406.0] mm², n=24). The PISA of HIV-positive PWH (49.0 [14.0-142.8] mm², n=28) was significantly lower than that of HIV-negative PWH (p=0.04; 243.0 [86.0-458.5] mm², n=21). However, there were no significant differences in the results of oral function test between the two groups.

Discussion: This study demonstrates for the first time an association between the oral environment and function in PWH. Most PWH have a favorable oral environment and unimpaired oral function. Periodontitis is an infectious disease in which periodontal tissue destruction is induced by the interaction between periodontopathogenic bacteria and host cells. The reason for the significant difference in PISA between HIV-positive and negative PWH is still unknown, but it is speculated to be related to the decreased immune response due to HIV and the secondary effect of ART. We intend to increase the number of cases and determine the reason.

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Men Who Have Sex with Men as Primary Drivers of the HIV Epidemic in Mongolia: Insights from a Recent AIDS Epidemic Modeling Analysis

Zayasaikhan S¹, Peerapatanapokin W³, Ser-Od E¹, Enkhbat E², Chinsuren U², Davaalkham J², Chultemsuren B¹

¹Youth For Health Center NGO, Ulaanbaatar, Mongolia,

²AIDS/STI Surveillance and Research Department, National Center for Communicable Disease, Ulaanbaatar, Mongolia,

³East-West Center, , United States

Background: Key stakeholders involved in Mongolia's national HIV response collaborated for the second time to conduct AIDS Epidemic Modeling (AEM) analysis. The aim was to estimate the current epidemic situation, project future trends, and identify priority areas. A notable update in this round of AEM was the separate consideration of a previously grouped population—transgender women—who were previously categorized under men who have sex with men. This distinction was made possible by newly available behavioral and prevalence data on transgender women.

Methods: Two 5-day workshops were held in March and November 2024. AEM tools were used to estimate the annual total number of people living with HIV, new infections, AIDS-related deaths, and resource needs. These tools included the AEM baseline, AEM intervention, and AEM impact analysis tools. Data for the analysis were gathered from over 20 relevant national surveys, studies, demonstration projects, and program datasets.

Results: The prevention program for men who have sex with men (MSM) had the highest impact, potentially reducing new infections by 50% by 2030 (from 50 new infections in the baseline scenario to 27 in the MSM program scale-up scenario) by increasing program coverage to 95%. However, this scale-up would require the highest resource investment (\$1,119,000 USD). Although transgender women represent a smaller population, they have an impact on reducing new infections, showing greater effect than female sex

workers (new infections in female sex workers program scale-up scenario = 50, new infections in transgender women program scale-up scenario = 46). The resource analysis suggests that achieving this impact would require an additional \$23,000 USD. While the female sex workers' prevention program has a relatively smaller impact on the epidemic, it would need an additional budget of \$142,000 USD. Past impact analyses indicate that the HIV and AIDS prevention programs have helped avert over 18,000 new infections and 4,500 AIDS-related deaths since 1998. However, without prevention programs, new infections could increase up to 12 times the baseline estimate by 2050.

Conclusions: Men who have sex with men remain the primary drivers of the HIV epidemic in Mongolia. As HIV prevention programs for key populations rely heavily on external donor support, there is a significant risk of rising HIV prevalence if government funding for community-led services, outreach, and prevention programs is not secured. Given the small population size of transgender women in Mongolia, tailored and specific prevention programs should be designed to meet their unique needs, contributing to better outcomes and helping to achieve the target of ending AIDS.

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The Origin of HIV-1 CRF07_BC in Haikou City, South China, 2023-2024

Chen X¹

¹Hainan Medical University, Haikou, 中国

Background: Hainan Province, a Free Trade Port in China, experiences frequent international exchanges. Haikou City serves as the epicenter of the HIV epidemic in Hainan Province. CRF07_BC is the dominant strain of HIV-1 in Haikou City. However, the origins of this strain within the region remain unclear. This study aims to investigate the origin of the HIV-1 CRF07_BC strain in Haikou City.

Method: In this study, 166 with HIV-1 CRF07_BC were recruited, and pol region gene sequences were obtained. Field epidemiological investigation, molecular network analysis and phylogenetic analysis were conducted to investigate the origin and status of HIV-1 CRF07_BC in Haikou.

Result: Of the HIV-1-infected patients, 96.99% were male, with men who have sex with men (MSM) accounting for 70.48% of cases, representing the predominant transmission route. Demographic analysis indicated a concentrated age distribution, with 43.98% of cases occurring among individuals aged 31-40 years, and 64.8% of these cases reported as unmarried. Among the 166 sequences analyzed and the 1,989 sequences after 1:30 BLAST matching, 77 clusters were identified, of which 37.66% originated from Hainan. Molecular transmission network analysis revealed that MSM was the primary transmission group, with a node density exceeding 50%. The time to the most recent common ancestor (tMRCA) for the early HIV-1 CRF07_BC circulating in Haikou was estimated to be 2001.39 [1998.85, 2003.24]. In 2009, this strain was introduced into Haikou by the MSM population from Guangdong Province. Bayesian analysis demonstrated that exogenous introductions to Haikou were primarily from Anhui and Shanghai (Bayes factor = 70.21), followed by the establishment of sustained indigenous transmission networks within Hainan Island.

Conclusion: Our findings reflect the intricate evolution and transmission dynamics of HIV-1 CRF07_BC in Haikou City, providing crucial insights for designing effective prevention measures against HIV transmission.

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Emerging Epidemic of the Predominant Clusters of FC428-like *Neisseria Gonorrhoeae* in Guangdong, China

Qin X^{1,2,3}, Chen W^{1,2,3}, Zheng H^{1,2,3}

¹Dermatology Hospital, Southern Medical University, Guangzhou, China, ²Guangzhou Key Laboratory for Sexually Transmitted Diseases Control, Guangzhou, China, ³Institute for global health, Southern Medical University, Guangzhou, China

Background: The sustained increase in the prevalence of resistant *Neisseria gonorrhoeae* strains, particularly the widespread spread of cephalosporin-resistant FC428 or FC428-like clones, poses significant challenges for controlling gonorrhea. This study aimed to investigate the molecular characteristics of predominant epidemic clusters of FC428-like *N. gonorrhoeae* in Guangdong, China in 2022.

Methods: Minimum inhibitory concentrations were detected on *N. gonorrhoeae* isolates collected from the Guangdong Gonococcal Antimicrobial Surveillance Program. *N. gonorrhoeae* multiantigen sequence typing (NG-MAST), *N. gonorrhoeae* sequence typing for antimicrobial resistance (NG-STAR), multilocus sequence typing (MLST) sequence types (STs), and *penA* alleles were determined by whole-genome sequencing. The isolates were further characterized by phylogenetic analysis.

Results: A total of 537 *N. gonorrhoeae* isolates were analyzed. Among them, 11.2% were resistant to ceftriaxone, and 19.6% were resistant to cefixime. In western Guangdong, resistance to ceftriaxone and cefixime reached 17.3% and 26.9%, respectively. Molecular analysis revealed that 7.8% of the isolates carried *penA* 60.001, which was highly resistant to ceftriaxone (CRO; 88.1%) and cefixime (100.0%). The predominant STs in *penA* 60.001 isolates were MLST ST1903 (23, 54.8%), ST7365 (11, 26.2%), NG-STAR ST1143 (13, 31.0%), ST233 (4, 9.5%), ST1133 (4, 9.5%), and NG-MAST ST22261 (10, 23.8%). The most predominant types among CRO-resistant isolates are genetically closer to FC428 isolates, and differ from those among cefixime-resistant isolates. Phylogenetic

analysis revealed that the Guangdong FC428-like isolates from 2021 to 2022 spread across the whole phylogenetic tree, but the majority were clustered within a distinct evolutionary clade.

Conclusions: FC428-like isolates formed a unique evolutionary clade in Guangdong, exhibiting high levels of cephalosporin resistance. These findings suggest that national guidelines for gonorrhea treatment should be appropriately revised and adjusted. Focusing on the development of novel antimicrobials for gonorrhea is also warranted.

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Optimal Testing Frequency for Sexually Transmitted Infections Among Men Who Have Sex with Men and Transgender Women Who Use HIV Pre-Exposure Prophylaxis in Australia, Thailand and Brazil: A Cost-Effectiveness Analysis

Zhang L^{1, 11, 12}, Mello M², Gaspar P³, Miranda A⁴, Phanuphak N^{5,6}, Mayaud P⁷, Freitas A⁸, Bassichetto K⁹, Veras M¹⁰, McCartney D⁷, Sun J^{11,12}, Lai H¹, Ong J^{1,11,12,13}, Zhao R¹

¹China-Australia Joint Research Center for Infectious Diseases, School of Public Health, Xi'an Jiaotong University Health Science Center, Xian, China, ²Global HIV, Hepatitis and STI Programmes, World Health Organization, Geneva, Switzerland,

³Departamento de HIV/AIDS, Tuberculose, Hepatites Virais e Infecções Sexualmente Transmissíveis, Secretaria de Vigilância em Saúde e Ambiente, Ministério da Saúde, Brasília, Brazil,

⁴Departamento de Medicina Social, Universidade Federal do Espírito Santo, Espírito Santo, Brazil, ⁵Institute of HIV Research and Innovation, Bangkok, Thailand, ⁶Center of Excellence in Transgender Health, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ⁷Clinical Research Department, London School of Hygiene & Tropical Medicine, London, United Kingdom, ⁸Departamento de Infectologia e Medicina Tropical, Hospital das Clínicas HCFMUSP, Faculdade de Medicina, Universidade de São Paulo, São Paulo, Brazil, ⁹Faculty of Medical Sciences of Santa Casa de São Paulo, São Paulo, Brazil,

¹⁰Faculdade de Ciências Médicas da Santa Casa de São Paulo, São Paulo, Brazil, ¹¹School of Translational Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia, ¹²Melbourne Sexual Health Centre, Alfred Health, Melbourne, Australia, ¹³Faculty of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, London, United Kingdom

Background: PrEP is highly effective in preventing HIV, but not other STIs in MSM and TGW. PrEP users are offered periodic STI testing for early detection of STIs including CT, NG and syphilis. However, the optimal and most cost-effective frequency for STI testing in PrEP users has yet to be established.

Methods: We constructed dynamic transmission models and simulated the epidemic trajectories of three STIs (CT, NG and syphilis) among MSM/TGW using PrEP in Australia, Brazil and Thailand. Two

testing scenarios were considered: single pathogen testing for CT, NG or syphilis, and combined pathogens testing for all three STIs simultaneously. From a healthcare system perspective, cost-effectiveness analysis was used to explore the optimal testing strategy for STIs across three countries over a 5-year time horizon. The incremental cost-effectiveness ratio (ICER) and benefit-cost ratio (BCR) were calculated for each country.

Results: For Australian MSM, the optimal combined pathogens testing strategy was 6-monthly dual testing for CT/NG, along with 3-monthly syphilis testing (BCR=4.14, cost-saving). In contrast, for Brazilian MSM, the optimal strategy was annual dual testing for CT/NG, along with 3-monthly syphilis testing (BCR=35.50, cost-saving). Further, for Thai MSM, the optimal strategy was annual dual testing for CT/NG, along with 6-monthly syphilis testing (ICER=\$2,667/QALY gained). For Brazilian TGW, the optimal strategy was 3-monthly dual testing for CT/NG, along with 3-monthly syphilis testing (BCR=1.92, cost-saving). In comparison, for Thai TGW, the optimal strategy was annual dual testing for CT/NG, along with 3-monthly syphilis testing (ICER=\$2,402/QALY gained).

Conclusion: Our study suggests that more frequent syphilis testing for PrEP users (every 3 months) provides good value for money among both MSM and TGW in all three countries. However, less frequent CT and NG testing may be considered, depending on the country's background epidemic and the local costs associated with testing and management.

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Scaling Differentiated HIV Prevention: Lessons from the Sustained Health Initiatives of the Philippines (SHIP) Inc. “Cookbook: DSD Guide” as a Structural Intervention

De Castro M¹

¹Sustained Health Initiatives of the Philippines, Mandaluyong City, Philippines

Background: Differentiated Service Delivery (DSD) is a client-centered approach that simplifies and adapts HIV services based on the needs the clients while reducing burdens on the implementers. In the Philippines, service providers often follow traditional, less complex HIV prevention approaches due to limited flexibility, resource constraints, and operational challenges, hindering the adoption of scalable strategies that could optimize prevention outcomes. The Sustained Health Initiatives of the Philippines (SHIP), Inc. developed the Cookbook, a modular and scalable DSD Toolkit that allows customization of HIV prevention interventions while maintaining program integrity. Providing structured templates, decision-making tools, and implementation frameworks that enable interventions to be adjusted based on service provider capacity, population needs, and site-specific constraints.

Methods: The Cookbook functions as a structural intervention by enhancing HIV prevention through three key components:

Client-Centered Adaptability: The Cookbook provides customizable templates that help program planners select context-appropriate HIV prevention models based on available resources, risk profiles, and target populations. Its decision-making framework allows modifications while ensuring service quality.

Scalable and Modular Program Design: The framework enables implementers to scale interventions based on capacity rather than adhering to rigid models. Instead of requiring full intervention packages, implementers can integrate, adapt, or phase in different elements of an HIV prevention program.

Integration into Healthcare Systems: The Cookbook aligns with national HIV prevention policies and existing service delivery networks, reducing barriers to implementation. SHIP provides technical assistance, site visits, and standardized monitoring and evaluation (M&E) for continuous quality improvement.

Results: The Cookbook has been deployed across 17 regions, demonstrating its role as a scalable reference tool for HIV prevention.

The modular framework enabled project implementers with resource constraints to modify approaches rather than defaulting to traditional models that may be easier but less effective. The structured approach reduced provider burden by ensuring that prevention models were scalable, implementable within existing health systems, and adaptable without requiring extensive restructuring.

Limitations and Ongoing Review

Some prevention models require further integration into national policies to ensure institutional support, particularly for school-based HIV prevention.

The adaptability of the Cookbook relies on implementers' willingness and capacity to modify interventions, which varies across sites.

2024 implementation results are under review, and further data collection will assess long-term impact and scale-up potential.

Lessons Learned: A modular approach enhances scalability by allowing implementers to adapt interventions rather than defaulting to traditional models.

Structural interventions like the Cookbook bridge national HIV prevention strategies and local implementation, ensuring standardization without limiting flexibility.

The decision-making framework in the Cookbook increases feasibility in resource-constrained settings.

By reducing provider burden, modular frameworks facilitate the integration of scalable and adaptable HIV prevention strategies.

Conclusion: The SHIP Cookbook serves as a scalable DSD Toolkit, enabling implementers to modify, replicate, and sustain HIV prevention approaches across multiple regions. Its modular and adaptable design ensures client-centered interventions while reducing operational burdens. Future efforts should enhance integration into national policies, refine monitoring mechanisms, and expand capacity-building efforts to support further scale-up.

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Substance Use Behaviours Among Sexual and Gender Minorities (SGM) with a History of Adverse Childhood Experiences: A Systematic Review and Meta-Synthesis with Implications for HIV/STI Risk in Key Populations

Ong E¹, Nadu K^{1,2}, Howard N^{1,3}, Tan R¹

¹Saw Swee Hock School of Public Health, National University Of Singapore, Singapore, Singapore, ²Department of Psychological Medicine, National University Hospital, National University Health System, Singapore, Singapore, ³Department of Global Health and Development, London School of Hygiene & Tropical Medicine, London, United Kingdom

Background: Substance use, including sexualized drug use (chemsex), is a key driver of HIV transmissions and sexually transmitted infections (STI), with a disproportionate impact on sexual and gender minorities (SGM). SGM individuals often face unique stressors and systemic inequities that increase their vulnerability to substance use. Adverse childhood experiences (ACEs) are known to negatively impact behavioural and mental health outcomes, including substance use behaviours. Emerging research also suggests that trauma underpins problematic chemsex within SGM populations, potentially creating complex syndemics involving mental health challenges, substance misuse and increased HIV/STI risk. Despite this growing body of evidence, the specific associations between ACEs and diverse substance use outcomes in SGM adults remain unclear. This study investigated these associations, synthesizing quantitative and qualitative evidence to better understand the impact of ACEs on substance use patterns among SGM adults.

Methods: We searched six databases systematically (i.e. CINAHL, EMBASE, PubMed, PsycINFO, Scopus, Web of Science), from inception to 29 January 2024, using dedicated syntax and MESH terms for sexual and gender minorities, adverse childhood experiences, and substance use outcomes. Following Preferred Reporting Items for Systematic Reviews and Meta-analyses guidelines,

two authors independently double-screened title/abstracts and full texts, and extracted data from eligible sources comparing substance use outcomes in SGM adult populations with and without histories of ACEs. Given data heterogeneity, we transformed quantitative and qualitative data into qualitative narratives using meta-aggregation. The primary exposure of interest was any SGM history of ACEs. The primary outcome of interest was any SGM substance use.

Results: We included 21 eligible sources of 7,125 screened. Eighteen epidemiological studies (i.e. 14 [75%] analysing drug outcomes generally, 14 [70%] analysing alcohol outcomes, and 4 [20%] analysing tobacco/smoking outcomes) showed that regardless of SGM sub-group or substance measured, ACEs were associated with negative substance use outcomes. Furthermore, substance use outcomes among SGM adults were influenced by intersecting individual (i.e. life stage, racial identity, socioeconomic status, psychological stress) and structural (i.e. environment) characteristics. Three qualitative studies explored effects of oppression they experienced due to their SGM identity, which exacerbated stress that lead to coping through substance use. This oppression due to their SGM identity was also experienced in treatment seeking and failures in mental health services.

Conclusions and Implications: Our findings indicate that ACEs are strongly associated with negative substance use outcomes in SGM adults. Specifically, our findings highlight three critical areas for intervention to address syndemics of HIV/STI and substance use in key populations: 1) the need for early intervention targeting SGM persons experiencing ACEs before the age of 18; 2) the importance of trauma-informed care addressing ACEs within substance use treatment programs; and 3) person-centered care models that address intersectional challenges faced by SGM individuals, including experiences of discrimination, stigma and barriers to accessing appropriate health and social support services. By addressing both the psychosocial impacts of ACEs and specific substance use behaviours contributing to HIV/STI transmission risk, we can effectively reduce health disparities and improve the well-being of SGM individuals.

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Innovative Syringe-Needle Distribution in Dhaka: Integrating Secondary Channels for Enhanced Accessibility and Cost-Efficiency

Alam M¹

¹Save the Children in Bangladesh, Dhaka, Bangladesh

Background: Bangladesh has pioneered harm reduction program in South Asia, yet gaps remain in syringe-needle (SN) distribution, particularly in Dhaka. Traditional outreach by Peer Outreach Workers (POWs) is limited by their availability and mobility, resulting in People Who Inject Drugs (PWID) facing difficulties in accessing necessary services. Peer Outreach Workers (POWs) are not on field 24 hours. Besides, POW roams around the spots approximately two-square Kilometers area, so PWID can't find POW sometimes when necessary. This highlighted the need for a revised approach in SN distribution to bridge these service gaps.

Description: Under the Global Fund NFM3-grant in 2023, an innovative model was introduced in Dhaka, incorporating thirty-five depot holders (26 pharmacies, 9 ragpickers) and five syringe vending machines at strategic locations. This dual approach operates alongside conventional outreach. Depot holders distribute syringes during POWs' off-hours, receiving a nominal incentive for their participation. Additionally, vending machines provide 24/7 access to syringes. Efforts to ensure safe disposal, including drop-boxes and training for both depot holders and PWID, were implemented, with the PWID network playing a crucial role in monitoring and supporting this initiative.

Lessons Learned: • Syringe distribution per PWID increased from 265 to 315 units annually.

- Monthly reach to mother-listed PWID increased significantly from 67% to 93%.
- Approximately 75% of syringes distributed through depots were safely collected in drop-boxes.

- Local leaders and elites became active advocate of harm reduction program since they were engaged in the whole process (planning, implementation and monitoring).
- The cost of syringe distribution through secondary channels is significantly lower (USD 0.02 per syringe) compared to traditional methods (USD 0.10 per syringe).

Conclusions: The secondary distribution channels, encompassing both depots and vending machines, have proven to be a highly effective and cost-efficient method to bridge the service gap in hard-to-reach PWID populations. This model not only enhances accessibility but also demonstrates potential for global replication. While drop-out of POW remains a challenge, ongoing training and capacity building of new POWs can mitigate this issue, ensuring the sustainability and effectiveness of the program.

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Enhancing HIV Self-Testing Accessibility Among Young Populations Through a Campus-Based Program in Taiwan

Liu A¹, Huang H¹, Chiu C¹, Chan P¹

¹Taiwan Centers For Disease Control, Taipei, Taiwan

Over the past three years, more than 70% of newly reported HIV cases in Taiwan have been among young individuals aged 15–24 and 25–34. Financial barriers often prevent young people from accessing HIV testing and medical services. To address this issue, in collaboration with the Ministry of Education, we launched a campus-based HIV self-testing program aimed at improving accessibility. Students can register with their email addresses and verify their eligibility using an institutional email domain (edu.tw). Upon verification, they receive a voucher for a free self-test kit, which can be redeemed either through online ordering with pickup at convenience stores or at designated redemption sites. Each participant is eligible to receive a kit every three months.

Since the program's launch on November 1, 2022, and up to December 31, 2024, a total of 5,937 test kits have been requested, with 4,245 successfully redeemed. Additionally, 2,471 individuals completed a basic demographic questionnaire. Compared to individuals who accessed self-test kits through other channels, participants in the campus-based program exhibited distinct demographic characteristics: a higher proportion of females (19.5% vs. 10.9%, p -value < 0.0001), a higher proportion of self-identified bisexual individuals (19.1% vs. 11.7%, p -value < 0.0001), a lower average age (24.1 ± 5.9 vs. 32.0 ± 7.6 , p -value < 0.0001), and a higher proportion residing in the eastern region of Taiwan (2.9% vs. 1.6%, p -value < 0.0001).

A behavioral questionnaire was completed by 1,249 individuals, revealing notable differences in testing behaviors. Compared to other distribution channels, campus-based participants were more likely to be first-time testers (44.4% vs. 22.2%, p -value < 0.0001). They were less likely to have

engaged in sexual activity in the past year (87.4% vs. 92.7%, p -value < 0.0001). However, they had a higher proportion of regular sexual partners (40.1% vs. 33.5%, p -value < 0.0001) and a lower incidence of sexually transmitted infections in the past year (4.4% vs. 6.1%, p -value = 0.02). About the self-reported initial positive results (0.5% vs. 0.4%, p -value = 0.95), condom usage during intercourse (25.9% vs. 28.2%, p -value = 0.11), and other risk behaviors, such as alcohol or substance use, did not show statistically significant differences between groups.

These findings indicate that the campus-based HIV self-testing program effectively enhances testing accessibility for sexual minorities, young individuals, and those in remote areas. Given its potential to improve early detection and intervention efforts, the initiative should be continuously promoted and expanded.

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Factors Associated with Primary Care Providers' Recommendation of HPV Vaccination for Adolescent Males in China: A Mixed-Methods Study

Li M¹, Wu D¹

¹Department of Social Medicine and Health Education & National Vaccine Innovation Platform, Nanjing, China

Background: Although China approved the quadrivalent HPV vaccine (Gardasil) for males aged 9-26 in January 2025, vaccination remains self-funded and excluded from the National Immunization Program, with extremely low uptake rates among eligible males. Primary care providers' (PCPs) recommendation is an important driver for increasing vaccine uptake but understanding of PCPs' recommendation of HPV vaccine for male adolescents in China is limited. This study examined multidimensional factors associated with PCPs' recommendation of HPV vaccine for male adolescents, aiming to inform future HPV vaccination programs targeting male adolescents in China.

Methods: A sequential explanatory mixed-methods was used. In the quantitative phase, we conducted an online survey with PCPs in Eastern China. Multivariable logistic regression analysis identified individual, interpersonal, community, organizational, and policy factors associated with their recommendation of HPV vaccines for male adolescents. Specialty, job title, and income were adjusted as potential confounding factors. The qualitative phase involved thematic analysis to explore these findings further.

Results: Among the 605 PCPs recruited, only 16.4% recommended HPV vaccines to male adolescents in the past 12 months. Multivariable logistic regression analysis showed that institutional support for HPV vaccination policies for male adolescents (AOR = 3.05, 95% CI: 1.65-5.64), frequent institutional vaccine promotion activities (AOR = 1.82, 95% CI: 1.12-2.96), and institutional incentives for vaccine promotion (AOR = 2.12, 95% CI: 1.18-3.83) were associated with their

recommendation behaviors. Additionally, those who perceived a community norm that HPV vaccines are only for females were less likely to recommend HPV vaccines to boys (AOR = 0.54, 95% CI: 0.33- 0.87). Qualitative research further explained these findings, highlighting the role of organizational factors in PCPs' recommendation of HPV vaccination for male adolescents.

Conclusions: A low proportion of PCPs recently recommended HPV vaccines to adolescent males. Organizational-level factors were found to be significantly associated with their recommendation behaviors, and these may help inform future vaccination programs targeting adolescent males.

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Enhancing the Role of Youth in HIV Prevention in a University Context: Development Journey of a Chinese University HIV Prevention Association

Wang Y¹, Sun Y¹, Zha Y¹, Lu K¹, Mao X¹, Wu D¹

¹School of Public Health, Nanjing Medical University, Nanjing, China

Background: In 2023, China reported 3,010 new HIV cases among youth aged 15-24. To meet UNAIDS' 2030 goal of ending the HIV pandemic, more effective interventions for youth populations are needed. Youth-driven campaigns and activities are promising solutions. Student unions in universities play a crucial role in both HIV prevention and reducing stigma among university students. This abstract describes the development of a youth-led HIV prevention association at a Chinese university.

Description: Established in 2004 as the first youth-led HIV prevention association in Jiangsu Province, the Red Ribbon Peer Association at Nanjing Medical University has implemented youth-focused campaigns for two decades. Supported by official institutions (e.g., Jiangsu CDC and Family Planning Association) and supervised by university administrative counselors and scientific researchers, the association empowers young people to lead diverse HIV prevention campaigns, including peer education, debates, forums, interactive games, and summer school activities, which aim to disseminate HIV knowledge, provide accessible HIV prevention measures, and reduce stigma. Additionally, to enhance intervention sustainability and engagement, digital outreach is implemented such as e-posters about sexual health.

Lessons learned: By enhancing youth leadership in HIV intervention campaigns, the association managed to maintain high levels of vitality and influence. Over the past twenty years, we have conducted more than 500 activities, with more than 100,000 participants, and have received financial support from UNAIDS, the China Family Planning Association, the Chinese Association for

the Prevention of STDs and HIV/AIDS and other institutions, totaling more than 300,000 RMB for HIV and sexual health promotion. Through our activities, the number of HIV infections in our university has declined each year, and in 2024, there are no new HIV infections. Key experience includes:

1. Prioritizing student leadership in campaign design and implementation fosters motivation and creativity, yielding strategies aligned with youth behavioral and psychological needs. This approach outperforms traditional expert- or leader-driven, top-down instructing models in engagement and effectiveness.
2. Leveraging online platforms to make HIV interventions more accessible and sustainable. E-calendars featuring safe sex guidance and stigma reduction content were designed and posted online 2-3 times per week by young students. This student-centered approach enabled them to select topics and styles that resonate with their interests and each calendar was viewed over 1,300 times on average.
3. Actively seeking support from schools, universities, and health institutions to secure stable and sufficient funding for the association's running. Maintaining good relationships with the above institutions contributes to deeper cooperation, such as joint scientific research and large-scale initiatives.
4. Comprehensive sex education towards students aged 10-24 in the forms of peer education, lecture, sitcom stimulation, interactive games and open call, which is conducted on average 2 times per week. Topics like HIV and other sexually transmitted diseases prevention, the LGBTQ+ community, sex education for adolescents, and against sexual violence.

Conclusions/Next steps: Further monitoring and evaluation of the effects of the youth-led model on sexual health outcomes are needed and opportunities to scale up these activities among other universities are worth exploration.

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An Effective HIV/HBV/HCV/STIs Prevention Model to Impact Policy Consensus for 100% of Prisons in Vietnam

Thanh Binh K¹, Thu Hang N¹, Van Giang L²

¹Aids Healthcare Foundation In Vietnam, Ha Noi, Viet Nam,

²Department of prison management, Ministry of Public Security, Ha Noi, Vietnam

Background: Prisoners in prisons in Vietnam have a high prevalence of HIV/HBV/HCV and STIs, it is around 8-10%. Screening, diagnosis and treatment of HIV/HBV/HCV/STIs is a huge gap in prisons in Vietnam when all resources are limited and especially prevention services and especially the use of condoms in prison is illegal.

Method: AHF Vietnam is piloting HIV/HBV/HCV/STI prevention interventions through condom provision in “happy rooms” in 25 out of 60 prisons managed by the Ministry of Public Security as part of a comprehensive package to help improve HIV/AIDS prevention, care and treatment in prisons. Together with provincial CDCs, provide and support training for prison health workers to build capacity in HIV/AIDS clinical management and monitoring & evaluation through focused training, regular on-site training or on-site support visits as well as remote monitoring.

Results: The condom program has distributed more than 100,000 condoms to 25 prisons/year. Condoms are placed in an “happiness room”, where prisoners will meet with their spouses. we have the clear results when no new cases of HIV/STIs were detected among prisoners serving sentences of 1 year or more through HIV/STIs screening for prisoners. it is noteworthy that none of their sexual partners or spouses were infected with HIV or other STIs, meanwhile the HIV prevalence rate is around 2.4%, . The good news is that after the pilot intervention ended, we have applied the distribution of condoms in 60 prisons nationwide.

Conclusion: The good results of pilot program will create the agreement of Leadership, commitment,

and involvement of the leaders of AHF partners at levels created opportunities to improve prisoners' health care. Flexibility of AHF support facilitates smooth operation of the collaboration project.

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Telehealth Abortion Services as a Gateway to HIV Self-Testing and Depression Screening Among Women Accessing Reproductive Healthcare in Bangkok, Thailand

Boonruang J¹, Thitipatarakorn S¹, Tangcharoensathien S¹, Jiwjinda M¹, Ramautarsing R¹, Surisarn O¹, Rojsangsikul C¹, Sinchai K¹, Uraiwatana S²

¹Institute of HIV Research and Innovation, Bangkok, Thailand,

²AIDS Access Foundation, Bangkok, Thailand

Issues: Women in Asia and the Pacific have not been considered a key population, yet Thailand has observed a steep rise in syphilis cases among women receiving antenatal care, highlighting their risk of sexually transmitted infections (STIs) and HIV acquisition. Women without antenatal care, particularly those with unwanted pregnancies, face even greater vulnerability due to limited healthcare access. Legalization of abortion in Thailand in 2021 created an enabling environment. Therefore, Pribta clinic, a sexual health clinic in Bangkok, Thailand, initiated a telehealth abortion service with AIDS Access Foundation in 2023. This service offers abortion consultation, medical abortion using Mifepristone and Misoprostol, violence assessment, HIV self-testing, Pre-Exposure Prophylaxis (PrEP) initiation, chlamydia, and gonorrhoea (CT/NG) self-collection, contraceptive options including condoms and combined oral contraceptives (COC), along with depression screening using Patient Health Questionnaires (PHQ-2 and 9). Services were free for Thai clients, except for delivery fees (3-9 USD) and CT/NG self-collection (18 USD). The National Health Security Office funds medical abortion, HIV self-testing, and contraceptive services.

Description: Between November 2023 and January 2025, 462 clients received abortion consultations, with 427 (92.4%) using telehealth. The median age was 24 years, and mean income was 520 USD/month. Medical abortion was prescribed for 458/462 (99.1%) clients, 325 (70.3%) HIV self-tests

were provided, and none purchased a CT/NG self-collection kit. Of those who received an HIV self-test, 162 (49.8%) reported their results: 141 (87.0%) were non-reactive, and 20 (12.3%) were invalid or experienced technical issue with the test. They were offered a free replacement test, excluding the delivery fee, but none accepted. One (0.6%) had a reactive HIV self-test result, and was successfully referred for HIV confirmation testing and initiated antiretroviral therapy. Of those who had non-reactive result, 5 (3.5%) initiated PrEP. Regarding contraception, 421 clients were offered free condoms with 210 (49.9%) accepted them. COC were offered to 405 clients, and 115 (28.4%) accepted it. PHQ-2 was completed by 403 clients with 218 (54.1%) screened positive, of whom 47 (21.6%) had moderate to severe depression (PHQ-9 score >13). All received brief counselling and were offered referrals to government mental health services.

Lessons Learned: The integration of telehealth abortion services at Pribta Clinic proved feasible and acceptable among women seeking abortion, offering an effective gateway for HIV self-testing and depression screening. The high uptake of HIV self-testing and depression screening demonstrates the effectiveness of combining these services. However, the lack of CT/NG self-collection uptake prompts better strategies to integrate STI care to the cascade. Sustainable funding is essential to minimize financial barriers and ensure comprehensive sexual health care. Around one in ten women who completed depression screening had moderate to severe depression, emphasizing the urgent need to strengthen telehealth-based mental health support and referral systems.

Conclusions: Initiatives to promote and integrate inclusive sexual and reproductive health services should be prioritized within the HIV/AIDS space to ensure comprehensive care for those in need. International and domestic funding sources should support stigma-free services for underserved populations, reducing barriers to care regardless of political or religious perspectives.

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Exploring Pathways, Perceiving Benefits and Adverse Effect and Sexual Culture of Chemsex Among Men Who Have Sex with Men and Transgender Women in HIV High Urban Setting in Cambodia: A Qualitative Study

Tuot S¹, Ouk V, Samreth S, Khol V, Tep S, Heng K, Chhoun P, Seng P, Choub S

¹KHANA, Phnom Penh, Cambodia, ²The Royal University of Phnom Penh, Phnom Penh, Cambodia, ³The University of Tokyo, Tokyo, Japan

Background: In Cambodia, sexualized drug use (Chemsex user) is increasing among men who have sex with men (MSM) and transgender women (TGW) and has likely contributed to HIV epidemic, especially in HIV high urban setting. Better understanding aspects of Chemsex is needed. Our study aimed to explore the pathway to Chemsex, perceive benefit and adverse effects of Chemsex and sexual culture of Chemsex among MSM and TGW.

Material and Methods: This qualitative study was conducted from 25 August to 18 September 2022 as an integral component of a mixed-methods study designed to understand the characteristics of sexualized drug use in the greater of Phnom Penh area, a HIV high burden setting. Data collection comprised 15 in-depth interviews involving MSM and TGW aged 15 years. Risk-tracing sampling was used as the recruitment strategy. The analysis was proceeded from the translated texts through coding to the writing-up of individual using thematic analysis.

Results: The study identified three key themes related to Chemsex among MSM and TGW. The first theme explored pathways to Chemsex, highlighting the desire to explore new experiences, the influence of peers, the role of social media, and communication methods. It also noted the lack of awareness during the first Chemsex encounter, personal decision-making, different types of customers' preference, and the role of

brokers or "Meka" in initiating Chemsex. The second theme focused on the perceived benefits and adverse effects of Chemsex. While participants emphasized the importance of Chemsex and its enhancing effect on sexual experiences, they also reported negative consequences, including health risks, disease transmission, stigma, discrimination, and impact of Chemsex use on daily activities. The final theme examined the sexual culture of Chemsex, emphasizing social norms and behaviors within the community. Certain practices were considered "cool," while others were viewed as undesirable. The study also discussed issues such as the dynamic invitations to Chemsex parties, the popularity of specific individuals and non-consensual sex.

Conclusions: This study provided valuable insights into the complexities of Chemsex among MSM and TGW, highlighting the need for targeted interventions to address the social, cultural and health challenges, particularly the heightened risk of HIV transmission associated with this practice.

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Understanding Needs for Gender-Affirming Services for Transgender and Gender-Diverse People in Singapore (Community Challenges Survey 2024/2025): Implications for HIV-Related Health Services

Ng W¹, Wee Y¹, Goh L¹, Tjia S², Khoo R³, Tan R¹

¹Saw Swee Hock School of Public Health, National University of Singapore and National University Health System, Singapore,

²Transbependers, Singapore, ³TransgenderSG, Singapore

Introduction: Transgender and gender-diverse individuals have distinct medical and psychosocial needs that should be addressed with a gender-affirming approach in all areas of health care. Given heightened vulnerabilities to HIV in this population in multiple settings, it is crucial to incorporate gender-affirming practices in HIV care and prevention. This is thus far the largest study among transgender and gender-diverse individuals in Singapore to date that explores gaps in gender-affirming services that can in turn help inform HIV services.

Methods: We conducted a cross-sectional survey across February 2024 to August 2024 among individuals who were Singaporean Citizens or Permanent Residents between 16 to 85 years old and identified as transgender or gender-diverse. Participants were recruited via social media networks of transgender community organisations and reimbursed SGD10.00 for their efforts. Sociodemographic variables and both quantitative and qualitative information about their experiences with healthcare were collected. Two-way tables of frequency counts were used together with Pearson's chi-square test for outcome variables and sociodemographic data to assess any associations at the bivariable level. Qualitative data was coded by four researchers and themes identified using an inductive approach.

Results: Of the 809 participants who provided consent, 394 (48.70%) were eligible. 31.47% (n=124) identified as trans female, 19.54%(n=77)

as trans male, 13.45% (n=53) as transfem gender-diverse, and 35.53% (n=140) as trans masc gender-diverse, with an average age of 25.03 (±7.62) years.

Of the numerous barriers affecting access to gender-affirming healthcare services, cost and affordability surfaced as key concerns, with financial restrictions being the most-cited reason for not medically transitioning. In tandem with reported fears of losing employment opportunities, we see cost considerations affect transgender and gender-diverse peoples' access to gender-affirming services on multiple levels - not only does it directly limit their ability to afford treatment options, fears of losing future financial support also disempower and disincentivize them from seeking gender-affirming services.

In addition, participants found that the lack of accessible information on transgender healthcare impacted both their physical and mental well-being, with healthcare providers being unable or reluctant to provide official diagnoses. Participants also felt that there is a general discomfort of healthcare providers to talk about trans healthcare, and mentioned that it would benefit both transgender individuals and the country if information on the processes were made accessible and available.

Furthermore, based on their experiences, healthcare providers do not seem equipped to handle gender-affirming care. Even among doctors meant to provide gender-affirming care, only 40.28%(n=147) felt that they were well-informed on transgender issues. Overall themes of being treated inappropriately by healthcare workers, such as receiving intrusive questions, facing a lack of sensitivity, such as being misgendered, and not being taken seriously, were found.

Discussion: Financial barriers, the lack of accessible and available information, and the lack of training of healthcare providers in providing gender-affirming services currently impede the provision of gender-affirming care. HIV-related services that strive to be gender-affirming must ensure that such issues are addressed to better serve transgender and gender-diverse individuals.

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Factors Associated with Primary Healthcare Workers' HPV Vaccine Recommendation Behavior and Intention for Male Adolescents in Eastern China: A Cross-sectional Survey Based on the Social Ecological Model

Mu J¹, Li M¹, Wu D¹

¹Nanjing medical university, Nanjing, China

Background: HPV infection is strongly linked to male genital warts and cancers. A study found that over three-quarters of Eastern Chinese primary healthcare workers intended to recommend the HPV vaccine but did not act, while about 10% had no intention and behavior. Identifying factors shaping these intentions and behaviors is crucial for promoting the upcoming male HPV vaccination programs in China.

Material and Methods: An online cross-sectional survey regarding recommending HPV vaccines for male adolescents was conducted among 604 primary healthcare workers in Nanjing and Hangzhou from December 2023 to February 2024. The questionnaire was designed based on the social ecological model (SEM), including: Part A (individual characteristics, 12 items), Part B (individual knowledge, score from 0-10), Part C (individual attitude, 9 items), Part D (outer context: interpersonal relationships 5 items/ community 8 items/ policy 4 items), Part E (institution, 7 items), Part F (recommendation behavior and intention, 8 items). Non-parametric tests and chi-square tests were used to compare variable differences. Lasso regression selected the optimal multivariate model, and multinomial logistic regression calculated odds ratios (OR) and 95% confidence intervals (CI) for associated factors. All analyses were conducted using R 4.0.0, with a two-sided P-value threshold of < 0.05.

Results: Participants had a median age of 35 years (IQR: 30, 42), with 20.5% males and 79.5% females. Ninety-eight (16.2%) had both

recommendation intention and behavior, 463 (76.7%) had intention but no behavior, and 43 (7.1%) had neither. Except for sex, title, and income, other demographic characteristics showed no significant differences ($P > 0.05$). All participants had a high level of HPV-related knowledge, with a median score of 8 (IQR: 7, 9). Those who presented HPV vaccine recommendation intention or behavior were more positive about vaccine effectiveness, safety, and recommendation to parents than those who had neither. As compared to those who showed both recommendation intentions and behaviors, those who believed that their facilities did not encourage HPV vaccination for boys (aOR = 3.33, 95%CI: 1.15-9.65, $P = 0.027$), opposed including adolescent HPV vaccines in the national immunization program (aOR = 5.72, 95%CI: 1.15-28.57, $P = 0.033$) were more likely to show a deficiency in both recommendation intentions and behaviors. The absence of supportive policies for male adolescents was associated with recommendation intentions but without action (aOR = 2.97, 95% CI: 1.54-5.73, $P = 0.001$).

Conclusion: Organizational strategies or health policies supporting HPV vaccination for adolescent males may enhance providers' recommendation intentions and behaviors. Our findings offer guidance for provider-focused interventions to boost HPV vaccine uptake among Chinese males.

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Lessons Learned from the MSM Seroprevalence Survey in Singapore: Adapting HIV Responses to an Evolving Epidemic

Kwok C¹, Chio M², Tavitian-Exley I³, Chan R²

¹Action For AIDS, Singapore, Singapore, ²Department of Sexually Transmitted Infections Control Clinic, Singapore, Singapore, ³National Centre for Infectious Diseases, Singapore, Singapore

Background: The HIV seroprevalence surveys among men who have sex with men (MSM) in Singapore began in 2007 as a seropositivity project. Subsequent iterations evolved with the objective of collecting cross-sectional data on HIV prevalence, while also examining trends in health-seeking behaviours and sexual practices. Additionally, the surveys explore psychosocial factors, including socioeconomic status and internalized stigma, that may correlate with HIV/STI risk behaviours. The surveys are a collaborative effort between government agencies, including the Ministry of Health and the Department of STI Control, as well as the community organization Action for AIDS. Findings from each round have provided valuable, ongoing evidence that helped shape and adapt HIV prevention and response strategies—such as testing, prevention, and treatment programs—ensuring that interventions stay responsive to evolving epidemiological and behavioural trends.

Lessons Learned: 1) Changing Patterns of HIV Transmission

The first few rounds of the seroprevalence survey identified high HIV seropositivity among MSM sampled in saunas compared to clubs, indicating an emerging epidemic in sauna-based sexual networks. In response, subsequent surveys in 2011 and 2016 deliberately over-sampled saunas to better understand risk behaviours and expand testing services. Findings also highlighted the urgent need for enhanced prevention education, leading to the introduction of a peer counselling program at an anonymous HIV testing site. Additionally, collaborations with nightspot owners facilitated expanded outreach and engagement,

significantly increasing prevention program reach in MSM-frequented venues.

2) Informing the Roll-Out of Pre-Exposure Prophylaxis (PrEP)

Recognizing the need to assess demand and accessibility, the 2014 seroprevalence survey incorporated questions on PrEP and post-exposure prophylaxis (PEP) acceptability and cost. Data from this survey informed the development of Singapore's PrEP rollout in 2016, shaping accessibility, pricing structures, and service delivery models. Subsequent surveys have continued to include PrEP-related questions, providing critical insights into uptake, adherence, and preferred service modalities. These data have directly influenced national PrEP guidelines, ensuring they align with evolving community needs and behaviours.

3) Addressing the Growing Use of Online Platforms by MSM

The increasing use of online platforms by MSM for social and sexual networking prompted the 2020 seroprevalence survey to expand its recruitment to digital spaces, particularly in response to behavioural shifts during the COVID-19 pandemic. Findings showed that MSM recruited online were generally younger, representing a key demographic for early intervention. This evidence drove the expansion of online HIV outreach and engagement, including the launch of an awareness campaign video promoting HIV testing. The 2024 seroprevalence survey continued this approach, maintaining online recruitment as an essential strategy while ensuring diversity in sampling methods.

Conclusion: The MSM seroprevalence surveys are an example of successful collaboration between various stakeholders which have proven to be an invaluable tool in shaping Singapore's HIV response. By continuously adapting methodologies to reflect evolving behavioural and epidemiological trends, the survey has provided actionable insights that have guided targeted interventions, expanded access to prevention services, and refined national HIV strategies. Moving forward, sustained surveillance, community engagement and regular reviews remain crucial to effectively addressing the HIV epidemic among MSM in Singapore.

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Comparison of Men Who Have Sex with Men Visiting LGBTQ+ Community Health Center and Mobile/Outreach Sites in Taiwan: Risk and Protective Profiles

Li F^{1,2}, Lin Y¹, Lin C¹, Twu S¹, King S¹, Lin T¹

¹Taiwan AIDS Foundation, Taipei, Taiwan, ²National Research Institute of Chinese Medicine, Taipei, Taiwan

Background: The LGBTQ+ community health center has been actively engaged in providing gender-friendly services, health education, and sexually transmitted infection (STI) prevention for the local LGBTQ+ population. In addition, by training volunteers, the center expands its service capacity and establishes diverse service channels to offer accessible and tailored services. The purpose of this study is to compare the differences in characteristics, risk behaviors, and protective behaviors between individuals who receive services at the center and those who undergo mobile screening or outreach services, thereby providing practical implications for service improvement.

Methods: The study participants were men who have sex with men (MSM) aged 18 and older, who received screening services at an LGBTQ+ community health center in Chiayi, Taiwan between 2021 and 2023. Data were collected through self-administered questionnaires, and rapid HIV or syphilis testing was conducted. A total of 2,261 participants were included in the final analysis (center-based: 1,428; mobile/outreach sites: 833). Group comparisons were conducted using t-tests and chi-square tests.

Results: Individuals who accessed services at the community health center were significantly younger ($p<.000$) and had higher educational attainment ($p<.000$). They were also more likely to engage in sexual activity with a regular sexual partner in the past year ($p=.027$), had lower rates of alcohol consumption ($p=.010$) and lower rates of recreational drug use ($p=.045$) before, during, or after sex. However, this group also had a significantly higher proportion of individuals who

had never received HIV testing before ($p=.030$). In contrast, those who received mobile screening or outreach services were more likely to adopt emerging HIV prevention strategies. Specifically, they had significantly higher rates of post-exposure prophylaxis (PEP) use ($p<.000$) and pre-exposure prophylaxis (PrEP) use ($p<.000$) in the past year compared to those receiving center-based services. Nevertheless, they also exhibited higher engagement in risk behaviors, including a higher likelihood of meeting non-regular sexual partners at recreational venues (e.g., saunas, pubs, gyms) and engaging in sexual activity with them ($p<.000$). Moreover, the proportion of individuals who tested positive for syphilis was significantly higher in this group ($p=.032$).

Conclusion: Given the diverse and heterogeneous nature of MSM population, this study highlights that community health center and mobile screening or outreach services reach different subpopulations. Therefore, the LGBTQ+ community health center should develop service strategies tailored to the distinct characteristics of each group. For individuals accessing center-based services, efforts should focus on enhancing awareness and implementation of preventive measures, including the importance of regular screening and improving accessibility to PrEP/PEP. For those receiving mobile screening or outreach services, interventions should emphasize chemsex prevention and management strategies, and address health risks associated with multiple sexual partners. Ultimately, these efforts aim to improve the overall health outcomes of the MSM population.

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Evaluation of the 'Wounded Healers' Programme – A Peer-Based Recovery Support Service

Libau E^{1,2}, Tay J², Ong E^{1,2}, Ho D², Tan A², Naidu S², Tan R^{1,2}

¹Saw Swee Hock School of Public Health, National University Of Singapore, , Singapore, ²The Greenhouse Community Services, , Singapore

Background: Drug use, including injection drug use and sexualised drug use, has been identified as a factor that may drive HIV in many settings. Drug recovery programmes can mitigate these risks that arise in cases of drug dependence, while improving health outcomes for individuals living with or who are vulnerable to HIV. Particularly, peer-supported drug recovery programmes have emerged as a promising approach to address drug dependence. This study evaluates peer supporters' perceptions of experiences of receiving training, providing peer support services, and its impact on both peer supporters themselves and beneficiaries at a community-based drug recovery centre in Singapore.

Methods: Launched by The Greenhouse, a nonprofit recovery centre in Singapore, the 'Wounded Healers' programme is a peer-based recovery support programme that leverages the lived experiences of volunteers who have successfully navigated their own recovery journeys to support beneficiaries. Volunteers receive training for peer support work and are assigned beneficiaries whose drug use patterns or histories align with their own. Each peer support cycle lasts approximately three months. Peer supporters participate in monthly conferences to share experiences, co-learn from their work, and address challenges with guidance from programme management. This study employed a qualitative approach to evaluate the programme, with the aim of exploring peer supporters' own experiences, transformative journeys, and their perceptions of how they have impacted their peers. Semi-structured interviews were conducted with 10 current or former peer supporters. Data were analysed using thematic framework analysis.

Results: Participants highlighted several strengths of the programme, including its structured training, emphasis on boundary-setting, and the presence of a supportive network comprising peer supporters and programme management. These strengths equipped participants with the skills and confidence to navigate their roles while fostering a sense of security for their well-being. Peer support work encouraged mindfulness in participants, promoting intentionality in creating a constructive recovery environment. The programme also fostered personal growth, as participants learned that recovery is a deeply individual journey and recognised the importance of not imposing their own beliefs or solutions on others. Participants felt empowered through their supportive roles, recognising the tangible impact of their efforts on beneficiaries' recovery, such as sustained sobriety and reintegration into society. These successes reinforced their commitment to personal recovery and motivated them to continue providing support, inspired by the difference they could make in others' lives. Several challenges were identified, including limited resources to support beneficiaries' recovery needs. Peer supporters faced self-blame and emotional exhaustion, particularly after beneficiary relapses, questioning their own efficiency. Interpersonal challenges also arose when boundaries were tested, such as beneficiaries requiring attention beyond the peer supporters' outlined responsibilities. To address these challenges, participants reported strategies such as seeking programme management support to navigate complex situations, developing personalised techniques like shifting mindsets to cope with difficulties in peer support work, and leveraging the recovery community to build emotional resilience.

Conclusion: The transformative effects observed in the 'Wounded Healers' programme highlight the potential of peer-based recovery models as an effective approach to addressing substance use disorders while contributing to HIV prevention.

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Lessons Learnt from a Crowdsourcing Contest to Facilitate Community Engagement Among Adolescent and Young Men Who Have Sex with Men in Vietnam

Nguyen M¹, Do T², Pham N²

¹Institute of Preventive Medicine and Public Health, Hanoi Medical University, Hanoi, Viet Nam, ²WeCare Social Enterprise, Hanoi, Vietnam

Background: In Vietnam, adolescent and young men who have sex with men (AYMSM) test for HIV at a surprisingly low rate, and Pre-exposure prophylaxis (PrEP) uptake is even lower. AYMSM with HIV are also less likely to initiate treatment than older men who have sex with men. A status-neutral mHealth intervention holds great potential to improve both HIV testing, PrEP use and HIV care among AYMSM. To engage the community and enhance the intervention's identity, a crowdsourcing contest was held to design its logo. This paper summarizes key lessons learned from the contest to inform future initiatives.

Methods: The contest was promoted via social media and community networks, inviting community members to submit logo concepts. A panel of researchers and a community advisory board (CAB) reviewed submissions for creativity, relevance, and cultural fit to find the best logo for the app. A public voting system determined a "People's Choice Award" to increase engagement with the intervention's online platforms. Lessons Learned: Through this crowdsourcing contest, we have learned a number of valuable lessons.

- (1) Allocate sufficient funding and build a strong promotion strategy: Effective promotion through social media ads, influencers, and community partnerships is essential to attract diverse submissions and raise public awareness of the contest.
- (2) Ensure clear guidelines and fair evaluation: Contest rules should explicitly define themes, requirements and scoring criteria to

ensure originality, transparency, and alignment with the intervention's message. In addition, a fair and objective selection process would build trust and credibility.

- (3) Be aware of plagiarism risks: Some submissions raised concerns about originality. To mitigate this, contest guidelines should clearly state that plagiarism is not accepted, and all submissions should be reviewed carefully for originality before selecting a winner.

- (4) Use "People's Choice Awards" to boost engagement: Public voting increased social media interactions, fostering community involvement and enhancing visibility for the mHealth initiative.

- (5) Engage a community advisory board for feedback: CAB members played a crucial role in refining selection criteria and ensuring the final logo resonated with AYMSM in Vietnam.

- (6) Allow sufficient time for promotion and submission: Adequate time should be allocated not only to promote the contest but also to give participants enough opportunity to prepare and submit high-quality entries.

Conclusions: Crowdsourcing contests can effectively engage the MSM communities in mHealth intervention development. However, careful planning is essential for this community-engaged activity to be successful. Implementing these lessons can improve participation, originality, and community-driven branding for future mHealth interventions supporting AYMSM in Vietnam and beyond.

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Development of a Droplet Digital PCR Assay Targeting Internal Transcribed Spacer Gene for Rapid Detection of *Talaromyces Marneffei* in Human Plasma

Yang Y¹, Zhang Q¹, Guo P¹, Chen M¹, Zhang Y¹, Cai W¹, Tang X¹, Li L¹

¹Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China

Background: Talaromycosis caused by *Talaromyces marneffei* is a life-threatening mycosis linked to acquired immunodeficiency syndrome (AIDS). The gold standard for diagnosing *T. marneffei* infection requires a long-term culture, leading to delayed treatment and increased mortality. The aim of our study was to develop a rapid and sensitive droplet digital PCR (ddPCR) assay targeting the internal transcribed spacer (ITS) gene for specifically detecting *T. marneffei*.

Methodology/Principal findings: The detection limit and specificity of ddPCR were evaluated. The diagnostic performance of ddPCR was compared to blood culture and quantitative PCR (qPCR) methods using blood samples from patients with or without talaromycosis. The detection limit of ddPCR was one copy/reaction, a 10-fold increase in sensitivity compared to qPCR. ddPCR had 100% specificity for *T. marneffei* with no cross-reactivity to other 15 fungal pathogens and six bacterial pathogens, as well as plasma samples from 119 non-talaromycosis controls. In 119 AIDS patients with talaromycosis, ddPCR exhibited better overall sensitivity than blood culture and qPCR (92.44% vs 86.55% and 87.29%). The sensitivity of ddPCR was 97.8% (89/91) and 75% (21/28) in plasma samples collected before and after antifungal therapy, respectively. A negative correlation was observed between the fungal load measured by ddPCR and the time of blood culture reporting positive. Moreover, the fungal loads in patients receiving antifungal therapy were significantly lower than those in patients without antifungal treatment.

Conclusions/Significance: ddPCR is valuable for rapidly diagnosing *T. marneffei* infection in AIDS

patients, showing advantage in quantifying the fungal load in clinical samples, which can help guide treatment decisions.

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Baseline Transcriptomic Signatures of Peripheral Blood Mononuclear Cells for Predicting Incident Tuberculosis in People with HIV: A Nested Case-Control Study

Ning Y¹, Zhang H¹, Huang Y¹, He Y¹, Li L¹, Tang X¹, Dai Y¹

¹Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China

Background: Early prediction of tuberculosis (TB) incidence among people with HIV (PWH) is an urgent need for the timely intervention and ultimately reduce mortality. Our objective was to seek potential transcriptomic biomarkers at baseline to predict incident TB among PWH during a three-year follow-up after antiretroviral therapy (ART) initiation.

Methods: We conducted a nested case-control study in the Observation Study on Patients with HIV/AIDS program (OSPWH) (NCT04667026), a longitudinal cohort of PWH in China. Individuals with incident TB were defined as cases and those without TB were defined as controls. Transcriptomic sequencing was applied to profile the differential gene expression (DGE) in peripheral blood mononuclear cells (PBMCs) isolated at baseline. Significant genes associated with TB incidence were identified by the Recursive Feature Elimination (RFE) algorithm and biosignatures for predicting incident TB were evaluated.

Results: In the study, 31 microbiologically confirmed incident TB cases and 82 matched non-TB controls were enrolled. A total of 122 differentially expressed genes in baseline PBMCs were showed among the PWH with incident TB compared to those without TB, including 67 up-regulated and 55 down-regulated genes. Of these, 12 genes were selected by RFE and separately included in predictive model with area under the curve (AUC) ranging from 0.57 (95%CI: 0.42-0.73) to 0.93 (95%CI: 0.87-0.99). The 12-gene model

demonstrated excellent predictive performance, with an AUC of 0.99 (95% CI: 0.98-1.00). Instead, a 6-gene (with all AUCs > 0.8) recombined model performed equivalent to the 12-gene model, achieving an AUC of 0.97 (95% CI 0.93-1.00). Moreover, the probabilities predicted by the 6-gene model showed a significant positive correlation with the time to TB onset.

Conclusions: A 12 or 6-gene signature from PBMCs at baseline shows promise as a prospective model for identifying PWH at high risk of incident TB, enabling timely interventions.

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To Evaluate the Efficacy and Explore the Application of PD-1 Inhibitors in AIDS-Related Non-Hodgkin's Lymphoma

Han Z¹, He H

¹Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China, Guangzhou, China

Background: Acquired immunodeficiency syndrome (AIDS) related NHL (AR-NHL) remains one of the most common malignancies in AIDS patients. Diffuse large B cell lymphoma (DLBCL) and Burkitt's lymphoma are two of the most common AR-NHL subtype. These patients are diagnosed at an advanced stage and have a poor prognosis, Therefore, how to improve the survival of AR-NHL patients with accurate treatment is an urgent clinical demand.

Objective: Our previous study found that PD-1/PD-L1 expression was significantly higher in EBV-positive AR-NHL patients and was significantly correlated with the clinical disease status and prognosis of patients. In this part of the study, we focused on the subset of patients with EBV-positive AR-NHL, measured PD-L1 expression in these patients, treated PD-L1-positive AR-NHL patients with PD-1 inhibitors, and comparable patients treated without PD-1 inhibitors as controls. The efficacy and side effects were compared between the two groups.

Methods: In a retrospective cohort study at a multicenters between 2011 and 2021, in AR-NHL patients, Epstein-Barr virus (EBV) infection status was determined by in situ hybridization (EBER) (58 patients) and PD-1 and PD-L1 expression was assessed by immunohistochemistry (48 patients), flow cytometry was used to detect the distribution of T lymphocyte subsets and the expression of PD-1 on the cell surface of AR-NHL patients (26 patients).

Results: The median CD4+T lymphocyte cell count in the experimental group was significantly higher than that in the control group after 4 cycles of antineoplastic therapy, 6 cycles of antineoplastic therapy, and 12 weeks after the end of antineoplastic therapy ($P < 0.05$). The objective

response rate of the experimental group was 91.7%, which was significantly higher than 61.1% of the control group ($P = 0.049$). There were no significant differences in adverse reactions between the two groups ($P > 0.05$).

Conclusion: The objective remission rate of PD-1 inhibitor combined with DA-EPOCH-R regimen in patients with stage III/IV AR-NHL was significantly higher, the median CD4+ T lymphocyte count was significantly higher in the PD-1 inhibitor group than in the control group after treatment, and the adverse reactions were mild and well tolerated. Due to the small sample size of this study, the results may be limited. The long-term efficacy of PD-1 inhibitor combined with chemotherapy in the treatment of patients with advanced AR-NHL remains to be further confirmed by expanding the sample size and prolonging the follow-up time in the future.

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Seizure Burden in HIV-Associated Brain Infections: Insights from the Indonesian Brain Infection Study (2021–2023)

Putra M¹, Maharani K¹, Andini P¹, Estiasari R¹, Indrawati L¹, Imran D¹

¹Department of Neurology, Faculty of Medicine, Universitas Indonesia, Dr. Cipto Mangunkusumo Hospital, , Indonesia

Background: Seizures are a prevalent but often overlooked neurological consequence of HIV-related brain infections. Notwithstanding their considerable impact on morbidity and mortality, information regarding seizure burden, clinical characteristics, and treatment outcomes is still scarce. This study aims to predict seizure occurrence and adverse outcomes in patients with brain infections.

Methods: A retrospective cohort study was performed using the Indonesian Brain Infection Study - Jakarta registry from April 2021 to June 2023. We include HIV-positive patients with diagnoses of brain infections (tuberculous meningitis, toxoplasma encephalitis, neurosyphilis, and cryptococcal meningitis). Multivariate logistic regression was conducted to ascertain independent seizure incidence, morbidity, and mortality determinants.

Results: Among 117 patients with HIV-associated brain infections, 64 (54.7%) were newly diagnosed with HIV at admission. Seizures occurred in 23 patients (19.7%), predominantly in males (56.5%), with generalized seizures (69.6%) being more common than focal seizures (30.4%). The most frequent infectious aetiology was toxoplasmic encephalitis (47%). The mean CD4 count was 130.9 cells/ μ L (SD 50.8), with 38% having CD4 <50 cells/ μ L. Brain imaging in seizure cases showed ring-enhancing lesions (52%), meningoencephalitis patterns (23%), and infarct (16%). Antiseizure medication (ASM) was initiated in all patients with seizures, but only 31% achieved seizure remission at six months. Among discharged survivors with seizure (n=19), 67% remained adherent to ASM, yet 42% experienced seizure recurrence. In-

hospital mortality was 16.2%, and functional disability (mRS ≥ 3) occurred in 18.2%. By six months, 14% were lost to follow-up, and the cumulative mortality reached 21%. In multivariate analysis, seizure occurrence was independently associated with CD4 count <50 cells/ μ L (adjusted OR 2.31, 95% CI 1.42–3.78, $p < 0.01$) and cerebral toxoplasmosis (adjusted OR 3.19, 95% CI 1.56–5.88, $p = 0.002$). Seizures were also an independent predictor of mortality (adjusted OR 2.76, 95% CI 1.21–5.91, $p = 0.013$).

Conclusions: Seizures substantially increase mortality in HIV-related cerebral infections, with diminished CD4 count and toxoplasmosis recognized as primary risk factors. The correlation between seizures and heightened mortality emphasizes the necessity for prompt identification and focused therapeutic approaches. Future prospective studies are necessary to enhance management strategies and improve long-term neurological results.

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Estimated Glomerular Filtration Rate in HIV-Infected Adults in a Resource-Lower Middle-Income Country: Which Equation to Use?

Lay P^{1,3}, Lynen L², Griensven J²

¹Sihanouk hospital center of Hope, Phnom Penh, Cambodia,

²Institute of Tropical Medicine, Antwerp, Belgium, Antwerp, Belgium, ³Kdey Sankhem, Phnom Penh, Cambodia

Background: the World Health Organization recommends assessing kidney function before initiation of tenofovir (TDF) for those at risk, and discourage TDF use if the estimated glomerular filtration rate (eGFR) is <50 ml/min. WHO proposes three formulae (Cockcroft-Gault (BSA-adjusted CG) and MDRD) but differences exist. The CG equation contains weight as a factor. The MDRD equation is adjusted for body surface area (BSA) and expressed in ml/min/1.73 m², but the CG equation in ml/min. especially in small and/or underweight individuals, these differences might be important.

Method: We conducted a retrospective study in Cambodia using prospectively collected data of 2963 HIV-infected adults in Cambodia. We compared the CG, BSA-adjusted CG and MDRD equation in terms of eGFR, prevalence of moderate/severe kidney failure (<60ml/min/1.73m²) and proportion with TDF-contraindication, in relation to their body mass index (BMI) at ART initiation.

Results: Of 2963 individuals, 51.8% were female; the median age was 35 years. 43% had a BMI<18.5kg/m², the median BSA was 1.46m² and 93% had a BSA<1.73m². Median eGFR at baseline was 73.8ml/min, 86.7ml/min/m², and 90.4ml/min/m², and prevalence of moderate/severe kidney dysfunction was 23.0%, 7.5%, and 6.4% with the CG, BSA-CG, MDRD equation respectively. TDF was contra-indicated for 9.5%, 2.4%, and 2.0% with CG, BSA-CG, and MDRD respectively. Differences were most pronounced for patients with BMI <18.5kg/m², whom all had a BSA<1.73m²: median eGFR estimates were 67 ml/min, 85 ml/min/1.73m² and

95 ml/min/1.73m² with the CG, BSA-CG and MDRD equation respectively; TDF was contraindicated for 16.3%, 3.4% and 2.7% with CG, CG-BSA, and MDRD respectively. Differences were minor for normal and high BMI categories.

Discussion: In small and/or underweight patients with low BSA, BSA adjustment yields pronounced eGFR changes. Pending validation studies, we recommend the CG formula, estimating the actual eGFR, for ARV dose-adjustment or TDF contraindication. To diagnose/stage kidney dysfunction, adjustments for low body size are required and BSA-adjusted (standardized) equations are indicated.

Future study should focus on serum cystatin which is less variable by other factors, by using EKFC and CKD-EPI formula with serum cystatin alone or combine with serum creatinine for HIV patients in Asia.

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Community-Based Active Screening for Tuberculosis: Closing the Post-Pandemic Gap

Felina L¹, Veronita T¹, Helmy F¹, Fahrizal F¹, Rudi M¹, Anggraeni D¹, Ismawir Y¹

¹District Health Office, Tangerang City, Indonesia

Introduction: The COVID-19 pandemic has disrupted essential health services for communicable disease such as Tuberculosis (TBC), HIV and AIDS. Reductions in TBC case detection due to the COVID-19 pandemic are projected to result in increased TBC transmission, morbidity and mortality in Tangerang City. Even after the formation of 1.000 TBC cadres, only 3.5% TBC cases have been found from household contact investigation in 2022.

Description: During 2023 District Health Office (DHO) conducted TBC systematic screening for 2.137 household contacts and 3.410 people with Diabetes Mellitus, HIV, inmates including malnutrition children under 5 years old using Chest X-Ray (CXR) with additional tuberculin skin test for Latent TBC Infection (LTBI) and Molecular WHO-recommended Rapid Diagnostic Tests (mWRDs) for symptomatic group were performed. Pulmonologists were involved in carrying out on-site diagnosis. And the cadres are involved offers screening to household contacts. This screening ran massively in 13 subdistricts.

Lesson learned: Among household contacts 5.1% of them were symptomatic and continued to mWRDs. While asymptomatic group continued to CXR and 267 people had pulmonary manifestations of TBC then also performed molecular tests. 106 (5%) new TBC cases were found, there were 62% adults and 38% children. And 449 people (21%) have latent TBC infection and were administered TBC preventive treatment. While among other group (non household contacts) 25 (0.7%) new TBC cases were detected.

Conclusions: Systematic screening had increase new TBC cases outreach, 3.5% to 5% in household contact and 0,7% new cases among specific population such as people living with HIV and malnutrition children. Although it was not a

significant result, but targeted screening facilitate the identification of the priority population for TBC screening. and then TBC preventive treatment can be initiated widely among community.

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Mpox in Patients Seen at the Research Institute for Tropical Medicine: A Case Series

Duran L¹, Agonoy A¹, Sayson C¹, Urbano-Cruz, L¹, Oblepias M¹, Pasayan M¹

¹Research Institute For Tropical Medicine, Muntinlupa, Philippines

Background: WHO declared the Mpox outbreak as a public health emergency of international concern twice in 3 years, in July 2022 and August 2024. To date, the Philippines has reported 15 confirmed cases. We described the demographics, clinical presentations, transmission risks, outcome and viral genetic clades of confirmed mpox cases seen in our institution.

Methods: Data were obtained from cases seen and RT-PCR-confirmed at the Research Institute for Tropical Medicine Special Pathogens Laboratory. Analyses were descriptive.

Findings: Six cases described in this report consisted of five cisgender men who have sex with men – three of which were known to be living with HIV with good virologic response to ART – and one cisgender female. Median age is 31 years old. Two cases had history of international travel prior to symptoms.

The cases commonly presented with any rash (100%), fever (100%), malaise (100%), genital rash (67%), localized lymphadenopathy (16.67%), and headache (16.67%). All skin lesions were umbilicated, presenting as vesicles (100%), papules (83%), or pustules (50%).

Secondary bacterial skin infections were reported in two cases. Post-mpox sequelae included post-inflammatory hyperpigmentation and scarring of previous lesions. There were no severe complications or deaths.

Genetic analysis identified MPXV clade II in five cases and MPXV clade III in one case.

Conclusion: The current mpox outbreak emphasized the threat of emerging and re-emerging infectious diseases to global and local communities. Our case series provides insights into the clinical manifestations, transmission, and outcomes of mpox, in patients with MSM and

PLHIV. The data aligns with the current global outbreak, highlighting the disproportionate impact on young males who engage in high-risk sexual behaviors. The mild disease presentations in HIV patients emphasize the importance of ART adherence in preventing severe complications. Although limited by its small sample size, this study underscores the need for ongoing surveillance and targeted public health interventions. Public health efforts should focus on raising awareness, promoting safe sexual practices, and ensuring early diagnosis and treatment to control the spread of mpox within high-risk populations.

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Immediate Laboratory-Based Reflex Testing of Those HBsAg Positive for Delta Serology: A Systematic Review and Meta-Analysis

Li F¹, Tao Y², Fan C¹, Dai Y³, Jamie L C⁴, D. Tucker J^{2,5,6}, Chou R⁷, Easterbrook P⁸, Tang W^{1,2,5}

¹Nanjing Medical University, Nanjing, China, ²University of North Carolina Project-China, Guangzhou, China, ³Dermatology Hospital of South Medical University, Guangzhou, China, ⁴Health Sciences Library, University of North Carolina at Chapel Hill, Chapel Hill, USA, ⁵Institute for Global Health and Infectious Diseases, University of North Carolina at Chapel Hill, Chapel Hill, USA, ⁶Clinical Research Department, Faculty of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, London, United Kingdom, ⁷Departments of Medicine and Medical Informatics and Clinical Epidemiology, Oregon Health & Science University, Portland, USA, ⁸Department of Global HIV, Hepatitis and STI Programmes, World Health Organization, Geneva, Switzerland

Background: Hepatitis delta virus (HDV) is a hepatotropic, single-stranded RNA virus that requires HBV for replication. HDV infection in patients with chronic hepatitis B is associated with significantly greater risks of liver-related morbidity and mortality. Reflex testing has the potential to improve the identification of HDV infection. This study aims to evaluate the impact of HDV DNA reflex testing in improving HDV testing, diagnosis, and subsequent linkage to care and treatment initiation.

Methods: We searched four databases and seven conference websites for studies published until October 10, 2024. We included studies that evaluated the effectiveness of Delta serology reflex testing against a standard serology testing following a second clinic visit strategy. The proportion of patients for each cascade outcome was pooled using random-effects meta-analysis, with 95% confidence intervals (CIs) based on the exact binomial method. This study is registered with PROSPERO (CRD42023397577).

Results: 1498 studies were identified and 29 studies were included in this meta-analysis and systematic review. Out of 29 studies, 15 (51.7%) were conducted among patients living with HBV, 6 (20.7%) in hospital outpatients, and 3 (10.3%) in

general population. Four (18.2%) studies were from low- and middle-income countries, while 22 (75.9%) were from high-income countries. Eight of the 29 (27.3%) reflex testing studies included a non-reflex comparison group. In 29 studies employing HDV reflex testing, 82.6% (72.6-92.6%) of HBsAg-positive individuals underwent reflex HDV antibody testing, and 6.8% (5.6-8.0%) were HDV antibody positive, following 38.3% (24.0-52.5%) of HDV antibody-positive individuals were diagnosed as HDV RNA-positive. For the comparison groups of eight studies using non-reflex testing, only 41.9% (23.7-67.1%) of HBsAg-positive individuals had HDV antibody testing, and 8.1% (6.0-10.2%) were positive. 55.7% (17.3-94.2%) of HDV antibody-positive individuals were diagnosed with HDV RNA positivity. The strength of evidence was rated as low.

Conclusion: Reflex testing has become more and more population in countries with a low prevalence of HBV and those with a high prevalence of both HBV and HDV. Implementing immediate reflex testing for delta serology in individuals testing HBsAg-positive offers a streamlined approach to detect HDV co-infection early, enabling timely intervention.

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Prevalence of Mycoplasma Genitalium Among High-Risk Individuals in Bangkok, Thailand

INTASAN J¹, Promsena P^{1,2}, Tipsuk S¹, Piyabanharn R¹, Wattana J¹, Munkong C¹, Sookpresert C¹, Chomchey N¹, Oransathit W³, Ruamsap N³, Lertsethtakarn P³, Suksawad U³, Sriplienchan S¹, Harncharoenkul K³, Boudreaux D³

¹Search Research Foundation, Bangkok, Thailand, ²Research Affairs, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ³Department of Bacterial and Parasitic Diseases, Walter Reed Army Institute of Research - Armed Forces Research Institute of Medical Sciences, Bangkok, Thailand

Background: Mycoplasma genitalium (MGen) is a significant cause of non-gonococcal, non-chlamydial urethritis, proctitis, and cervicitis, particularly among individuals with high-risk sexual behaviors including men who have sex with men (MSM), transgender women (TGW) and high-risk females (HRF). Undiagnosed and untreated MGen infections may result in chronic inflammation and reproductive health complications. MGen infection is frequently asymptomatic and prevalence data in Thailand remains limited. This study aimed to evaluate the prevalence of MGen across three anatomical sites among high-risk individuals.

Methods: A cross-sectional surveillance study was conducted in Bangkok, Thailand. High-risk individuals were enrolled in the study regardless of sexually transmitted infection (STI) symptoms at time of enrollment. Urethral, rectal and pharyngeal swabs were collected from MSM and TGW, and cervical, rectal and pharyngeal swabs were collected from HRF. MGen was diagnosed using either a commercial Aptima® M. genitalium assay, or an in-house real-time PCR assay. The prevalence was reported as a percentage with 95% confidence intervals (CI).

Results: From October to December 2024, 60 high risk for STIs individuals with a mean age of 33.7 (SD=7.7) years were enrolled. Most participants (95.0%) were asymptomatic, 55 (91.7%) reported having unprotected sex with multiple partners within the past 6 months, 24 (40.0%) reported that their partner had multiple partners within the past

6 months, 6 (10.0%) reported a history of STIs within the past 3 months, and only 2 (3.3%) reported sexual contact with a partner diagnosed with STIs within the past 3 months. The overall prevalence of MGen at any anatomical site of individual was 15.0% (95% CI: 7.1-26.6). The prevalence of MGen among MSM, TGW and HRF was 30% (12.0-54.3), 10% (1.2-31.7) and 5% (0.1-24.9), respectively. No significant difference in prevalence was observed among these high-risk groups ($P=0.122$). MGen was most commonly detected in rectal samples ($P=0.062$) from MSM (20.0%) and TGW (10.0%) and found only in cervical samples (5.0%) among HRF with no MGen detected in other anatomical sites.

Conclusions: MGen was detected in asymptomatic high-risk individuals, with the highest prevalence observed among MSM in rectal samples. Screening in high-risk populations is essential to identify and treat, reduce transmission, and mitigate potential complications. Further evaluation of screening strategies, including pooled anatomical site testing, developing multiplex PCR STI assays and point-of-care tests in high-risk groups is needed. A health technology assessment (cost-effectiveness analysis) of the screening strategies should also be evaluated.

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Low Cholesterol is Associated with an Increased Risk of TB Among People with HIV in Asia

Henry R¹, Khol V², Cuong D³, Marbaniang I⁴, Somia I⁵, Kumarasamy N⁶, Yuniastuti E⁷, Azwa I⁸, Ditangco R⁹, Kiertiburanakul S¹⁰, Lee M¹¹, Avihingsanon A¹², Chen H¹³, Chaiwarith R¹⁴, Khusuwan S¹⁵, Pham T¹⁶, Pujari S¹⁷, Choy C¹⁸, Choi J¹⁹, Gani Y²⁰, Uemura H²¹, Ross J²², Jiamsakul A¹

¹Kirby Institute, UNSW Sydney, Australia, ²National Center for HIV/AIDS, Dermatology & STDs, Phnom Penh, Cambodia, ³Bach Mai Hospital, Hanoi, Vietnam, ⁴BJ Government Medical College and Sassoon General Hospital, Pune, India, ⁵Faculty of Medicine Udayana University - Prof. Dr. I.G.N.G. Ngoerah Hospital, Kota Denpasar, Indonesia, ⁶VHS-Infectious Diseases Medical Centre, Chennai Antiviral Research and Treatment Clinical Research Site (CART CRS), Voluntary Health Services, Chennai, India, ⁷Faculty of Medicine Universitas Indonesia – Dr. Cipto Mangunkusumo General Hospital, Jakarta, Indonesia, ⁸University Malaya Medical Centre, Kuala Lumpur, Malaysia, ⁹Research Institute for Tropical Medicine, Muntinlupa City, Philippines, ¹⁰Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand, ¹¹Queen Elizabeth Hospital, Hong Kong SAR, ¹²HIV-NAT/Thai Red Cross AIDS and Infectious Diseases Research Centre and Center of Excellence in Tuberculosis, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ¹³Taipei Veterans General Hospital, Taipei, Taiwan, ¹⁴Faculty of Medicine and Research Institute for Health Sciences, Chiang Mai University, Chiang Mai, Thailand, ¹⁵Chiangrai Prachanukroh Hospital, Chiang Rai, Thailand, ¹⁶National Hospital for Tropical Diseases, Hanoi, Vietnam, ¹⁷Institute of Infectious Diseases, Pune, India, ¹⁸Tan Tock Seng Hospital, National Centre for Infectious Diseases, Singapore, ¹⁹Division of Infectious Diseases, Department of Internal Medicine, Yonsei University College of Medicine, Seoul, South Korea, ²⁰Hospital Sungai Buloh, Sungai Buloh, Malaysia, ²¹National Center for Global Health and Medicine, Tokyo, Japan, ²²TREAT Asia, amfAR - The Foundation for AIDS Research, Bangkok, Thailand

Background: Tuberculosis (TB) remains a leading cause of death among people with HIV. While the impact of CD4 cell depletion on TB risk is well established, other clinical markers are increasingly recognized as important factors in TB disease. Research suggests that low cholesterol levels are linked to both active TB and HIV, potentially indicating a compromised immune system increasing the risk of co-infection in people with HIV. Some studies suggest that low serum cholesterol may serve as a marker for active TB and is associated with worse outcomes, including higher mortality. However, there is limited data on these markers in people with HIV in the Asia-Pacific region. This study examines the association of serum cholesterol and CD4 cell counts with TB

in the TREAT Asia HIV Observational Database (TAHOD) of IeDEA Asia-Pacific, a large multinational Asia-Pacific cohort.

Methods: TB cases were selected from people with HIV enrolled in TAHOD between 2003 and 2021. TB cases were classified as prospective if diagnosed after TAHOD enrolment and retrospective if diagnosed before entry. Controls had no TB diagnosis and were selected from the same site and available laboratory data within the matched case's diagnosis timeframe. A ± 3 -month window was applied to all cases and controls to ensure comparable data collection periods. Controls were matched to cases in a 1:2 ratio by site, with a single control accepted if two were unavailable. Each person had only one data point per variable included in the analysis, using the closest available timepoint to the case's diagnosis date within the set timeframe. Conditional logistic regression was used to assess the factors associated with TB.

Results: A total of 4,244 people with HIV from 20 sites were included in this study. The majority (87%) were from lower and upper middle-income countries, 66% were male, 43% were 31 – 40 years old. The study included 1,427 TB cases matched to 2,817 controls, 66% were retrospective and 34% were prospective. In multivariate analysis, low total cholesterol (< 3.9 mmol/L) was associated with higher odds of TB (adjusted odds ratio [aOR] 3.11, 95% CI 1.95–4.96) compared to cholesterol > 5.5 mmol/L, adjusted for CD4 cell count, sex, BMI, HIV viral load, and prior AIDS diagnosis. Low CD4 cell counts (< 200 cells/ μ L) were associated with having TB (aOR 12.43, 95% CI 8.52–18.12) compared to CD4 cell count > 500 cells/ μ L. The associations were consistent in both retrospective and prospective cases.

Conclusion: Low CD4 counts and low total serum cholesterol were associated with increased TB risk in people with HIV in our regional cohort, reinforcing the role of immune suppression in TB susceptibility. This finding aligns with broader evidence linking cholesterol levels to TB risk across populations. However, further research is needed to understand how cholesterol dynamics contribute to TB progression. Incorporating cholesterol screening into routine care should be considered for people living with HIV in TB-endemic areas as a tool to identify individuals at greater risk of TB, and guide clinician decision-making.

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Evolving Dynamics of Tuberculosis and Emerging HIV Co-infection in China: Age-Period-Cohort Analysis and Projections to 2035

Zhu Y, Li J

¹*School of Public Health, Sun Yat-sen University, GuangZhou, China*

Background: Despite significant progress in tuberculosis (TB) prevention, China remains the third-highest TB burdened country globally, with ongoing concerns about drug-resistant tuberculosis (DR-TB) and HIV/TB co-infection.

Method: The study utilized data from the Global Burden of Disease (GBD) 2021, applying the Age-Period-Cohort (APC) model to analyze age, period, and cohort effects on the incidence and mortality of TB, DR-TB, and HIV/TB co-infection. The Bayesian Age-Period-Cohort (BAPC) model projected future trends in these conditions from 2022 to 2035.

Result: Age effects indicated an increased incidence and mortality risk for TB and DR-TB with age, while younger and middle-aged groups were more affected by HIV/TB co-infection. Period effects demonstrated decreasing risks for TB and DR-TB, but an increasing trend for HIV/TB co-infection. Cohort effects similarly indicated a decline for TB and DR-TB, with a slight rise for HIV/TB among individuals born between 1990 and 2006. BAPC projections indicate that by 2035, the age-standardized incidence rate (ASIR) for TB, DR-TB, and HIV/TB co-infection will be 21.86, 1.04, and 1.21 per 100,000 person-years, respectively, while the age-standardized mortality rate (ASMR) will be 0.90, 0.09, and 0.12 per 100,000 person-years, respectively. None of these projections fulfill the END TB targets.

Conclusion: Current strategies are unlikely to meet the End TB goals by 2035, and the disease burden of HIV/TB co-infection may exceed that of DR-TB. Therefore, it is beneficial to consider preventive treatment for latent tuberculosis infection (LTBI) and to enhance bidirectional screening and

diagnosis for HIV and TB among high-risk populations.

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Cryptococcal Antigen Screening Implementation Among Clients with Advanced HIV Disease in Jakarta, Indonesia: A Descriptive Analysis

Mayzan R¹, Agrianti D¹, Jennifer E¹, Magdalena D¹, Rachma Y¹, Suryanullah W¹, Zuhroh S², Safitri E², Baraq K¹, Francis C¹, Ferradini L¹

¹FHI 360, Jakarta, Indonesia, ²Jakarta Provincial Health Office, Jakarta, Indonesia

Background: Cryptococcal infection, caused by *Cryptococcus neoformans*, mainly affects immunocompromised individuals such as people living with HIV. In Indonesia, 8,160 cryptococcal antigen (CrAg)-positive cases were estimated in 2020, with 4,150 deaths (51% fatality rate). Following the World Health Organization (WHO) recommendations, we present the feasibility of integrating CrAg screening to allow early management of cryptococcal infections and prevent the occurrence of deadly meningitis among people with advanced HIV disease (AHD) in Jakarta.

Material and Methods: In December 2023, together with the Provincial Health Office, the USAID/PEPFAR-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project implemented CrAg screening at a regional laboratory for AHD patients (having a CD4 count <200 cells/mm³ and/or WHO stage 3 or 4) without signs or symptoms of meningitis. Programmatic data from the regional laboratory described CrAg testing outcomes in Jakarta's public health centers (PHCs) and hospitals from December 2023 to October 2024.

Results: Among 653 blood samples tested for CrAg, 428 (65.5%) were from PHCs, 215 (32.9%) from hospitals, and 10 (1.5%) from private clinics. Among 14 CrAg-positive cases (positivity rate 2.1%), nine (64.2%) were found in PHCs and five (35.8%) in hospitals, 11 (78.6%) were males, and 10 (71.4%) were key population individuals. Their median baseline CD4 count was 53 cells/mm³ (range: 37–88 cells/mm³); one (35.7%) had <50

cells/mm³, five (35.7%) had 50–99 cells/mm³, one (7.1%) had 100–149 cells/mm³, one (7.1%) had 150–199 cells/mm³, and two (14.3%) had no baseline CD4 but were in WHO clinical stage 3/4. Among CrAg-positive cases, two (14.3%) died, two (14.3%) were given fluconazole pre-emptive treatment and are still alive, one (7.1%) was diagnosed with cryptococcal meningitis in hospital, and eight (57.1%) had missing data because they were referred to referral hospitals in Jakarta (n=7) or another region (n=1) with no follow-up information available.

Conclusions: This implementation demonstrated the feasibility of CrAg screening in Jakarta, highlighting the need to scale up CrAg screening across all facilities in Jakarta and other regions of Indonesia while enhancing comprehensive AHD packages, including CrAg screening, to improve the detection and treatment of opportunistic infections to decrease morbidity and mortality.

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Long COVID Among People Living with HIV: A Cross-Sectional Study in Taiwan

Lai Y¹, Ko N², Lee N¹

¹Center for Infection Control, National Cheng Kung University Hospital, Tainan, Taiwan, ²Department of Nursing, National Cheng Kung University, Tainan, Taiwan

Background: Long COVID, or Post-Acute COVID-19 Syndrome (PACS), is characterized by persistent symptoms that continue for weeks or months following an acute COVID-19 infection. People living with HIV (PLWH) may have an increased risk of developing Long COVID due to underlying immune dysregulation, chronic inflammation, and potential interactions between HIV and SARS-CoV-2. Despite growing global research on Long COVID, limited data exist on its prevalence and impact among PLWH in the Asia-Pacific region. This study aims to assess the prevalence, symptomatology, and risk factors associated with Long COVID among PLWH in Taiwan.

Material and Methods: A cross-sectional study was conducted at a medical center in southern Taiwan from January 1, 2023, to December 31, 2023. A total of 148 PLWH were recruited, of whom 97 had a confirmed history of COVID-19. Participants were assessed for Long COVID symptoms using the Post-Acute COVID-19 Syndrome Disturbance Questionnaire (PACS-Q). Clinical data, including CD4 count, HIV viral load, COVID-19 vaccination history, and comorbidities, were extracted from medical records. Long COVID was defined as the presence of persistent symptoms lasting more than 12 weeks post-COVID infection. Chi-square tests were used for categorical variables, while multivariate logistic regression was applied to identify risk factors associated with Long COVID.

Results: Among the 97 PLWH with COVID-19, 86.6% (n=84) developed Long COVID, demonstrating a high burden of post-acute symptoms in this population. The most significantly affected domains were respiratory, neurological, and sensory functions. Shortness of breath ($p = 0.02$) and cough ($p = 0.00$) were among the most common symptoms, indicating persistent pulmonary involvement. Cognitive difficulties ($p =$

0.05), including "brain fog," were frequently reported, suggesting neurological dysfunction. Loss of smell/taste ($p = 0.00$) was also strongly associated with Long COVID, highlighting sensory impairment. Additionally, chest pain ($p = 0.02$) was reported more often, raising concerns about potential cardiovascular complications. No significant differences were observed in fatigue, sleep disturbances, headaches, dizziness, gastrointestinal symptoms, or psychological distress between those with and without Long COVID. However, older age (≥ 50 years) was identified as a major risk factor ($OR = 8.78$, $p = 0.03$), indicating a nearly ninefold increase in risk. Furthermore, higher post-COVID HIV viral loads in Long COVID cases suggest potential immune dysregulation following SARS-CoV-2 infection. While vaccination status and CD4 counts did not significantly differ between groups, these findings imply that other host or viral factors may contribute to Long COVID development.

Conclusion: This study provides crucial evidence of a high burden of Long COVID among PLWH, particularly affecting respiratory, neurological, and sensory functions. Older age and post-COVID immune dysregulation were identified as key risk factors. Given the significant impact on quality of life and potential long-term complications, early screening, targeted rehabilitation, and long-term management strategies are essential for PLWH experiencing Long COVID. These findings provide critical insights into post-COVID complications within the Asia-Pacific region and underscore the need for continued research and intervention strategies to improve patient outcomes.

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Perception of, Attitude Towards and Compliance with Blood Donation Regulations Among Men Who Have Sex with Men in China: A Nationwide Multicenter Cross-Sectional Study

Wu G¹, Wu X¹, Zou H¹

¹Fudan University, Shanghai, China

Background: The Whole Blood and Component Donor Selection Requirements (the policy) in 2011 in China stated that MSM are not eligible to donate blood. Our study aimed to delineate perception of, attitude towards and compliance with blood donation regulations among MSM in China.

Methods: We conducted a nationwide multicenter cross-sectional study from June to July 2024 among MSM in China. A questionnaire was collected to provide sociodemographic characteristics, sexual behaviors, HIV testing history and results, BD perceptions, attitudes and experiences. Kaplan-Meier survival curves for age at first BD were created according to MSM's age cohorts. Multivariable logistic regression was used to assess the correlates of perceptions, attitudes, and compliance related to the BD policy.

Results: We enrolled 2,725 MSM, of whom 32.6% had a history of BD. 1,255 (46.1%) men thought MSM should be entitled to donate blood. However, merely 674 (24.7%) claimed to be aware of the reasons behind the current prohibition on MSM BD. Moreover, merely 442 (16.2%) men agreed with the current BD policies in China, and 934 (34.3%) men considered the current BD policies as obsolete and in urgent need of modification. Educational level (graduate and above, aOR: 1.79, 95% CI: 1.09-2.95, compared to junior high school and below), income (≥ 10000 CNY, 1.42, 1.02-1.99, compared to < 2000 CNY), were associated with the correct perception to BD policies among MSM. Disclosure of sexual orientation (no, 1.68, 1.26-2.24, compared to yes), history of heterosexual behaviors (never had, 1.43,

1.02-2.00, compared to ever had), perceptions (unaware of the policy, 2.89, 2.11-3.96, compared to aware; unaware of the reason behind the policy, 5.11, 3.77-6.92, compared to aware) to the current BD policies in China, history of BD (ever had, 1.98, 1.49-2.64, compared to never had) were associated with the relatively negative attitudes towards the current BD policies. Circumcision status (circumcised, 1.49, 1.21-1.84, compared to uncircumcised), anal intercourse within the past six months (ever, 1.21, 1.00-1.45, compared to never), attitudes towards BD (positive, 4.75, 2.69-8.40, compared to negative), and perceptions (aware of the policy, 1.69, 1.36-2.10, compared to unaware) and attitudes (disagree with the policy, 1.79, 1.37-2.10, compared to agree) towards current BD policies were significantly associated with BD among MSM.

Conclusion: In China, BD is fairly prevalent among MSM. However, their understanding of blood donation policies is notably lacking. Urgent steps must be taken to intensify educational initiatives targeting this demographic. Additionally, it is essential to deliberate on formulating more rational and science-based blood donation policies.

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Attitude Towards and Acceptance of Perceived Blood Donation Deferral Policies Among MSM in China: A Nationwide Multicenter Cross-Sectional Study

Zou H¹, Wu G¹, Wu X¹

¹Fudan University, Shanghai, China

Background: Many countries, including China, implemented a permanent blood donation (BD) deferral policy for men who have sex with men (MSM) due to concerns about blood safety in the early stages of the HIV epidemic. China still maintains a permanent deferral policy for MSM. This study aimed to assess attitudes towards and acceptance of perceived BD deferral periods.

Methods: We conducted a nationwide multicenter cross-sectional study from June to July 2024 among MSM in China. A questionnaire was collected to provide sociodemographic characteristics, sexual behaviors, history of BD, as well as their attitudes towards and acceptance of different deferral periods. The questionnaire presented 12, 6, 3, and 1 month of deferral period scenarios. Kaplan-Meier curve was used to explore the median age at first male-to-male sexual behavior across different age cohorts. Multivariable logistic regression was used to assess the correlates of BD willingness under different deferral policies.

Results: Our study included 2,725 MSM, of whom 80.2% held a neutral or supportive attitude towards the perceived deferral policy. 9.8%, 21.7%, 47.4%, and 81.5% men could accept deferral periods of 12, 6, 3, and 1 month, respectively. 887 men (32.6%) had ever donated blood (donors) and 1838 men (67.4%) had never donated blood (non-donors). As the perceived deferral period shortened from 12 months to 1 month, the proportion of MSM willing to donate blood steadily increased, both among donors (43.8%, 49.9%, 60.8%, 74.1%) and non-donors (25.5%, 27.0%, 32.9%, 44.5%). Among donors, the proportion of men who were willing to donate

blood and who had not engaged in any high-risk sexual behavior within the corresponding deferral periods was 26.7%, 30.9%, 34.7%, and 43.5%, respectively.

Conclusion: MSM in China generally demonstrate positive attitude towards deferral policies, with a marked inclination to accept shorter deferral periods. Our study uncovered that a substantial proportion of MSM were willing to donate blood under time-limited deferral policy scenarios, and donors exhibit relatively safe sexual behavior patterns. It is imperative to deliberate on formulating more scientifically grounded BD policies. There is a pressing need to comprehensively explore the potential implications of permitting low-risk MSM to donate blood, specifically with regard to its impact on blood safety and the stability of blood supply.

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Pulmonary Function in HIV-Infected Patients with Pneumocystis Pneumonia: A Systematic Review

Cao W¹, He J¹, Zhen J¹, Zhao S¹, Fang Z¹, Ren M¹, Zhang Y¹, zhang t¹, Ma Y¹, Huang X¹

¹Beijing Youan Hospital, Capital Medical University, Beijing, China

Background: Pneumocystis jirovecii pneumonia (PJP) remains a significant opportunistic infection among HIV-infected individuals, historically accounting for over 60% of AIDS-defining illnesses. While the advent of antiretroviral therapy (ART) has transformed HIV management, the long-term impact of PJP on pulmonary function remains poorly characterized, particularly in the modern treatment era. Evidence suggests that PJP may contribute to chronic lung dysfunction through persistent inflammation, epithelial injury, and alveolar remodeling. However, the extent to which PJP independently affects lung function, distinct from other HIV-related factors such as smoking and systemic inflammation, remains unclear. This systematic review consolidates current evidence on pulmonary function impairment following PJP and identifies key gaps in knowledge that warrant further investigation.

Methods: A systematic literature search was conducted in PubMed, Scopus, and Web of Science for studies published from database inception to January 17, 2025. Case-control and cross-sectional studies reporting forced vital capacity (FVC) and diffusing capacity for carbon monoxide (DLCO) in HIV-infected individuals were included. Study selection, data extraction, and quality assessment were performed following PRISMA guidelines. The primary outcome measures were differences in mean FVC and DLCO values between individuals with and without PJP.

Results: A total of 4,511 articles were screened, and 12 studies meeting the inclusion criteria were analyzed, encompassing 837 HIV-infected individuals. Among these studies, five reported a significant reduction in DLCO in the PJP group compared to the non-PJP group, while only one study found a statistically significant difference in

FVC ($P < 0.05$). Notably, several studies suggested that pulmonary function impairment persisted even after clinical resolution of PJP, indicating potential long-term consequences. However, most included studies were conducted before the widespread adoption of ART, limiting their applicability to current HIV care. Moreover, data on modifiable risk factors such as smoking remain scarce, further complicating the interpretation of PJP-related pulmonary dysfunction.

Conclusion: This systematic review highlights an association between PJP and impaired pulmonary function, particularly reduced DLCO, in HIV-infected individuals. However, the limited availability of ART-era data underscores the need for contemporary studies to assess long-term pulmonary outcomes. Future prospective research with standardized pulmonary function assessments is essential to clarify the role of PJP in chronic lung disease and identify modifiable risk factors, ultimately informing targeted interventions to improve respiratory health in this population.

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Bictegravir/Emtricitabine/Tenofovir Alafenamide (B/F/TAF) in Treatment-Naïve People with Both HIV-1 and Hepatitis B: 3-Year Outcomes from ALLIANCE

Avihingsanon A¹, Lu H², Leong C³, Hung C⁴, Kiertiburanakul S⁵, Lee M⁶, Supparatpinyo K⁷, Madera S⁸, Wang H⁹, Hindman J¹¹, Li T¹²

¹HIV-NAT, Thai Red Cross AIDS Research Centre, Bangkok, Thailand, ²National Clinical Research Center for Infectious Disease, Shenzhen Third People's Hospital, Shenzhen, China, ³Department of Medicine, Kuala Lumpur General Hospital, Kuala Lumpur, Malaysia, ⁴Division of Infectious Diseases, Department of Internal Medicine, National Taiwan University Hospital Yunlin, Yunlin, Taiwan, ⁵Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand, ⁶Department of Medicine, Queen Elizabeth Hospital, Kowloon, Hong Kong, ⁷Department of Medicine, Chiang Mai University, Chiang Mai, Thailand, ⁸Virology, Gilead Sciences, Inc., Foster City, USA, ⁹Clinical Data Science, Gilead Sciences, Inc., Foster City, USA, ¹⁰Medical Affairs, Gilead Sciences K.K., Tokyo, Japan, ¹¹Clinical, Gilead Sciences, Inc., Foster City, USA, ¹²Infectious Diseases Department, Peking Union Medical College Hospital, Beijing, China

Background: The ALLIANCE study showed that bictegravir/emtricitabine/tenofovir alafenamide (B/F/TAF) was non-inferior to dolutegravir + emtricitabine/tenofovir disoproxil fumarate at achieving HIV-1 RNA suppression, and superior at achieving HBV DNA suppression at Week 48 in treatment-naïve adults with both HIV-1 and hepatitis B virus (HBV), with high rates of HIV-1 and HBV suppression observed at Week 96 [1]. Here, we report longer-term efficacy and safety of B/F/TAF in adults with HIV-1 and HBV through 3 years of treatment.

Methods: ALLIANCE (NCT03547908) was a randomised, double-blind, active-controlled Phase 3 clinical study. This analysis reports data from participants who had received B/F/TAF in the 96-week randomisation phase, plus 48 weeks of open-label extension (participating countries only). Baseline demographics and clinical characteristics, HIV-1 suppression (HIV-1 RNA <50 copies/mL), HBV suppression (HBV DNA <29 IU/mL), alanine aminotransferase (ALT) normalisation (2018 American Association for the Study of Liver

Diseases criteria), hepatitis B e-antigen (HBeAg) and surface antigen (HBsAg) loss/seroconversion at Week 144, and treatment-emergent adverse events (TEAEs) through to end of study (EOS) are reported.

Results: At baseline, most participants receiving B/F/TAF (N=121) were male at birth (92.6%) and Asian (89.3%), with a median (range) age of 31 (19–65) years; 49.6% had ALT levels above the upper limit of normal and 76.0% were HBeAg positive. In total, 106 participants received B/F/TAF through Week 144. High levels of HIV-1 RNA (99.0%) and HBV DNA (80.2%) suppression were maintained after 144 weeks of treatment. ALT normalisation was maintained and HBeAg and HBsAg loss/seroconversion continued through Week 144, indicating sustained anti-HBV activity. Safety data through to EOS are shown. By EOS, 8.3% of participants had discontinued treatment prematurely.

Conclusions: At Year 3, B/F/TAF maintained high rates of HIV-1 and HBV virologic suppression, with favourable HBV treatment outcomes and HBsAg and HBeAg loss/seroconversion persisting into Year 3. Safety findings through 3 years were consistent with the established profile of B/F/TAF; most TEAEs were mild to moderate and rates of study drug discontinuation were low. These results further support the longer-term use of B/F/TAF in people with both HIV-1 and HBV.

[1] Avihingsanon A, et al. Lancet HIV. 2023;10:e640-52
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Switch to B/F/TAF in People with HIV-1 and HBV Co-Infection: Findings from the ALLIANCE Open-Label Extension

Avihingsanon A¹, Leong C², Hung C³, Kiertiburanakul S⁴, Lee M⁵, Supparatpinyo K⁶, Madera S⁷, Wang H⁷, Hindman J⁷, Li T⁹

¹HIV-NAT, Thai Red Cross AIDS Research Centre, Bangkok, Thailand, ²Kuala Lumpur General Hospital, Kuala Lumpur, Malaysia, ³National Taiwan University Hospital Yunlin, Yunlin, Taiwan, ⁴Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand, ⁵Queen Elizabeth Hospital, Kowloon, Hong Kong, ⁶Chiang Mai University, Chiang Mai, Thailand, ⁷Gilead Sciences, Inc., Foster City, USA, ⁸Gilead Sciences K.K., Tokyo, Japan, ⁹Peking Union Medical College Hospital, Beijing, China

Background: The ALLIANCE study evaluated treatment-naïve adults with HIV-1 and hepatitis B virus (HBV) co-infection, comparing bicitgravir/emtricitabine/tenofovir alafenamide (B/F/TAF) to dolutegravir plus emtricitabine/tenofovir disoproxil fumarate (DTG+F/TDF). Results at Week 48 showed B/F/TAF was noninferior in suppressing HIV-1 RNA and superior in reducing HBV DNA. These outcomes persisted through Week 96, after which participants on DTG+F/TDF switched to B/F/TAF for an additional 48-week open-label extension (OLE). This analysis presents the efficacy and safety data for those who switched.

Methods: ALLIANCE (NCT03547908) is a Phase 3, randomized, double-blind, active-controlled trial assessing B/F/TAF versus DTG+F/TDF in adults with HIV-1 and HBV co-infection. This analysis focuses on participants who, after completing the 96-week randomized phase on DTG+F/TDF, switched to B/F/TAF and were followed from OLE baseline through Week 48. Evaluations included demographics and baseline characteristics at OLE initiation; proportions achieving HIV-1 RNA <50 copies/mL, HBV DNA <29 IU/mL; rates of HBV e-antigen (HBeAg) and surface antigen (HBsAg) loss or seroconversion; alanine aminotransferase (ALT) normalization per 2018 American Association for the Study of Liver Diseases (AASLD) criteria at OLE Week 48 (missing=excluded); and study drug-

related treatment-emergent adverse events (TEAEs) up to OLE Week 48.

Results: At OLE baseline (N=89), 97.8% were male at birth, 94.4% were Asian, with a median age of 34 years (range: 22-61). Elevated ALT levels were present in 30.3%, 58.4% were HBeAg positive, 96.6% had HIV-1 RNA <50 copies/mL, and 83.1% had HBV DNA <29 IU/mL. A total of 88 participants (98.9%) completed the 48-week OLE. At OLE Week 48, 95.4% achieved HIV-1 RNA <50 copies/mL, and 86.6% had HBV DNA <29 IU/mL. HBeAg loss and seroconversion occurred in 17.0% and 12.8% of participants, respectively; HBsAg loss was observed in 4.3% with no seroconversions; and ALT normalization was noted in 52%. Throughout the OLE, 17 participants (19.1%) experienced study drug-related TEAEs (none serious), with 3 (3.4%) being Grade 3 or 4; no TEAEs led to discontinuation, and there were no deaths.

Conclusions: Switching to B/F/TAF maintained high rates of HIV-1 and HBV viral suppression in individuals previously on DTG+F/TDF, with additional benefits observed in HBeAg loss/seroconversion, HBsAg loss, and ALT normalization over 48 weeks of open-label B/F/TAF therapy. B/F/TAF was well tolerated, with no discontinuations due to TEAEs. These findings support the efficacy and safety of B/F/TAF in individuals co-infected with HIV-1 and HBV transitioning from DTG+F/TDF.

Yutaka Kobayashi is listed as author for presentation purposes only with permission of all authors

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HIV and HBV Co-Infection: Impact of PreS Deletions on Treatment Outcomes

Lan X¹, Li L¹, Hu F¹

¹Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China

HIV and HBV share similar transmission routes, making co-infection common. Despite the use of antiretroviral therapy (ART) regimens that effectively suppress both viruses in HIV/HBV co-infected patients, long-term treatment outcomes remain inferior compared to HIV mono-infection, including accelerated liver disease progression and delayed immune reconstitution.

Between 2012 and 2019, 1,422 HIV/HBV co-infected patients initiating first-line antiviral therapy were recruited at Guangzhou Eighth People's Hospital affiliated with Guangzhou Medical University (No. 20180307). The study received ethical approval (202033166). Patients were categorized based on the presence of HBV PreS sequence deletions in baseline plasma samples: those with PreS deletions (PreS del) and those without deletions (w/o del). HIV mono-infected patients served as controls. Cytokines and bile acid profiles were assessed in post-treatment plasma samples. Demographic information, clinical characteristics, and laboratory data were collected from the case database.

To elucidate factors affecting HIV/HBV co-infected patients, our previous research demonstrated that HIV/HBV co-infected individuals exhibited more PreS region deletions at treatment baseline. Patients with PreS deletions showed slower CD4 recovery, higher rates of Immunological Non-Responders (INR), and elevated inflammatory responses after long-term treatment. These phenomena were not observed in patients without deletions, suggesting that PreS region deletions may contribute to the poorer prognosis in HIV/HBV co-infected patients.

Further analysis of plasma bile acid levels after more than four years of treatment revealed differences in bile acid profiles between HIV/HBV co-infected and HIV mono-infected patients.

Within the HIV/HBV co-infected group, bile acid profiles differed significantly between PreS del and w/o del group, with the PreS del group showing notably higher levels of taurocholic acid (TCA) and glycocholic acid (GCA). Correlation analysis between bile acid levels and inflammatory factors demonstrated significant positive correlations between various inflammatory cytokines and certain bile acids in the PreS del group, while no significant correlations were observed in the w/o del group.

These findings suggest that delayed immune reconstitution in patients with PreS region deletions following long-term treatment may be associated with alterations in bile acid profiles, providing new insights for investigating pathogenic mechanisms and improving therapeutic approaches.

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Characteristics and Epidemiology of Recent HCV Infections in PLWH in Japan

Ishikawa K¹, Muramatsu T¹, Kaneko S¹, Harada Y¹, Miyashita R¹, Kamikubo Y¹, Ichiki A¹, Chikasawa Y¹, Bingo M¹, Sekiya R¹, Yotsumoto M¹, Hagiwara T¹, Amano K¹, Kinai E¹

¹Tokyo Medical University, Tokyo, Japan

Background: Hepatitis C virus (HCV) co-infection is prevalent among people living with HIV (PLWH), and some cases exhibit HCV antibody seroconversion over time. HCV transmission through sexual contact or injection drug use has been well-documented. To prevent progression to chronic hepatitis, cirrhosis, and hepatocellular carcinoma, the elimination of HCV infection has been recommended in various clinical guidelines. However, the precise transmission routes of HCV among men who have sex with men (MSM), as well as the distribution of HCV genotypes and treatment efficacy in this population, remain unclear.

Materials and Methods: We retrospectively reviewed medical records of PLWH diagnosed at the Department of Laboratory Medicine, Tokyo Medical University, between 2012 and 2024. Cases with initially negative HCV antibody tests who later seroconverted were analyzed. Demographic and clinical characteristics, including HCV genotype, liver function tests, and treatment outcomes, were evaluated. This study was approved by the Institutional Review Board of Tokyo Medical University (No. 11000364), and the requirement for patient consent was waived due to its retrospective design.

Results: Sixty cases were identified, all male, with a median age of 42 years (interquartile range [IQR]: 35–47). The median CD4 count was 559 cells/ μ L (IQR: 450–684). Antiretroviral therapy was initiated in 55 cases (92%), and viral suppression (<50 copies/mL) was achieved in 50 cases (91% of treated cases). At diagnosis, the median ALT level was 255 U/L (IQR: 105–809), and total bilirubin was 0.86 mg/dL (IQR: 0.53–1.34). HCV genotype was determined in 57 cases (95%), with genotype 1 in 36 cases (63%) and genotype 2 in 20 cases

(35%). The *Treponema pallidum* latex agglutination test was positive in 47 cases (78%), and drug use was identified in 8 cases (13%). Since 2020, 21 new cases (35%) have been observed, indicating ongoing transmission. Among the 57 cases with follow-up data, 10 (17.5%) achieved spontaneous remission without treatment. Direct-acting antivirals (DAAs), including three cases treated with pegylated interferon plus ribavirin, led to a sustained virologic response (SVR) in 38 cases (66.7%). Pegylated interferon and ribavirin were used in 2 cases (3.5%). Chronic hepatitis persisted without treatment in 7 cases (12.2%), of which 2 cases are expected to initiate DAAs therapy soon. Additionally, 5 cases were suspected of reinfection, as they became HCV RNA-positive again after achieving SVR through treatment.

Conclusion: Although infrequent, new HCV infections continue to occur in PLWH, with sexual transmission potentially playing a larger role than injection drug use. Mild symptoms and subtle liver function abnormalities make early detection challenging, emphasizing the need for appropriate screening. Reinfections highlight the importance of ongoing surveillance and prevention efforts. To achieve HCV elimination, timely testing and treatment should be reinforced, particularly among MSM. Further research is needed to clarify transmission dynamics, genotype distribution, and treatment responses in this population.

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Establishment of an Early Auxiliary Diagnostic Model Related to Disseminated Tuberculosis Immunology

Guo Y¹

¹Nanjing Medical University, Nanjing, China

Background: Disseminated tuberculosis is the most severe type of tuberculosis, which may lead to severe organ dysfunction and even death. Therefore, the aim of this study is to establish an auxiliary diagnostic model to detect patients with a tendency to develop disseminated tuberculosis (DI-TB) at an early stage, thereby reducing the risk of death among patients.

Methods: We included patients with disseminated tuberculosis (DI-TB) and pulmonary tuberculosis (PTB) from Nanjing Second Hospital between January 2023 and January 2025. Routine laboratory examinations and lymphocyte characteristic tests were conducted on the patients included in the study. A model was constructed using machine learning methods, and the SHAP method was used to interpret the model.

Results: Among 455 hospitalized PTB and DI-TB patients from Nanjing Second Hospital, 318 patients were selected to develop the diagnostic model, and the remaining 137 patients served as the validation set. Eleven indicator features were determined through lasso regression. The Random Forest (RF) model performed the best in diagnosing disseminated tuberculosis, with an area under the receiver operating characteristic curve (AUC) of 0.968, a Brier score of 0.061, an accuracy of 0.927, a precision of 0.925, a recall of 0.980, an F1 score of 0.952, and a Matthews correlation coefficient of 0.807. The model interpretation by the SHAP algorithm showed that the percentage of eosinophils, hemoglobin, mean platelet volume, percentage of neutrophils, red blood cells, IL-4, IL-1 β , the total number of CD3+ T cells, the number of CD4+ T cells, the number of CD45+ T cells, and the number of CD19+ B cells made prominent contributions to the model, and each feature had a different way of influencing the model.

Conclusion: The RandomForest model, developed with machine learning technology, can serve as a highly valuable and promising tool for identifying the infection status of DI-TB. This study innovatively proposes a practical idea of combining machine learning with laboratory results and applying them to clinical diagnosis

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Impact of Lamivudine and Tenofovir Resistance on the Efficacy of HIV Therapy Outcomes: A Systematic Review

Dharmawan R¹, Ivanna K¹, Aysha H¹, Akim I¹, Huang I², Kurniawan A²

¹Faculty of Medicine, Pelita Harapan University, Tangerang, Indonesia, ²Department of Internal Medicine, Pelita Harapan University, Tangerang, Indonesia

Backgrounds: Human Immunodeficiency Virus (HIV) remains a major global health challenge, with antiretroviral therapy (ART) as the cornerstone of management. Lamivudine and tenofovir are key components in first-line ART regimens due to their efficacy and tolerability. However, the emergence of drug-resistant HIV strains threatens treatment effectiveness, particularly in resource-limited settings. This systematic review evaluates the impact of lamivudine and tenofovir resistance on HIV treatment outcomes, emphasizing the need for vigilant resistance monitoring and adaptive treatment strategies to sustain viral suppression.

Method: We primarily assessed the impact of resistance to lamivudine and tenofovir on HIV therapy efficacy. Secondary outcomes included progression-free survival (PFS), overall survival (OS), and the emergence of drug resistance mutations. A systematic search was conducted on PubMed, Google Scholar and Embase using MeSH terms: "Lamivudine" AND "Tenofovir" AND "HIV Drug Resistance" AND "HIV Treatment Outcomes." Inclusion criteria encompassed studies involving adults (≥18 years) diagnosed with HIV and treated with regimens containing lamivudine or tenofovir, regardless of documented resistance status. Systematic reviews, meta-analyses, case reports, and case series were excluded. Study quality was assessed using the Oxford Quality Scoring System (JADAD) and Newcastle-Ottawa Scale (NOS).

Results: 2 RCT and 5 Clinical Trial were included out of 16 eligible ones and involved 4312 adult participants with a median follow up of 5 years. According to the JADAD & NOS tool, five studies were of good quality and two others had fair

quality. Resistance mutations were identified in approximately 7% of patients for lamivudine and 5% for tenofovir. Despite resistance, 89% of participants sustained viral suppression below 50 copies/mL. Modifications in treatment regimens, such as intensification with additional antiretrovirals, were crucial in maintaining effective viral control. These findings highlight the importance of continuous monitoring for resistance mutations to ensure sustained efficacy, particularly in settings with limited alternative treatment options.

Conclusion: Resistance to lamivudine and tenofovir, while challenging, can be effectively managed through strategic therapy adjustments. This ensures sustained efficacy of HIV treatments and underscores the importance of continuous monitoring and adaptable strategies in the face of evolving resistance.

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The Efficacy and Safety of Rapid Initiation of Antiretroviral Therapy with Dolutegravir/Lamivudine in China: A Multicenter, Retrospective, Real-World Study

Li A¹, Zhang H¹, Wang X¹, Liu A¹, Zhang J¹, Gao Y¹, Li J¹, Ye J¹, Chen C², Wei H², Xu G³, Li Z^{1,4}

¹Beijing Youan Hospital, Capital Medical University, Beijing, China, ²Department of Infectious Disease, The Second Hospital of Nanjing, Nanjing University of Chinese Medicine, Nanjing, China, ³Department of Dermatology, Qingdao Sixth People's Hospital, Qingdao, Shandong, China, ⁴Chinese Association of STD and AIDS Prevention and Control, Care and Treatment Committee, Beijing, China

Background: The use of Dolutegravir/Lamivudine (DTG/3TC) for rapid antiretroviral therapy (ART) initiation in treatment-naïve human immunodeficiency virus (HIV)-1 patients remains limited. To explore the efficacy and safety of DTG/3TC in this context, we conducted a multicenter study.

Methods: This retrospective, real-world study was conducted on HIV-1 treatment-naïve adults in Beijing, Nanjing and Qingdao. Patients were divided into two groups based on the ART initiation date (from the confirmation of HIV-1 infection to the start of ART): the Rapid group (≤ 7 days) and the Non-Rapid group (> 7 days). The primary endpoint was the proportion of patients achieving virological suppression (VS) at week 48 (HIV-1 RNA < 50 copies/mL). Secondary endpoints included immunological outcomes and safety profiles.

Results: A total of 145 participants were enrolled in the study from February 2021 to October 2023, with 57 in the Rapid and 88 in the Non-rapid group. The median ART initiation time (IQR) was 4 days (3,5) for the Rapid group and 17 days (12,26) for the Non-Rapid group ($p = 0.025$). At baseline, there were no significant difference in age, CD4, viral loads (VL), liver and kidney function, and blood lipids between the two groups. Intention-to-treat (ITT) analysis revealed that the proportion of

patients achieved VS at weeks 48 was 93% in the Rapid group and 90.9% in the Non-rapid group ($p = 0.764$). In per-protocol (PP) analysis, this proportion was 100% and 97.6% ($P = 0.522$), respectively. Subgroup analysis showed similarly high VS rate between the two groups at different initiation modes (VL known but drug resistance (DR) unknown or VL and DR both known or both unknown before ART), baseline CD4 counts (whether ≤ 200 cells/ μ L), VL (whether $\geq 10^5$ copies/mL), and age (whether ≥ 50 years). The median increase in CD4 counts from baseline to week 48 was 232 (143, 409) cells/ μ L in the Rapid group and 243 (145, 326) cells/ μ L in the Non-Rapid group ($p = 0.929$), with no significant differences in safety profile changes from baseline observed between two groups.

Conclusion: Our study provides clinical evidence supporting the efficacy and safety of DTG/3TC for rapid ART initiation.

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The Virological and Immunological Response of BIC/FTC/TAF in Late-Presenting People with HIV-1 Infection

Hu J¹, Wei M¹, Xu G²

¹Maanshan People's hospital, Maanshan, China, ²The 6th hospital of Qingdao, Qingdao, China

Background: The efficacy of bicitgravir/emtricitabine/tenofovir alafenamide (BIC/FTC/TAF) has been well-established in treatment-naïve clinical trials. However, real-world evidence regarding the effectiveness of this regimen in late-presenting people with HIV-1 (PWH) remains limited. This study aimed to evaluate the virological and immunological outcomes of BIC/FTC/TAF in late-presenting PWH.

Methods: We conducted a retrospective, multicenter cohort analysis of late-presenting PWH who initiated BIC/FTC/TAF between January 2022 and January 2024. Late-presenting PWH were defined as those with a CD4 T lymphocyte count (CD4) < 350 cells/μL at the time of diagnosis. Treatment effectiveness was defined as achieving an HIV-1 RNA level < 50 copies/mL. Virological and immunological changes were assessed over time.

Results: A total of 58 participants were enrolled from three medical centers (94.8% male, median age 43 years). The primary mode of HIV transmission was homosexual contact (56.9%), followed by heterosexual contact (20.7%), and unknown routes (22.4%). The median baseline CD4 count was 134 cells/μL, CD8 count was 875 cells/μL, and viral load was 95,491 copies/mL. The viral suppression rate was 62.5% (15/24) at 3 months, increasing to 87.5% (42/48) by 6 months, and reaching 100% by 12 months. Significant improvements in CD4 counts were observed, increasing from a baseline of 123 cells/μL to 303 cells/μL at 6 months and 362 cells/μL at 12 months ($p < 0.01$). The CD4/CD8 ratio also showed a significant increase, from 0.12 at baseline to 0.40 at 12 months ($p < 0.01$).

Conclusions: BIC/FTC/TAF demonstrated robust virological suppression and significant immunological recovery in late-presenting PWH, highlighting its effectiveness in this population.

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24 Week Results of Mental Health Improvement Based on a New NNRTI Generation in ART Naïve HIV-1 Infected Patients: A Prospective Matched Control Study

Ke Y¹, Li L, Liu X, Lin L, Li C, Chen L, Wang X, Cai W

¹Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou 510440, China, Guangzhou, China

Objective: To compare and evaluate the mental health outcomes and efficacy of antiviral regimens centered on a nucleoside reverse transcriptase inhibitor (NNRTI) and efavirenz (EFV) in treatment-naïve HIV-1 infected patients.

Methods: From April 2022 to February 2025, 56 treatment-naïve HIV-infected patients who received the TDF+3TC+ANV regimen (ANV group) at the Infection Clinic of the Eighth People's Hospital of Guangzhou Medical University were studied. A matched control group of 56 treatment-naïve HIV-infected patients who received the TDF+3TC+EFV regimen (EFV group) was selected based on age, gender, CD4+ count, and viral load. Scales were used to observe changes in efficacy, anxiety, depression, and sleep scores after 24 weeks of antiretroviral therapy (ART).

Results: The ANV group (age: 40.1±15.8 years; males: 46 [82.1%], females: 10 [17.9%]; CD4+ T-cell count: 267.6±165.3 cells/μL; proportion with HIV-1 RNA >1×10⁵ copies/mL: 33/56 [58.93%]) showed no statistical significance compared to the EFV group ($t=-0.63$, $P=0.53$; $\chi^2=1.17$, $P=0.28$; $t=0.33$, $P=0.743$; $\chi^2=0.33$, $P=0.568$). Before ART (baseline), anxiety, depression, and sleep scores for the ANV group were 5.1±4.2, 5.7±3.9, and 5.7±3.1, respectively, versus 4.1±3.3, 4.1±3.4, and 4.3±2.9 for the EFV group. Anxiety scores did not differ between groups ($Z=-1.12$, $P=0.261$), but ANV had higher baseline depression and sleep scores ($Z=-2.18$, $P=0.029$; $Z=-2.56$, $P=0.010$). Post-ART outcomes: ① ANV group: Anxiety, depression, and sleep scores decreased to 4.0±3.7, 4.9±3.5, and 4.7±3.2, respectively. Anxiety and sleep

improvements were statistically significant ($t=2.07$, $P=0.043$; $t=2.28$, $P=0.027$), while depression changes were not. ② EFV group: Anxiety scores decreased significantly (3.1±3.2, $t=2.55$, $P=0.013$). Depression scores increased (4.1±3.7), and sleep scores slightly declined (4.1±3.0), with no significant changes from baseline ($t=-0.13$, $P=0.896$; $t=0.49$, $P=0.629$). ③ Both groups showed significant CD4+ count increases (ANV: 172.2±130.7 cells/μL, $t=9.86$, $P<0.0001$; EFV: 153.5±136.3 cells/μL, $t=8.43$, $P<0.0001$), with no intergroup difference ($t=-0.74$, $P=0.460$). ④ HIV-1 RNA suppression rates (≤ 50 copies/mL) were 83.9% (95% CI: 74.3%, 93.6%) for ANV and 94.6% (95% CI: 88.8%, 100.0%) for EFV, with no statistical difference ($\chi^2=3.36$, $P=0.067$).

Conclusion: The antiviral regimen with ANV as the core agent can significantly improve anxiety and sleep quality in treatment-naïve HIV-infected individuals, with efficacy non-inferior to the regimen with EFV as the core agent.

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Three-Year Durable Efficacy and Safety of Dolutegravir Plus Lamivudine in Treatment-Naïve Adults with HIV-1 Infection

Fu Y¹, Xie X¹, Yang X¹, Gan L¹, Ma S¹, Song Y¹, Song C¹, Long H¹

¹Guiyang Public Health Clinical Center, Guiyang, China

Background: Long-term outcome data from real-world studies on the implementation of a two-drug dolutegravir plus lamivudine (DTG+3TC) regimen for the treatment of human immunodeficiency virus (HIV) infection remain limited. This study evaluated the real-world effectiveness and safety of DTG+3TC in people living with HIV (PLWH) in Southwestern China.

Methods: This single-center, retrospective cohort study was conducted at the Guiyang Public Health Clinical Center, one of the largest southwest infectious disease hospitals in China. This study enrolled antiretroviral therapy (ART)-naïve patients with HIV (n = 103) between August 2019 and April 2022. The inclusion criteria were HIV infection, age ≥18 years, using DTG+3TC for any reason between August 2019 and April 2022, data on the CD4 count and VL at baseline and 144 weeks, and followed up for at least 144 weeks. Patients were excluded if they had active hepatitis B virus infection, pregnancy, loss of follow-up or death, or if VL, CD4 count, and blood biochemistry data were not available at baseline and 144 ± 12 weeks. The virological response to therapy and safety were documented. The primary endpoint was a HIV viral load (VL) <50 copies/mL at week 144.

Results: The study sample comprised 103 ART-naïve patients. The group was predominantly male (76.7%), with a age of 65.0 (47.0, 73.0) years, with 60 (58.3%) patients aged ≥60 years. In this group, 8 patients (7.8%) had a baseline HIV VL >500,000 copies/mL, and 48 patients (46.6%) had a baseline CD4 count of <200 cells/μL. The proportion of treatment-naïve PLWH with a VL <50 copies/mL at 48 weeks was 93.3%. The prevalence of cardiovascular disease and AIDS-related

opportunistic infections was 26.2% and 29.1%, respectively. Among participants with baseline HIV-1 RNA >100,000 copies/mL and baseline CD4 <200 cells/μL, 95.7% (66/69) and 93.8% (45/48) achieved HIV-1 RNA <50 copies/mL, respectively. Among participants with age of ≥60, 96.7% (58/60) achieved HIV-1 RNA <50 copies/mL at week 144. The CD4 count and CD4/CD8 increased significantly by 177 cells/μL and 0.31 (p<0.001) in the ART-naïve patients, respectively. Body mass index, low-density lipoprotein cholesterol, high-density lipoprotein cholesterol, and total cholesterol levels significantly increased (p<0.05), and the creatinine clearance rate decreased significantly (p<0.001). There were no significant changes in triglyceride from baseline to week 144 (p>0.05). There were no significant changes in creatinine clearance rate, high-density lipoprotein cholesterol, triglyceride, and total cholesterol levels between week 48, week 96 and week 144 (p>0.05).

Conclusion: Three-year durable efficacy, long-term tolerability support first-line use of DTG + 3TC for HIV-1 treatment.

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Effectiveness and Safety of BIC/FTC/TAF in Late-Presenting People with HIV-Related Opportunistic Infection: A Retrospective Real-World Cohort Study

Yang X¹, Xie X¹, Fu Y¹, Gan L¹, Ma S¹, Song Y¹, Song C¹, Long H¹

¹Guiyang Public Health Clinical Center, Guiyang, China

Background: The efficacy and safety of bicitgravir/emtricitabine/tenofovir alafenamide fumarate (BIC/FTC/TAF) have been demonstrated in clinical trials of treatment-naïve therapy. However, real-life data are lacking. We investigated the virological outcomes and safety of BIC/FTC/TAF in late-presenting people with HIV-related opportunistic infection in China.

Research Design and Methods: We performed a retrospective cohort analysis of late-presenting HIV-1 infection people with opportunistic infection who initiated an antiretroviral regimen of BIC/FTC/TAF between September 2021 and December 2023. Treatment effectiveness, defined as the capability of treatment to achieve viral suppression (viral load < 50 copies/mL), was analyzed. Changes in immunology, metabolism, liver and renal function after 48 weeks of treatment were evaluated. The data were abstracted and collected from case report form and hospital laboratory system. Late-presenting people living with HIV (PLWH) were defined as surviving PLWH with a CD4 T lymphocytes (CD4) < 350 cells/μL or meet the criteria for acquired immune deficiency syndrome (AIDS)-defining conditions.

Results: Between September 2021 and December 2023, a total of 108 participants were included. Most participants were men (75.9%), and the median age at baseline was 47.5 ± 14.8 years. The viral load was higher than 500,000 copies/mL in 26.8% (29/108) of participants, the median CD4+T cell count was 88.20 ± 92.46 cells/μL. The proportion of individuals with initiation of ART ≤ 7 days was 26.8%. The prevalence of cardiovascular

disease was 12.0%. The main reasons for choosing BIC/FTC/TAF included a low potential for drug-drug interactions (75.9%), hepatic impairment (37.0%), and Dyslipidemia (16.7%). At week 48, the proportions of participants with HIV-1 RNA < 50 copies/mL and < 200 copies/mL was 95.4% (103/108) and 99.1% (107/108) in the BIC/FTC/TAF group, respectively. The virological inhibition rates at week 48 for those with VL ≥ 500,000 copies/mL and < 500,000 copies/mL at baseline were 92.1% and 97.1%, respectively. The virological inhibition rates at week 48 for those with initiation of ART ≤ 7 day and ≥ 7 day at baseline were 93.1% and 96.2%, respectively. The CD4 and CD4/CD8 increased by 142.9 cells/μL and 0.16, respectively (p < 0.001). The changes in alanine aminotransferase (ALT), aspartate aminotransferase (AST), blood glucose were minimal, and the clinical significance was limited. In terms of blood fat, total cholesterol (TC), high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL-C) increased significantly (all P < 0.001). There were no significant changes in triglyceride (TG) from baseline to week 48 (P > 0.05). Up to 48 week, there were 19 (17.6%) adverse events (AEs) and 5 (4.6%) drug-related side effects reported in the study.

Conclusions: Our results support the efficacy and safety of BIC/FTC/TAF in late-presenting participants with HIV-related opportunistic illnesses.

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Metabolic Benefits of AINUOVIRINE-Based Regimen in Virologically Suppressed People Living with HIV-1: A Real-World Study

Li J¹, Zhong H, Lu X, Chen H, Tian M, Zhang Z, Yu Y, Qi Q, Wu W, Zeng W

¹The Ninth People's Hospital of Dongguan, Dongguan, China

Background: AINUOVIRINE (ANV) is a new-generation non-nucleoside reverse transcriptase inhibitor (NNRTI) developed and launched in China. It has been recommended as the first-line treatment for people living with HIV-1 (PLWH) in the latest Chinese guidelines for its non-inferior virological efficacy and more safety benefits with reduced neuropsychiatric and metabolic toxicity compared to efavirenz-based regimen. However, its safety on metabolic parameter trajectories still needs to be investigated in real world, especially in PLWH with liver or lipid abnormalities.

Material and Methods: This single-center retrospective cohort study spanned an 18-month period (June 2022–September 2023) and analyzed data from 133 virologically suppressed (VS) PLWH (HIV-1 RNA <40 copies/mL) who optimized their antiretroviral therapy (ART). All switched the third agent to ANV with retention of nucleoside reverse transcriptase inhibitor (NRTI) backbones. Nevirapine/efavirenz predominated as original third agents (66.9%), followed by dolutegravir (21.8%) and lopinavir/ritonavir (11.3%). Primary outcomes were changes in lipid profiles (total cholesterol [TC], triglycerides [TG], low-density lipoprotein [LDL], high-density lipoprotein [HDL]), glucose, uric acid, total bilirubin, and liver enzymes (alanine aminotransferase [ALT]/aspartate aminotransferase [AST]) at multiple time points (3, 6, 9, 12, 15, 18 months post-switch). Subgroup analyses compared outcomes in patients with baseline ALT ≥50 U/L vs. <50 U/L and LDL ≥3.0 mmol/L vs. <3.0 mmol/L.

Results: All 133 patients maintained VS, with improved lipid profiles. There was a significant reduction in TG/TC/HDL-C at all time points (all $p < 0.001$). Although there's no significant overall

change in LDL-C, PLWH with baseline LDL-C >3 mmol/L showed statistically marked reduction (mean reduction range: -0.4243 mmol/L to -0.5107 mmol/L; all $p < 0.05$). Similarly PLWH with baseline ALT >50 U/L showed a significant reduction (-58.40 to -46.97 U/L, all $p < 0.001$), whereas those with baseline ALT ≤50 U/L remained stable. Meanwhile, a significant improvement in AST was observed up to 15 months (-3.884 to -3.766 U/L, all $p < 0.05$). The total bilirubin decreased in first 6 months (3M: -1.618 μmol/L, $p < 0.01$; 6M: -1.298 μmol/L, $p < 0.05$). Glucose decreased significantly from 12M (12M: $p < 0.01$; 15-18M: $p < 0.001$). Uric acid decreased gradually, reaching maximum significance at 9 months ($p < 0.01$).

Conclusions: Switch to ANV-based regimen effectively ameliorates metabolic disturbances in PLWH with VS, particularly those with preexisting liver or lipid abnormalities. The significant ALT normalization and LDL-C reductions highlight the utility of ANV in optimizing long-term metabolic health, addressing a critical need in an aging population with comorbid metabolic risk. These findings reinforce ANV's role as a guideline-recommended alternative for patients intolerant to traditional treatments.

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Comparative Effectiveness of Modern Antiretroviral Therapy Regimens Among People Living with HIV in China: A Multicenter Cohort Study

Wu X¹, Chen Y², Zhang W², Fu L², Zou H^{1,3,4}

¹Fudan University, Shanghai, China, ²Sun Yat-Sen University, Shenzhen, China, ³Southwest Medical University, Luzhou, China, ⁴University of New South Wales, Sydney, Australia

Background: Given the slow introduction of new antiretroviral therapy (ART) drugs, poor adherence resulting from high costs, and slow updates in treatment policies in low- and middle-income countries (LMICs), there is an urgent need for new evidence to reinforce the prioritization of integrase strand transfer inhibitor (INSTI) as the primary treatment option for people living with HIV (PLHIV) in these countries. We aimed to explore the effects of modern ART regimens on CD4 counts among PLHIV in China, using larger multicenter cohorts and robust approaches, thereby providing real-world evidence on this topic from LMICs.

Material and Methods: Anonymised clinical data for PLHIV treated at major infectious disease hospitals from 12 provinces and municipalities in China who initiated ART between January 1, 2017 and September 30, 2020, were included and followed-up until December 31, 2020. Most frequently used third ART drugs included nevirapine, efavirenz, dolutegravir, lopinavir, and others (including darunavir, raltegravir, elvitegravir and rilpivirine). We used linear mixed-effects models with a first-order autoregressive covariance structure and interaction terms (time-versus-treatment group) to assess whether CD4 count changes of PLHIV differed significantly over time between the treatment groups. To evaluate whether there were differences in the time of immune recovery among different ART regimen groups, we used negative binomial models to fit the time of immune recovery (CD4 >500 cells/μL) of PLHIV.

Results: 54,919 individuals contributed 96,260 person-years of follow-up. Results from the mixed-

effects model supported significant advantages in CD4 count gains of PLHIV who initiated dolutegravir-, lopinavir-, and others in China compared to initiating efavirenz-based ART. Results from negative binomial model suggested that dolutegravir- and others-based ART demonstrated a positive impact on the time of immune recovery of PLHIV, leading to reductions of 0.21 years and 0.47 years, respectively.

Conclusions: Our findings further reinforce the positioning of dolutegravir-based regimens as preferred options in LMICs.



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Real-World Use of Long-Acting Cabotegravir and Rilpivirine Among People Living with HIV in Sichuan, China

Yao Y¹, He Y¹, Cai L¹, Zhou R¹, Wu F¹, Zhang C¹, Li J¹, Yang T¹

¹Public Health Clinical Center Of Chengdu, Chengdu, 中国

Background: Long-acting (LA) Cabotegravir plus Rilpivirine (CAB+RPV) was officially launched in mainland China for commercial use since August 2024. However, due to the high out-of-pocket cost, its adoption remains limited. To the best of our knowledge, there are currently no reported cases of people living with HIV (PLWH) in mainland China receiving CAB+RPV LA. This study retrospectively evaluates the clinical characteristics, treatment outcomes, safety, and patient-reported experiences of PLWH receiving CAB+RPV LA injections at Public Health Clinical Center of Chengdu.

Methods: We included HIV-1 infected individuals who initiated CAB+RPV long-acting injection between September 2024 and February 2025. Baseline characteristics, virologic and immunologic outcomes (viral load [VL], CD4 count), and laboratory changes were retrospectively collected via electronic medical records. Additionally, patient-reported experiences were assessed via telephone follow-ups.

Results: A total of 10 ART-experienced PLWH receiving CAB+RPV injections were included, all on the every-2-month (Q2M) regimen with undetectable VL before switching. The median number of injections was 3.5 (IQR: 3–4). The median age was 45 years (IQR: 37–54), with 70% being male. The median duration of HIV infection was 7.7 years (IQR: 6.4–9.2), and 80% had prior exposure to NNRTI-based regimens. The most common pre-switch antiretroviral therapy (ART) was BIC/TAF/FTC (7 cases). The median baseline CD4 count was 502 cells/ μ L (IQR: 401–589). Comorbidities included syphilis (n=1), HBV coinfection (n=1), and type 2 diabetes (n=1). At the last follow-up, all participants maintained virologic suppression (VL < detection limit, TND). The median change in CD4 count was -29 cells/ μ L

(IQR: -120 to 38). Changes in BMI, lipid profile, and creatinine levels were minimal. The median injection site pain score was 2 (0–10 scale, IQR: 2–6.5), with pain relief lasting a median of 3 days. A total of 80% reported significant psychological relief from discontinuing daily oral ART, and 80% perceived minimal financial burden. One participant reported persistent dry mouth lasting 1.5 months after each injection.

Conclusion: Short-term efficacy and safety of CAB+RPV long-acting therapy in PLWH in Sichuan were favorable, with a 100% virologic suppression rate. Patient acceptance was high, with significant psychological benefits. Further studies with larger sample sizes and extended follow-up are needed to evaluate long-term outcomes.

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Baseline and Patient-Reported Outcomes Analysis of 12 Patients Stable Switch to Cabotegravir Injection+ Rilpivirine Injection Long-Acting

Hou M¹, Li Q², Ji J⁵, Zeng J³, Hong K⁴, Sun Y¹, Yang X¹, Zhang H¹, Wang X¹, Wang Y¹, Hu Q⁴, Xue X³, Zhao Q¹

¹The Sixth People's Hospital Of Zhengzhou, Zhengzhou, China, ²Luoyang Central Hospital, Luoyang, China, ³The First Affiliated Hospital of Xiamen University, Xiamen, China, ⁴Wuhan Jinyintan Hospital, Wuhan, China, ⁵ The Third People's Hospital of Hengyang, Hengyang, China

Objective: To describe the baseline characteristics and patient-reported outcomes (PRO) of HIV-infected individuals who stable switch to Cabotegravir injection+ Rilpivirine injection long-acting (CAB+RPV LA).

Methods: This was a multicenter, prospective, case-control, cohort study. Due to the short time of drug launch, there are relatively few patients followed up for 3 months. This study selected 12 HIV-infected individuals who stable switch to CAB+RPV LA from September 2024 to February 2025 at the Sixth People's Hospital of Zhengzhou, Luoyang Central Hospital, the First Affiliated Hospital of Xiamen University, and Wuhan Jinyintan Hospital. General demographic information, CD4+ count, liver function, kidney function, blood glucose, blood lipids, and patient-reported outcomes were collected.

Results: All enrolled patients were HIV virus suppressed after antiretroviral therapy (ART) treatment, and had no known resistance to lamivudine (3TC), non-nucleoside reverse transcriptase inhibitors, or integrase inhibitors in the past. A total of 12 cases were enrolled, all male, with an average age of 44 years (IQR: 35.75, 54.75), BMI 24.66 Kg/m² (IQR: 21.73, 27.23), and the main route of transmission was heterosexual, 7 cases (58.3%). The marital status was mainly married, 7 cases (58.3%). The duration of ART before stable switch was 69.5 months (IQR: 13.25, 126). The ART regimens before switch were

3TC/DTG in 7 cases (58.3%), bictegravir /emtricitabine/tenofovir alafenamide in 4 cases (33.3%), and TDF+3TC/DTG in 1 case (8.3%). Comorbidities included hypertension in 3 cases (25.0%), cardiovascular disease in 2 cases (16.7%), tumor in 1 case (8.3%), intestinal obstruction in 1 case (8.3%), and liver injury in 1 case (8.3%). CD4+ T lymphocyte count was 476/uL (IQR: 238.75, 558.75), Th/Ts 0.72 (IQR: 0.53, 1.08), serum creatinine 83.65 umol/L (IQR: 68.75, 94), ALT 23.5 U/L (IQR: 19.4, 35.75), AST 22 U/L (IQR: 19.25, 24.25), Triglycerides 1.65 mmol/L (IQR: 1.17, 2.66), Total Cholesterol 4.06 mmol/L (IQR: 3.43, 5.19), High-Density Lipoprotein 1.1 mmol/L (IQR: 0.93, 1.32), Low-Density Lipoprotein 2.44 mmol/L (IQR: 1.82, 3.34), and Blood Glucose 5.48 mmol/L (IQR: 5.1, 5.7). Baseline patient-reported outcomes were collected from 11 patients: 1. Regarding treatment preference: The most common reason for choosing the CAB+RPV LA regimen was "don't want the infection status to be discovered", 7 cases (63.6%), followed by "hope to use a convenient regimen", 6 cases (54.5%), "tired of taking medicine every day", 5 cases (45.5%), efficacy and safety, 3 cases (27.3%), and other reasons, 1 case (9.1%). 2. The total score of the HIV Symptom Distress Scale was 9 (IQR: 4, 15). 3. The total score of treatment satisfaction was 60 (IQR: 47, 75).

Conclusion: This study shows that Chinese patients choose the CAB+RPV LA regimen mainly due to psychosocial considerations and convenience. Additionally, patients who chose this regimen had fewer symptoms distress and higher satisfaction.

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Efficacy and Safety of Doravirine/Lamivudine/Tenofovir Disoproxil Fumarate (DOR/3TC/TDF) in HIV Treatment: A Real-World Single-Center Study in China

Li A¹, Liu L, Zhang H¹, Wang X¹, Li Z^{1,2}, Liu A¹, Dai L¹, Zhang J¹, Gao Y¹, Ye J¹, Li J¹, Sun L^{1,2}

¹Beijing Youan Hospital, Capital Medical University, Beijing, China, ²Chinese Association of STD and AIDS Prevention and Control, Care and Treatment Committee, Beijing, China

Background: The single-tablet regimen Doravirine/Lamivudine/Tenofovir Disoproxil Fumarate (DOR/3TC/TDF) has been included in international guidelines and recommendations. It was approved by China's National Medical Products Administration (NMPA) in early 2021 for adult human immunodeficiency virus (HIV)-1 infections. This study present real-world results of a retrospective analysis of patients who initiated DOR/3TC/TDF at a single HIV center in China.

Methods: This retrospective analysis was carried out on patients who received DOR/3TC/TDF (initial or switch) at the outpatient clinic of the Infection Center in Beijing Youan Hospital in China. We meticulously collected the patients' baseline characteristics, the reasons for their switch to DOR/3TC/TDF, along with the preliminary clinical, laboratory - based efficacy, safety, and tolerability data. All evaluations were in strict accordance with the protocols of our center. The statistical analysis was mainly descriptive, aiming to assess the changes in laboratory parameters from the baseline to the data - collection deadline, which was December 31, 2024.

Result: Between May 16 and October 29, 2024, a total of 205 patients were prescribed DOR/3TC/TDF, either as an initiation or a switch. The cohort consisted mainly of males (96.1%), with a median age of 36.0 (31.0, 41.0) years. By the deadline for this analysis, the entire group had used DOR/3TC/TDF for 149.0 (90.0, 202.0) days. Among them, 40 patients were treatment-naïve, with a median HIV-1 ribonucleic acid (HIV-1 RNA) of 4.1 (3.7, 4.6) log₁₀ copies/mL. At weeks 12 and

24, 64.5% and 91.3% of the participants with available data achieved HIV-1 RNA < 50 copies/mL, respectively. Subgroup analysis showed similar virologic response rates in patients with a high viral load (VL) ($\geq 10^5$ copies/mL) and low CD4 counts (< 200 cells/ μ L) at baseline ($P > 0.05$). The results of immune reconstitution were also satisfactory, with CD4 counts increased from 350.0 (264.0, 465.0) cells/ μ L at baseline to 541.0 (415.8, 789.5) cells/ μ L by the end of the follow-up ($P > 0.05$). 165 patients (80.5%) had treatment experience, and the most common cause for switching was treatment simplification (40%). After the switch, an equally high proportion of patients (97.6% vs. 96.4%) achieved HIV-1 RNA undetectable or <50 copies/mL ($P > 0.05$). Compared to baseline, it was found that there were no significant changes in liver enzymes and renal function ($P > 0.05$), while body weight, random blood glucose and blood lipid levels decreased significantly ($P < 0.05$). Among the patients with central nervous system (CNS) symptom, after the switch, both the Pittsburgh Sleep Quality Index (PSQI) and the Hospital Anxiety and Depression Scale (HADS) scores, as well as the proportion of patients with scores greater than 7 points, decreased significantly ($P < 0.05$).

Conclusions: The insights from a report on the use of DOR/3TC/TDF in routine clinical practice in China provided an overview of the effectiveness and safety for clinical doctors treated this patient population.

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Retrospective Analysis of HIV Treatment Satisfaction Questionnaire Scores in Well-Controlled People Living with HIV

Yoshino Y^{1,2}, Kitazawa T²

¹Teikyo University, School of Medicine, Department of Microbiology and Immunology, Itabashi, JAPAN, ²Teikyo University Hospital, Internal Medicine, Infectious Disease group, Itabashi, JAPAN

Background: Significant advancements in HIV treatment have led to improved viral suppression and immune function restoration in people living with HIV (PLWH). However, given the chronic nature of HIV infection, lifelong adherence to antiretroviral therapy (ART) is essential. As a result, treatment satisfaction has gained increasing recognition as a key component of long-term HIV management. While the effectiveness of ART in controlling viral replication is well-documented, the impact of treatment satisfaction on adherence and overall patient well-being remains an area of active investigation. This study retrospectively examined HIV Treatment Satisfaction Questionnaire (HIVTSQs) scores collected in routine clinical settings, aiming to identify factors influencing patient satisfaction and potential areas for optimizing HIV care.

Methods: This retrospective study included PLWH who attended Teikyo University Hospital for ART and completed the HIVTSQs as part of routine patient-reported outcome assessments between September and December 2024. In addition to analyzing HIVTSQs scores, we reviewed laboratory data, including blood test results related to HIV infection and overall immune function. We also examined the presence of non-HIV-related comorbidities and complications. Statistical analyses were conducted using Welch's t-test and correlation analysis for univariate comparisons, while multivariate analysis was performed using logistic regression to identify independent predictors of treatment satisfaction.

Results: A total of 59 participants were included in the study, all of whom were male. The mean age of the cohort was 49.9 years, and the average

duration of HIV treatment was 137.9 weeks. Among these individuals, 89.9% achieved virological suppression, defined as a viral load of less than 20 copies/mL. The mean CD4-positive lymphocyte count was 631.4/ μ L, reflecting adequate immune recovery in most cases. The mean HIVTSQs score was 59.3 (range: 0–66), suggesting a generally high level of treatment satisfaction among participants. Notably, the type of ART regimen did not significantly influence patient satisfaction. However, individuals with mental health disorders exhibited significantly lower HIVTSQs scores compared to those without such conditions (60.7 vs. 53.1, $p = 0.028$). Additionally, a shorter interval between clinical visits was significantly associated with higher HIVTSQs scores ($p = 0.033$).

Conclusions: Overall, PLWH receiving ART at our institution reported high levels of treatment satisfaction. While factors directly related to HIV infection, including specific ART regimens, did not significantly affect patient satisfaction, the presence of mental health disorders emerged as a key determinant of lower satisfaction scores. These findings underscore the importance of integrating mental health support into routine HIV care to enhance overall treatment experiences. Additionally, ensuring more frequent clinical follow-ups may contribute to higher patient satisfaction, possibly through enhanced patient-provider interactions and support mechanisms. Addressing these factors may play a critical role in optimizing long-term treatment adherence and improving quality of life among PLWH.

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Long-Term Efficacy and Safety of BIC/FTC/TAF in ART-Naïve HIV-1 Infected Patients: A 96-Week Retrospective Analysis

Lv S¹, Li Q¹, Lan Y¹, Tang X¹, Li L¹

¹Guangzhou Eighth People's Hospital, Guangzhou, China

Background: Bictegravir/emtricitabine/tenofovir alafenamide (BIC/FTC/TAF) has demonstrated potent virologic suppression and favorable tolerability in multiple prospective studies. However, comprehensive data on its long-term real-world effectiveness, particularly in terms of drug resistance and metabolic profiles, remain limited.

Materials and methods: This retrospective cohort study enrolled ART-naïve HIV-1-infected individuals who initiated BIC/FTC/TAF between January 2020 and December 2022, with a 96-week follow-up. Treatment efficacy, defined as achieving HIV-1 RNA <50 copies/mL, was assessed in all patients. The study also analyzed pre-treatment and acquired drug resistance, and comprehensively evaluated changes in immune function and metabolic parameters (including body weight, lipid profile, and renal function) throughout the observation period.

Results: A total of 219 patients were enrolled. The results showed that 1.6% (3/191), 21.5% (41/191), 2.1% (4/191), and 6.1% (4/66) of patients had pre-treatment drug resistance mutations to nucleoside reverse transcriptase inhibitor (NRTI), nonnucleoside reverse transcriptase inhibitor (NNRTI), protease inhibitor (PI), and integrase strand transfer inhibitor (INSTI), respectively. Three patients underwent drug resistance testing due to virologic failure, with one successfully tested and no resistance detected. After 96 weeks, patients with high baseline viral load (baseline HIV-1 RNA >5*10⁵ copies/mL) achieved comparable rates of virologic suppression to those with lower baseline viral load (71.7% vs. 71.3%, P=0.950). Patients with baseline CD4+ T cell count <200 cells/μL showed a lower virologic suppression rate compared to those with >350 cells/μL, but the difference was not statistically significant (65.9% vs. 77.4%, P=0.126). Similarly, patients with

opportunistic infections had a numerically lower virologic suppression rate than those without (63.6% vs. 71.5%, P=0.254). In terms of immune recovery, patients with a higher baseline viral load exhibited a significantly greater increase in CD4+ T cell count compared to those with a lower baseline viral load (+334 vs. +234 cells/μL, P=0.005). Patients with opportunistic infections experienced slower CD4+ T cell growth in the early phase of treatment but showed a more rapid increase after 72 weeks. Body mass index (BMI) increased rapidly before week 48, with a rising proportion of overweight (25 ≤ BMI <30) and obese (BMI ≥30) patients, but stabilized after week 72. Female patients experienced a faster BMI increase than males before week 48 (+1.27 vs. +1.06 kg/m², P=0.464), but the difference between the two groups became negligible after week 72. Lipid levels, including total cholesterol (TC), high-density lipoprotein (HDL), and low-density lipoprotein (LDL), increased significantly before week 24 (3.88 vs. 4.42 mmol/L, P<0.001; 0.96 vs. 1.16 mmol/L, P<0.001; 2.36 vs. 2.60 mmol/L, P<0.001) and stabilized after week 48, while triglycerides (TG) showed no significant changes throughout the follow-up period (1.28 vs. 1.34 mmol/L, P=0.146). Estimated glomerular filtration rate (eGFR) declined significantly before week 24 (112.3 vs. 100.37 mL/min/1.73m², P<0.001) but stabilized after week 48.

Conclusions: This study demonstrated that BIC/FTC/TAF exhibited sustained virologic suppression and robust immune recovery in ART-naïve patients, with no treatment-related resistance mutations detected. Although some effects on body weight, lipid profiles, and renal function were observed, these changes largely stabilized after week 48, suggesting good long-term safety and tolerability of BIC/FTC/TAF.

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Survival Status and Mortality Risk of HIV/AIDS Patients in Shaoyang, China, 1997-2024

Long Z¹, Li Z², Peng F³¹Shaoyang Central Hospital, Shaoyang, Hunan, China,²Shaoyang Center for Disease Control and Prevention,³The Second Xiangya Hospital of Central South University, Changsha, Hunan, China

Background: Although AIDS has become a chronic and manageable disease, it is still the number one legally recognized infectious disease in China in terms of deaths in 2023. This poses a huge challenge to public health in China. We collected key information on the journey of HIV/AIDS patients and explored the risk factors for death in HIV/AIDS patients.

Methods: HIV/AIDS patients in Shaoyang, China, diagnosed from December 1, 1997 to April 30, 2024 were taken as study subjects. Data were obtained from the AIDS Information Management System of the Chinese Center for Disease Control and Prevention (CDC). The relationship between demographic characteristics, CD4 lymphocyte count, antiretroviral treatment status and mortality was retrospectively analyzed. Kaplan-Meier plotting of survival curves and PH hypothesis testing were used. Based on Cox regression modeling, univariate and multivariate analyses were performed to analyze the mortality-related influences on the participants. Cause-of-death distributions were compared using the chi-square (χ^2) test, and $P < 0.05$ was considered statistically different.

Results: A total of 5,805 patients were included in the study, with 1,941 deaths observed during the follow-up period. Non-AIDS-related diseases accounted for 54.20% of the causes of death, and the all-cause mortality rate was 9.01 per 100 person-years. Males had a 1.447-fold higher risk of death compared to females; the risk of death was positively correlated with the age at diagnosis; and the level of education was negatively correlated with the risk of death. Patients in the baseline CD4 count group of 0-200 had a 1.497-fold higher risk of death compared to those in the ≥ 500 group ($P < 0.001$), and the mortality rate in this group was also higher than in other groups. The last CD4

count was negatively correlated with both mortality rate (92.90 to 2.38 per 100 person-years) and risk of death (10.323 to 1.0) ($P < 0.001$). The mortality rate among patients who did not receive antiretroviral therapy (ART) was 36.37 per 100 person-years, which was higher than the 4.21 per 100 person-years among those who did receive ART, with a maximum hazard ratio for death of 6.578 between the two groups ($P < 0.001$). Among the ART groups, the risk of death for those on regimens containing lopinavir/ritonavir (LPV/r), non-nucleoside reverse transcriptase inhibitors (NNRTI), and integrase strand transfer inhibitors (INSTI) was 4.902, 2.769, and 1, respectively ($P < 0.001$). The proportion of deaths due to cardiovascular and cerebrovascular diseases was higher in the LPV/r-containing regimen group (11.79%) compared to the NNRTI-containing regimen group (7.26%) ($\chi^2 = 3.872$, $P = 0.049$).

Conclusion: HIV/AIDS patients in Shaoyang City face a high risk of mortality. Male gender, older age, low educational level, not receiving ART, and low baseline/last CD4 counts are significant factors that increase the risk of death. Regimens containing INSTI can significantly reduce mortality. Therefore, early case detection, timely optimization of ART regimens, and strengthening patient management and adherence education have certain clinical significance for reducing the mortality risk of HIV/AIDS patients.

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The Role of Genotypic Resistance Testing in Virological Failures in the Age of Integrase Inhibitors: A Single-Centre Retrospective Study

Sng E¹, Lee A¹, Ismail F¹, Lee W¹

¹Changi General Hospital, Singapore, Singapore

Background: Virological failures (VF) with treatment-emergent resistance can develop when compliance to anti-retroviral treatment (ART) is suboptimal. Genotypic resistance testing (GRT) may be useful to guide ART change. Integrase inhibitors (II), with its high barrier to resistance, have emerged as a core component of first-line ART regimens. Consequently, II-containing regimens are more “forgiving” – occasional missed doses may not result in treatment-emergent resistance. In this study, we analysed patients with HIV-1 who developed viremia > 200 copies/ml to identify the optimal management approach.

Materials and methods: This single-centre, retrospective study was conducted at Changi General Hospital. Previously virologically suppressed patients with HIV-1 who developed HIV-1 viremia > 200 copies/ml between 01 Jan 2023 and 22 Jan 2025 were identified. Relevant demographic data and clinical information were collected via an electronic medical record review.

Results: Over the two-year study period, a total of 39 previously virologically suppressed patients with HIV-1 developed HIV-1 viremia of > 200 copies. The mean age of the patients was 52.8 (SD=15.8) years old. Almost all (35/39, 89.7%) were male. Median time from HIV diagnosis was 80 (IQR=56-127) months. Median CD4 count was 340 (IQR=220-549) cells/uL. Median HIV-1 RNA load was 2,910 (IQR=300-17,600) copies/ml. The majority (33/39, 84.6%) were on an II-containing ART regimen. 24 patients were assessed to have developed VF. Among these, median HIV-1 RNA was 9,805 (IQR=3,115-82,800) copies/ml. 10 patients were assessed to have viral blips. Among these, median HIV-1 RNA was 320 (IQR=221-444)

copies/ml. The remaining five patients did not have a repeat viral load, and hence could not be classified.

GRT was performed in six patients (four on a non-II-containing regimen, two on DTG/3TC). Of these, treatment-emergent resistances were detected in half of them (3/6, 50%). All were on a non-II-containing regimen [ABC/3TC/RPV (n=1), AZT/3TC/RPV (n=1), TDF/FTC/EFV (n=1)]. M184V was the most common mutation detected (n=3). In addition to the three patients with treatment-emergent resistances, changes to ART were made in another three patients – two were to reduce cost of ART (TAF/FTC/BIC > TDF/3TC/DTG), one was to augment the existing two-drug regimen (DTG/3TC + entecavir > TAF/3TC/DTG/DRVr) in a patient who required intensification of immunosuppressive therapy for immune thrombocytopenia. The remaining 17 patients were restarted/maintained on the same ART, and all re-achieved virological suppression with good compliance. 16 out of 17 were on an II-containing ART regimen [ABC/3TC/DTG (n=10), TAF/FTC/BIC (n=4), TDF/3TC/DTG (n=1), DTG/3TC (n=1), TDF/FTC/RPV (n=1)]. All patients with VF were assessed to be partly or non-compliant with ART. Poor health literacy (n=9), financial difficulties (n=5), busy schedules (n=5), active psychiatric disorders (n=5), medication confusion due to polypharmacy (n=3) were the most common reasons for suboptimal compliance.

Conclusions: Routine GRT may not be necessary in all patients with VF. In our cohort of patients with VF, restarting/maintaining the same ART re-achieved virological suppression in all patients whose baseline ART was an II-containing three-drug regimen. GRT, when performed, detected treatment-emergent resistances only in patients on non-II containing ART regimens, suggesting that it remains useful when VF occurs on less robust ART regimens.

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Metabolic, Hepatic and Renal Function Changes in HIV/AIDS Patients Switching to Ainaovirine/Lamivudine/Tenofovir Disoproxil Fumarate: A Retrospective Study in Beijing

Liu A¹, Zhang H¹, Li A¹, Wang X¹, Ye J¹, Li J¹, Shao Y¹, Li Z¹, Sun L^{1,2}

¹Beijing Youan Hospital, Capital Medical University, Beijing, China, ²Chinese Association of STD and AIDS Prevention and Control, Beijing, China

Background: The management of HIV/AIDS patients often requires adjustments in antiretroviral therapy (ART) due to adverse effects or sub-optimal responses. This study aimed to evaluate the metabolic, hepatic and renal function changes in early stage among those who switched to an ainoovirine 150 mg/lamivudine 300 mg/tenofovir disoproxil fumarate 300mg (ANV/3TC/TDF) regimen.

Methods: This retrospective study analyzed data from 496 HIV/AIDS patients who switched to ANV/3TC/TDF since September 2023 at Beijing Youan Hospital, as recorded in the hospital's ART management information system. Baseline characteristics, including age, gender, CD4 count, and HIV RNA levels, were collected. Changes in weight, triglycerides (TG), total cholesterol (TC), high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL-C), aspartate aminotransferase (AST), alanine aminotransferase (ALT), and glomerular filtration rate (GFR) were assessed at 4 and 12 weeks post-initiation. The Wilcoxon rank-sum test was used to evaluate the significance of changes from baseline at each time point. Additionally, the Kruskal-Wallis test was employed to assess trends in these parameters across baseline, 4 weeks, and 12 weeks.

Results: A total of 496 patients were included, with the mean age of 39.43 ± 10.26 years, and 97.18% being male. The primary reasons for switching to ANV/3TC/TDF included hyperlipidemia (32.26%), central nervous system symptoms (8.06%), and hepatic impairment (7.66%). Weight remained stable throughout the

study period, with no significant changes observed at 4 weeks ($P=0.232$) or 12 weeks ($P=0.465$). Significant changes were observed in lipid profiles over the 12-week period. TG decreased from a baseline median of 1.56 mmol/L (IQR: 1.09, 2.39) to 1.40 mmol/L (IQR: 0.90, 2.20) at 12 weeks ($P=0.006$). TC also showed a significant reduction from 4.525 mmol/L (IQR: 3.94, 5.21) to 4.31 mmol/L (IQR: 3.79, 4.86) ($P=0.004$). HDL-C levels decreased significantly from 1.13 mmol/L (IQR: 0.95, 1.32) at baseline to 0.89 mmol/L (IQR: 0.78, 1.04) at 12 weeks ($P<0.001$). LDL-C levels remained relatively stable ($P=0.724$). Liver function markers, including AST, showed a significant decrease from baseline to 12 weeks ($P=0.003$), while ALT and GFR changes were not statistically significant. The Kruskal-Wallis test revealed significant trends over time for TG ($P=0.022$), TC ($P=0.011$), HDL-C ($P<0.001$), AST ($P=0.005$), and GFR ($P=0.020$).

Conclusion: Switching to ANV/3TC/TDF was associated with significant improvements in lipid profiles and liver function markers within 12 weeks, suggesting its potential as a favorable option for patients with metabolic or hepatic concerns.

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Safety, Pharmacokinetics, and Efficacy of Albuvirtide Administered by Intravenous Bolus Every Four Weeks in Combination with Oral Dolutegravir in Virologically Suppressed Adults Living with HIV-1: A 24-Week Study

Long H¹, Xie X¹, Fu Y¹, Gan L¹, Yang X¹, Song Y¹, Song C¹, Sun F¹, Guo L¹

¹Guiyang Public Health Clinical Center, Guiyang, China

Background: A previous study demonstrated 640 mg albuvirtide (ABT) by intravenous drip every 4 weeks with daily oral Dolutegravir (DTG) exhibited excellent tolerability and good clinical effectiveness. Bolus injection resulted in shorter infusion time and reduced nursing requirements, which might benefit to people living with HIV-1 and medical practitioners. Therefore, we conducted this prospective study to evaluate the efficacy, safety, and pharmacokinetic profile of ABT 640mg administered every 4 weeks by intravenous bolus combined with daily oral DTG in virologically suppressed adults living with HIV-1.

Methods: This prospective study was conducted at the Guiyang Public Health Clinical Center from January 2024 to October 2024. The study included participants with HIV-1 RNA < 50 copies/mL and over 18 years of age. The participants need to first receive treatment with tenofovir (TDF) + lamivudine (3TC) + DTG for 2 weeks, and then switch to 640mg of ABT administered by intravenous bolus plus DTG for 24 weeks.. The primary endpoints were the virologic failure rate and pharmacokinetic interactions between ABT and DTG. Secondary endpoints included immunological response and tolerability.

Results: A total of nine participants completed the 24-week treatment. No virologic failures occurred throughout the entire 24-week period. CD4+ T cell counts exhibited a statistically significant increase from baseline to week 24 (mean change +70.44 ± 80.22 cells/μL, p=0.0300). Albuvirtide's steady-

state trough concentration was 1.95±0.93μg/mL, which was 26 times higher than the protein-adjusted concentration required for 90% viral inhibition (PA-IC90) of 0.075μg/mL. In the ABT+DTG combination regimen, DTG maintained a steady-state trough concentration of 1.33 ± 0.57 μg/mL, representing a 20.78-fold margin above its PA-IC90 (0.064 μg/mL), suggesting sustained antiviral activity throughout the dosing interval. No clinically significant drug-drug interactions were noted between ABT and DTG. The most frequently reported adverse events were mild laboratory abnormalities, and no treatment discontinuations due to adverse events.

Conclusions: 640 mg ABT by intravenous bolus very 4 weeks with daily oral DTG in virologically suppressed adults living with HIV-1 demonstrated good safety, favorable pharmacokinetics, maintained virological suppression, and improved immune recovery.

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Safety and Efficacy of Four-Weekly Albuvirtide Plus Dolutegravir in Virologically Suppressed Adults Living with HIV-1: A Pooled Analysis Based on Two Prospective Studies

Xie X¹, Fu Y¹, Lin G¹, Yang X¹, Song Y¹, Song C¹, Sun F¹, Guo L¹, Long H¹

¹Guiyang Public Health Clinical Center, Guiyang, China

Background: Two completed prospective single-arm studies have shown that four-weekly ABT combined with oral DTG in virologically suppressed adults living with HIV-1 has good safety and efficacy. In order to further verify its efficacy and safety, we combine the data of the participants from these two clinical trials for analysis.

Methods: Two studies were completed at the Guiyang Public Health Clinical Center in 2023 and 2024 respectively. Participants with HIV-1 RNA less than 50 copies/mL were switched to a treatment regimen of 640mg of four-weekly ABT plus DTG. The inclusion and exclusion criteria for both studies were the same, and the follow-up time was 24 weeks. However, the study completed in 2023 used ABT administered by intravenous drip, while the study completed in 2024 used ABT administered by intravenous bolus. Both of the two studies evaluated the safety, pharmacokinetic profile of ABT in plasma, HIV-1 viral load and CD4+ T cell counts during treatment.

Results: A total of 19 participants were included in this pooled analysis, among which 10 participants received ABT by intravenous drip and 9 participants received ABT by intravenous bolus. All participants maintained virological suppression (HIV-1 RNA < 50 copies/mL) after 24 weeks of treatment. After 24 weeks of treatment, the CD4 + T cell count increased by 91.74 ± 160.49 cells/ μ L from the baseline ($P = 0.023$). The ratio of CD4 to CD8 increased by 0.04 ± 0.07 from the baseline, and this result was statistically significant ($P = 0.031$). The steady-state trough concentrations of ABT measured at the 12th week of administration in the two studies were 2.33 ± 0.87 μ g/mL and

1.95 ± 0.93 μ g/mL respectively, both of which were higher than the protein-adjusted concentration required for 90% viral inhibition (PA-IC90). All treatment-emergent adverse events (TEAEs) were mild and moderate, and no serious adverse events (SAE) were reported.

Conclusions: Whether ABT is administered by intravenous infusion or bolus injection, the drug concentration within the body remains above the effective concentration. Additionally, good safety and efficacy have been initially observed, warranting further validation of the clinical efficacy of this regimen.

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Incidence of Insomnia Following Transition from Nevirapine to Dolutegravir-Based Antiretroviral Therapy in Indonesia

Budiyani L¹, Yuniastuti E¹, Pane M¹, Adi Pratama M¹, Harjono Karjadi T¹, Syahrani A², Natali V², Putranto R³

¹Allergy Immunology Division, Department of Internal Medicine, Cipto Mangunkusumo Hospital, Jakarta, Indonesia, ²HIV and Infectious Diseases Integrated Unit, Cipto Mangunkusumo Hospital, , Indonesia, ³Psychosomatic and Palliative Medicine Division, Department of Internal Medicine, Faculty of Medicine, Universitas Indonesia, , Indonesia

Background: Since 2018, the World Health Organization has recommended Dolutegravir (DTG)-based antiretroviral therapy (ART), an integrase strand transfer inhibitor (INSTI), for most people living with HIV (PLWH). Consequently, many countries have transitioned from older ART regimens, often based on non-nucleoside reverse transcriptase inhibitors (NNRTIs), to DTG-based ART. Data from adult cohort studies suggest that dolutegravir is associated with neuropsychiatric manifestations particularly insomnia, although less than efavirenz. While other study mostly reported transition from efavirenz to dolutegravir-based ART, in this study we reported transition from nevirapine, that has rare insomnia cases. The objectives of this analysis are to evaluate incidence of insomnia and the risk factors in patients treated with DTG-based regimens.

Methods: This was a prospective observational study conducted from March 2023 to December 2024. The inclusion criteria for this study were PLWH aged >18 years, undergoing a nevirapine-based ARV treatment transition program to dolutegravir, and not experiencing insomnia at baseline. Data collection was conducted from the HIV and Infectious Diseases Integrated Unit in Cipto Mangunkusumo Hospital, Jakarta, Indonesia. Participants underwent evaluation at baseline, 6th month, and 12th month by answering the Modified HIV Symptom Index questionnaire which includes 11 items regarding neuropsychiatric symptoms related to HIV/ART. Insomnia was defined if the participants had answered

symptoms regarding difficulty in sleeping/ easily awakened during evaluation. Sociodemographic characteristic data such as age, gender, body mass index, duration of ARV initiation, previous regimens used, and risk factors were measured at baseline and obtained from patient medical records.

Results: A total of 213 participants were included in this study, of whom 132 (62%) were male with predominant age was 40-49 years (64.8%) and predominant HIV transmission risk factor was heterosexual relationship (43.2%). The median duration of ART before switching was 14 (10-17) years with last regiment used were AZT, 3TC/FTC, NVP (71.8%) and TDF, 3TC/FTC, NVP (28.2%). Among 213 participants, the prevalence of insomnia was 21.1%. At multivariate analysis, having other neuropsychiatric symptoms at follow up, such as fatigue or lack of rest, dizziness, difficulty remembering, sadness, anxiety, headaches, nightmares, irritability, hallucinations, and suicidal ideation at follow up were significantly associated with insomnia [aOR: 21.412, 95% CI: 2.854 – 160.628. p <0.01]. Even though BMI were not statistically significant, it shows that underweight [aOR: 3.215, 95% CI: 0.299 – 1.293. p = 0.08] have a higher risk of getting insomnia than participants who have normal weight. Age, sex, risk factor for HIV transmission, baseline neuropsychiatric symptoms, and previous ART regiment were not associated with insomnia.

Conclusion: A total of 21.1% participants that have undergone DTG transition had developed insomnia. The risk factor associated was having other neuropsychiatric symptoms at follow up. Although more studies are required, it is recommended to assess other neuropsychiatric background after starting treatment with DTG.

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Dynamic Analysis of Antiretroviral Therapy Effects and Adverse Events in People Living with HIV Undergoing Dialysis

Ji J¹, Hou m², zuo l, zhao q

¹The third People's Hospital of Hengyang, Hengyang, China,

²The Sixth People's Hospital of Zhengzhou, Zhengzhou, China,

³The Sixth People's Hospital of Kaifeng, Kaifeng, China

Background: People living with HIV undergoing dialysis are at higher risk of adverse effects and reduced treatment efficacy due to the interaction between renal insufficiency and antiretroviral therapy (ART). Renal impairment can lead to drug accumulation and increased toxicity, complicating the management of ART in this vulnerable population. Despite the growing number of people living with HIV requiring dialysis, research on the long-term effects and adverse events of ART in this group is limited. This study aims to fill this gap by dynamically evaluating laboratory parameters and adverse events in dialysis people living with HIV, assessing ART effectiveness, and exploring the potential for personalized treatment strategies to improve outcomes and reduce adverse effects.

Methods: This study included people living with HIV who received dialysis treatment from three different hospitals between January 2003 and June 2023. Patients were treated with one of four ART regimens: 3TC+DTG, 3TC+lpv/r, ABT+DTG, or DTG+lpv/r. Data were collected at baseline (T0), 24 weeks (T1), and 48 weeks (T2), including demographic information, clinical characteristics, laboratory parameters, and the incidence of 10 common ART-related adverse events. The association of different antiviral regimens with adverse events was explored using the chi-square test, and the temporal trends of the laboratory indices were analyzed by a mixed-effects model. Patients were classified using latent class analysis (LCA) to explore the possibility of personalized treatment. Finally, The consistency of the symptom clusters of adverse events at the three time points was assessed by the Fleiss' Kappa statistic.

Results: A total of 30 AIDS dialysis patients were included in this study, with an average age of 49.7 ± 12.36 years, including 20 males and 10 females. The median duration of antiviral therapy was 100.5 months, and the median duration of dialysis was 4.5 months. At baseline, the incidence of adverse events was higher, with the most common being rash (45%) and nausea (35%). As treatment progressed, the incidence of these adverse events significantly decreased at 48 weeks, with rash decreasing to 15% and nausea to 10%. Chi-square test results showed significant correlations between some adverse events and different antiviral treatment regimens. The incidence of fatigue differed significantly across treatment groups ($\chi^2=13.37$, $P=0.0039$). Mixed-effects model analysis showed that hemoglobin (HGB) at baseline was significantly associated with anemia risk ($R^2=0.079$, $P=0.025$), while alanine aminotransferase (ALT) and triglycerides (TG) showed near-significant trends. Immunological indicators, such as CD4 and white blood cell count, remained stable, with no significant time effects. Latent class analysis identified three distinct patient subgroups, with significant differences in adverse reactions and changes in laboratory indicators. The Fleiss' Kappa coefficient was 0.15, indicating significant changes in adverse event patterns over time, highlighting the importance of dynamic management of adverse events during treatment.

Conclusions: The adverse events of dialysis AIDS patients in antiviral therapy were gradually reduced, and fatigue and abdominal distension were related to the treatment plan. Hemoglobin and liver function were improved, and immune function remained stable. Personalized treatment can optimize the efficacy and reduce the risk of adverse events.

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Efficacy and Safety of Switching to Dolutegravir Plus Lamivudine in Virologically Suppressed HIV-1 Infected Adults with Evidence of TDF Toxicity: Interim Analysis through Week 48

Wang Z¹, Liu L, Chen J, Wang J, Qi T, Sun J, Song W, Tang Y, Xu S, Yang J, Shen Y, Zhang R

¹Shanghai Public Health Clinical Center, Shanghai, China

Objects: This study aimed to investigate the efficacy and tolerability of dolutegravir plus lamivudine (DTG+3TC) in HIV-1 infected adults who were virologically suppressed and experienced TDF-related renal toxicity.

Methods: Participants in this single-center, prospective, uncontrolled, open-label and single-arm interventional study were virologically suppressed (plasma HIV-1 RNA < 40 copies/mL) adults aged 18 to 75 years. Eligible participants had been on a stable TDF-based regimen for at least 6 months prior to screening and exhibited TDF-related bone or renal biomarkers. Participants switched to DTG+3TC. The endpoints included the proportion of patients with virologic failure (HIV-1-RNA $\geq$ 40 copies/mL), CD4+ cell counts, lipid profile and renal biomarkers.

Results: This interim analysis included 49 participants with a median age of 44.9 years. Overall, 48 participants (98.0%) maintained an HIV-1 RNA level below 40 copies/mL ($p = 0.317$). At week 48, one participant had an HIV-1 RNA level of 79.6 copies/mL, necessitating further monitoring. No participant met the criteria for confirmed virologic failure or required a change in treatment regimen by week 48. The median of CD4+ cell counts significantly changed from 587 cells/mm³ at baseline to 658 cells/mm³ at week 48 ($p = 0.027$). For renal biomarkers, through week 48, serum creatinine increased from 89.75 μ mol/L to 107.54 μ mol/L ($p < 0.001$) and eGFR decreased from 85.85 ml/min*1.73m² to 69.09 ml/min*1.73m² (calculated by serum creatinine, $p < 0.05$). No significant change in serum cystatin c

(from 0.90 mg/L to 0.91 mg/L, $p = 0.543$) was observed. Urine microalbumin/creatinine ratio significantly decreased from 20.69 μ g/mg to 14.23 μ g/mg ($p = 0.008$) and urine β 2-microglobulin obviously decreased from 1049.87 μ g/L to 408.55 μ g/L ($p < 0.001$). For lipid parameters, through week 48, TC and LDL-C increased from 4.67 mmol/L to 4.74 mmol/L ($p = 0.323$) and from 2.71 mmol/L to 2.90 mmol/L ($p = 0.020$), respectively. HDL-C and TG decreased from 1.20 mmol/L to 1.13 mmol/L ($p = 0.585$), and from 1.96 mmol/L to 1.55 mmol/L ($p = 0.006$), respectively.

Conclusions: In HIV-1-infected adults with virological suppression and TDF-related toxicity, switching to DTG+3TC demonstrated sustained efficacy, good tolerance, and improved renal biomarkers over 48 weeks. The increase in serum creatinine levels after switch was consistent with the known impact of DTG on tubular secretion of creatinine. There was a minor effect on lipid metabolism. These findings reinforce the clinical advantages of switching to DTG+3TC for patients with TDF-related toxicity.

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Assessment of Sarcopenia and Metabolic Abnormalities in HIV Patients Stable on Antiretroviral Therapy: A Cross-Sectional Analysis of an Indian Cohort

Chavan A¹, Kattamuri L¹, Choppala P¹, Sethi P¹, Nischal N¹, Vikram N¹, Wig N¹

¹Department of Medicine, All India Institute Of Medical Sciences Delhi, New Delhi, India

Background: Despite improved survival with antiretroviral therapy (ART), metabolic and musculoskeletal complications, including dyslipidemia, dysglycemia, and sarcopenia, are emerging as significant health concerns in people living with HIV (PLHIV). The tenofovir-lamivudine-dolutegravir (TLD) regimen, an integrase inhibitor-based therapy, is widely used in India, yet data on sarcopenia and metabolic abnormalities in Indian PLHIV on TLD remain scarce. This study aimed to assess the sarcometabolic profile of stable PLHIV on ART and identify practical outpatient screening cutoffs for probable sarcopenia.

Methods: We conducted a cross-sectional study of 84 clinically stable PLHIV on ART (≥ 2 years) at a tertiary care center in India, of whom 97.6% were receiving the TLD regimen. The mean CD4 count was 522 (393-648.5) cells/mm³, and all participants had an undetectable viral load. Clinical, anthropometric, and muscle function assessments included Hand Grip Strength (HGS), Short Physical Performance Battery (SPPB), and Bioelectrical Impedance Analysis (BIA). Blood investigations were performed to assess dysglycemia, dyslipidemia, metabolic syndrome, and insulin resistance.

Results: • **Sarcopenia & Screening Cutoffs:** Probable sarcopenia was observed in 8.3%, though none met the Asian Working Group for Sarcopenia (AWGS) criteria for confirmed sarcopenia. A right arm circumference (RAC) < 23 cm (Youden's index = 0.60, sensitivity 75%, specificity 85.7%, $p < 0.001$) and Skeletal Muscle Index (SMI) ≤ 9.69 kg/m² in males (sensitivity 83.3%, specificity 62.9%, $p = 0.02$) were identified as potential outpatient

screening markers. Among those with probable sarcopenia, 85% were men, and the median duration of ART was longer compared to those without sarcopenia.

- **Metabolic Abnormalities:** Dysglycemia was present in 33%, with 8.3% newly diagnosed with diabetes. Dyslipidemia was highly prevalent (76.2%), with low HDL in 64.3%, high LDL in 28.6%, and hypertriglyceridemia in 23.8%. Metabolic syndrome was observed in 16.6%, while high waist-to-hip ratio and abdominal obesity were present in 82.1% and 57.1%, respectively, highlighting the significant burden of metabolic abnormalities and potential cardiovascular risk.
- **Sarcopenia and Metabolic Profile:** Probable sarcopenia showed a trend toward lower BMI (median 23.4 kg/m² vs. 24.2 kg/m², $p = 0.59$), lower body fat percentage (21.2% vs. 25.2%, $p = 0.20$), and higher waist-to-hip ratio (0.97 vs. 0.94, $p = 0.69$), suggesting a potential link between lipodystrophy and muscle loss. However, no significant correlation was found between probable sarcopenia and dysglycemia ($p = 0.52$), dyslipidemia ($p = 0.43$), or insulin resistance ($p = 0.21$).

Conclusion: This is one of the first studies from India to evaluate both sarcopenic and metabolic abnormalities in PLHIV receiving TLD (Integrase inhibitor-based ART). Despite viral suppression, the high prevalence of metabolic complications underscores the need for routine screening and early intervention. Given the limited applicability of AWGS sarcopenia criteria in this population, RAC < 23 cm and SMI ≤ 9.69 kg/m² could serve as practical outpatient screening tools. Larger studies are needed to establish Indian-specific reference values. Addressing metabolic and musculoskeletal disturbances is critical to mitigating long-term cardiovascular risks and improving quality of life in PLHIV.

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Analysis of the Prevalence of Metabolic Diseases and its Influencing Factors in HIV-Infected Persons in Henan Province, 2023

Sun Y¹, Chen Z¹, Zhao Q¹, Yang X¹, Liu C¹, Hou M¹, Deng M¹, Zhao S¹, Li Q¹, Zhang Z¹

¹6th Hospital Of Zhengzhou, Zhengzhou, China

Objective: To understand the prevalence of three common chronic diseases, hyperlipidemia, hypertension and diabetes in HIV-infected persons, and to analyze the influencing factors of the three chronic diseases.

Methods: As of December 2023, HIV-infected persons > 15 years old who are receiving antiretroviral therapy (ART) and follow-up in Henan Province were selected as the study objects. Questionnaires, physical examinations, and blood samples were collected to collect demographic information, ART, body weight, blood lipids, blood pressure, and blood sugar of HIV-infected persons. The logistic regression model was used to analyze the related factors of hyperlipidemia, hypertension and diabetes.

Results: Among 4023 HIV-infected patients, the prevalence rates of hyperlipidemia, hypertension, and diabetes were 64.47% (2 594/4023), 16.80% (676/4 023), and 10.54% (424/4 023), respectively. Multivariate analysis showed that hyperlipidemia was positively associated with ≥40 years of age, overweight and obesity, two nucleoside reverse transcriptase inhibitors (NRTIs) + proteasome inhibitors (PIs) regimen and two NRTIs+ integrase inhibitor (INSTI) regimen, and negatively associated with low body weight. Hypertension was positively correlated with the age group ≥40 years old, family history of cardiovascular and cerebrovascular diseases, overweight and obesity, ART time ≥0.5 years, and negatively correlated with low body weight. Diabetes was positively associated with age group ≥40 years, family history of cardiovascular and cerebrovascular disease, overweight and obesity, and negatively associated with the use of two NRTIs+PIs treatment regimens.

Conclusions: In 2023, the prevalence of hyperlipidemia, hypertension, and diabetes among HIV-infected people in Henan Province was relatively high, and the risk of common chronic diseases among those ≥40 years old, overweight and obese, and those with a family history of cardiovascular and cerebrovascular diseases was relatively high. It is recommended to strengthen the prevention and management of common chronic diseases among HIV-infected people.

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Research on the Diagnostic Value in Cerebrospinal Fluid and Blood Biomarkers of HIV-Associated Neurocognitive Disorders

Wei J¹, Chen X, Su B, Zhang T

¹Capital Medical University, Beijing, China

Objective: The incidence of HIV-associated neurocognitive disorder (HAND) has not been significantly reduced despite the widespread use of antiretroviral therapy (ART). Currently, the diagnosis of HAND relies on systematic cognitive testing, and no simple and convenient diagnostic methods are available. Since the emergence of HAND, researchers have proposed numerous biomarkers in cerebrospinal fluid and/or plasma as potential indicators for predicting or diagnosing the occurrence and progression of HAND. However, a comprehensive meta-analysis of the diagnostic performance of these biomarkers has not yet been conducted. This study aims to systematically review research on cerebrospinal fluid and blood biomarkers for diagnosing HAND to assess which biomarkers are most likely to be altered in patients with HAND.

Methods: In this meta-analysis, we searched for literature on cerebrospinal fluid (CSF) and blood biomarkers of HAND published before January 11, 2025, in PubMed, Embase, and Web of Science. Additionally, we reviewed the reference lists of relevant reviews and all included studies to ensure comprehensive article retrieval. We included cross-sectional studies and baseline measurements from cohort studies that provided data for HAND and non-HAND HIV-infected groups. Data extraction was performed by two authors and cross-checked to ensure accuracy. The quality of the included studies was assessed using the QUADAS (Quality Assessment of Diagnostic Accuracy Studies) criteria. After standardizing the concentrations of all included biomarkers, a random-effects model was used for the meta-analysis.

Results: A total of 31 eligible studies were ultimately included, comprising 1,687 patients

with HAND and 1,925 HIV-infected individuals without HAND. 29 CSF and plasma biomarkers were identified. The meta-analysis results showed that the CSF biomarkers with significant differences between HAND patients and HIV-infected individuals without HAND were: A β -42 (standardized mean difference [SMD] 5.74, 95% CI 5.50–7.99, $p < 0.01$), t-tau (SMD 3.43, 95% CI 0.24–6.62, $p = 0.04$), tau (SMD -0.82, 95% CI -1.50–0.13, $p = 0.02$), p-tau (SMD 0.36, 95% CI 0.08–0.63, $p = 0.01$), NFL (SMD 20.64, 95% CI 11.57–29.72, $p < 0.01$), neopterin (SMD 0.87, 95% CI 0.07–1.67, $p = 0.03$), IL-8 (SMD 0.52, 95% CI 0.26–0.78, $p < 0.01$), IP-10 (SMD 0.50, 95% CI 0.15–0.84, $p = 0.01$), and G-CSF (SMD 0.36, 95% CI 0.06–0.66, $p = 0.02$). The blood biomarkers with significant differences were: IP-10 (SMD 0.28, 95% CI 0.06–0.51, $p = 0.01$), sCD14 (SMD 0.69, 95% CI 0.03–1.36, $p = 0.04$), and sCD163 (SMD 0.24, 95% CI 0.04–0.44, $p = 0.02$). No significant differences were found for the other biomarkers.

Conclusion: The CSF and plasma biomarkers that differ between HAND patients and HIV-infected individuals without HAND are primarily concentrated in four pathological changes: macrophage activation, abnormal amyloid metabolism, neurofibrillary tangles, and neurodegenerative alterations. Future research needs to include larger sample size longitudinal studies to clarify whether these biomarkers can serve as diagnostic markers and therapeutic targets for HAND.

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Anticholinergic Burden Among Japanese People Living with HIV Receiving Antiretroviral Therapy: A Multicenter Cross-Sectional Study

Hikasa S¹, Ishihara M², Tsukiji M³, Kunitomo Y⁴, Nobori K⁵, Kimura T⁶, Yamamoto Y⁷, Haruta K⁸, Kasiwabara Y⁹, Fujii K¹⁰, Kimura T¹

¹Hyogo Medical University Hospital, Nishinomiya, Japan, ²Gifu University Hospital, Gifu, Japan, ³Chiba University Hospital, Chiba, Japan, ⁴Sapporo Medical University Hospital, Sapporo, Japan, ⁵Kobe City Medical Center General Hospital, Kobe, Japan, ⁶Kobe University Hospital, Kobe, Japan, ⁷Himeji Medical Center, Himeji, Japan, ⁸Nara Medical University Hospital, Kashihara, Japan, ⁹Japanese Red Cross Kyoto Daiichi Hospital, Higashiyama, Japan, ¹⁰Hiroshima University Hospital, Hiroshima, Japan

Background: With the aging of people living with HIV (PLWH), the risk of comorbidities and drug interactions due to polypharmacy is increasing. Anticholinergic drugs, while used to treat various diseases, can cause side effects such as cognitive impairment, constipation, and urinary retention, requiring particular attention in the elderly. However, the prevalence and related factors of anticholinergic burden (AB) in Japanese PLWH receiving antiretroviral therapy (ART) have not been fully elucidated. Considering the potential risks of anticholinergic effects, it is important to understand the actual conditions of AB to optimize medication management in PLWH on ART.

Methods: This multicenter cross-sectional study was conducted across 11 facilities in Japan. The subjects were PLWH receiving ART who were attending each facility, and patients who gave consent were enrolled. Information on patient background (age, sex, CD4 count, HIV-RNA level, and ART duration, etc.) and comorbidities was collected from medical records. Concomitant medications were assessed using the Japanese version of the Anticholinergic Risk Scale (ARS). The ARS evaluates the strength of anticholinergic effects of each drug on a scale of 0-3 points, with higher total scores indicating stronger anticholinergic effects. In this study, AB positivity was defined as a total score of 1 point or more. Statistical analysis: Statistical analysis included descriptive statistics and logistic regression

analysis. Descriptive statistics summarized patient background and concomitant medication status. Logistic regression analysis identified independent factors associated with AB positivity. Statistical analysis was performed using SPSS Statistics 24.0, with a significance level of 0.05.

Results: A total of 704 PLWH were included. There were 161 patients (22.9%) aged <40 years, 407 (57.8%) aged 40-59 years, and 136 (19.3%) aged ≥60 years. There were 672 male participants (95.5%). CD4 counts were <350/μL in 96 patients (13.6%), 350-499/μL in 139 patients (19.7%), and ≥500/μL in 469 patients (66.6%). HIV-RNA levels were <20 copies/mL in 629 patients (89.3%). ART duration was <5 years in 167 patients (23.7%), 5-9 years in 240 patients (34.1%), and ≥10 years in 297 patients (42.2%). A total of 777 concomitant medications were prescribed, of which 257 had an ARS score ≥1. The most commonly prescribed anticholinergic drugs were antiallergic agents (n=67), gastrointestinal drugs (n=40), antidepressants (n=32), atypical antipsychotics (n=19), hypnotics (n=15), antidiabetic drugs (n=15), antiepileptic drugs (n=14), and antihypertensive drugs (n=14). Overall, 161 patients (22.9%) were AB-positive. Logistic regression analysis: Logistic regression analysis revealed that independent factors associated with AB positivity were age (odds ratio [OR] for 40-59 years vs. ≥60 years: 2.1, 95% confidence interval [CI]: 1.170-3.945), antiretroviral therapy regimen (OR for QD MTR vs. STR: 1.86, 95% CI: 1.150-3.008), and the number of concomitant medications (OR: 2.044, 95% CI: 1.805-2.314).

Conclusions: This study revealed the actual conditions of AB in Japanese PLWH receiving ART. AB is relatively common, and careful attention is needed, especially in middle-aged PLWH and those taking multiple concomitant medications. In clinical practice, it is important to consider anticholinergic effects in the medication management of PLWH on ART.

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Prevalence and Patterns of Sleep Disturbance and Impairment Among People Living with HIV and Suppressed Viral Loads in Malaysia: Insights for Improving Quality of Life

Ng R^{1,2}, Wong M¹, Ang B³, Syed Omar S^{1,2}, Chan W³, Mohd Zain S⁴, Azwa R^{1,2}

¹Division of Infectious Diseases, Department of Medicine, Faculty of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia, ²Centre of Excellence in Infectious Diseases and AIDS (CERiA), Faculty of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia, ³Division of Gastroenterology and Hepatology, Department of Medicine, Faculty of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia, ⁴Pharmacologic laboratory, Department of Pharmacology, Faculty of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia

Background: While the global HIV care continuum has made significant progress toward the 95-95-95 targets, ensuring good quality of life for virally suppressed people living with HIV (PLWH)—the "4th 95"—remains a critical priority. Sleep disturbances, which involve difficulties in falling or staying asleep, and sleep-related impairment, which reflects daytime functional consequences, are common among PLWH but understudied in Malaysia. This study aimed to examine the prevalence and patterns of sleep disturbance and sleep-related impairment among Malaysian PLWH with viral suppression and to investigate associated factors to address barriers to achieving the 4th 95.

Material and Methods: This cross-sectional study is a subset of a steatotic liver disease study in PLWH from a tertiary center in Kuala Lumpur, Malaysia. Inclusion criteria were viral suppression (<200 copies/mL) for at least one year. Participants with severe liver disease, advanced HIV infection, pregnancy, active cancer, bile duct blockage, or severe heart failure were excluded. Sleep quality was assessed using the Patient-Reported Outcomes Measurement Information System (PROMIS) Sleep Disturbance and Sleep-Related Impairment Short Forms. Responses were converted to standardized T-scores, with higher

scores indicating greater severity. Outcomes were classified as "normal" or "abnormal" (combining mild, moderate, and severe categories). Univariate analyses and multivariate logistic regression identified associations between sociodemographic, clinical, and antiretroviral treatment (ART)-related factors and sleep outcomes.

Results: A total of 80 participants were enrolled (90.0% male, mean age 44.2 years, mean HIV duration 12.1 years, mean viral suppression duration 7.2 years). Sleep disturbance was present in 52.5% (n=42), and only 5.1% (n=4) had sleep-related impairment. Univariate analyses revealed significant associations between sleep disturbance and gender ($p = 0.037$) and anxiety ($p = 0.031$). Sleep-related impairment was significantly associated with the use of specific antiretroviral medications, including tenofovir diproproxil fumarate ($p = 0.030$), abacavir ($p < 0.001$), lamivudine ($p = 0.039$), emtricitabine ($p = 0.039$), and zidovudine ($p < 0.001$). No significant association was found between efavirenz use and sleep outcomes. In multivariate models, females showed a non-significant trend toward higher odds of sleep disturbance ($OR = 7.000$, $p = 0.076$), while no factors remained significantly associated with sleep-related impairment due to the small number of affected participants.

Conclusion: This study highlights a high prevalence of sleep disturbance but low prevalence of sleep-related impairment among Malaysian PLWH with suppressed viral loads. These findings suggest that while many participants experience difficulties with sleep, fewer report significant daytime consequences. While preliminary univariate analyses suggested potential associations between certain antiretroviral medications and sleep-related impairment, the small number of affected participants precludes drawing definitive conclusions about these relationships. There was also a trend suggesting females may be at higher risk for sleep disturbance. These results underscore the importance of addressing sleep health as part of comprehensive HIV care to achieve the 4th 95. Future research should focus on larger studies and longer follow-ups to validate these findings and develop effective interventions to address sleep issues in this population.

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Characteristics and Outcomes of Malignancies in Thai Adults Living with HIV: Highlighting the Importance of HIV Control

Sirijatuphat R¹, Boonmaneeprasert P¹, Kuhaapinan A¹, Jantaramee J¹

¹Department of Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: HIV infection is well-known to be associated with numerous malignancies including AIDS-defining cancers (ADCs) and non-AIDS-defining cancers (NADCs). Existing research suggests a decline in ADCs and a rise in NADCs in Western countries. However, data on this trend in Thailand has been scarce. The aim of the study was to determine the clinical characteristics and outcomes of malignancies in HIV-positive adults during the antiretroviral era in Thailand.

Material and Methods: A retrospective study was conducted among hospitalized HIV-positive adults who had diagnosed with malignancy at Siriraj Hospital, Bangkok, Thailand between January 2012 and December 2018.

Results: The prevalence of malignancies in HIV-positive adults was 13.4%. Of the 323 participants included, 196 (60.7%) were male. The mean age at diagnosis of malignancy was 42.3 ± 12.0 years. Forty-four percent were ADCs. Among ADCs, 73.1% were diagnosed as Non-Hodgkin lymphoma (NHL), 20.6% were cervical cancer, and 6.4% were Kaposi sarcoma. While in NADCs, 18.8% were diagnosed as head and neck cancer, 16.7% were liver cancer and 10.4% were colorectal cancer. Opportunistic infections (OIs) were observed in 27.3% of participants. Co-infections were found in 26.3%. The median CD4 cell count was 248.5 cells/mm³. Eighty-two percent of them had a suppressed HIV viral load. The overall mortality rate at 6 months was 15.17%. Age, gender, co-infection and duration of HIV diagnosis were not associated with mortality. Factors associated with mortality were OIs (OR 2.26, 95%CI 1.30-3.95), non-suppressed HIV-viral load status (OR 4.23, 95%CI 2.04-8.80), NADCs (OR 0.57, 95%CI 0.33-0.96), hematologic malignancies (OR 2.43, 95%CI 1.42-4.16), and no malignancy treatment (OR 7.53,

95%CI 3.85-14.7). The median CD4 cell count at the time of cancer diagnosis was higher in the survival group (281 cells/mm³) compared to the non-survival group (194 cells/mm³) ($p=0.003$).

Conclusions: Our study found that NADCs were more prevalent than ADCs in Thai adults living with HIV. Effective HIV control with high CD4 cell count was associated with improved survival outcomes after malignancy diagnosis. This highlights the critical role of comprehensive HIV management in combating both HIV and associated malignancies in Thailand.

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Insulin Resistance in Non-Obese People Living with HIV

Li M¹, Lee N¹, Lo C¹, Chen P¹, Syue L¹, Li C¹, Tsai C¹, Jan H¹, Liu H¹, Lai Y¹, Chiu P¹, Tang Y¹, Ko W¹

¹National Cheng Kung University Hospital, Tainan, Taiwan

Introduction: Diabetes mellitus (DM) is becoming a major comorbidity in the era of aging people living with HIV (PLWH), and early detection and prevention is essential. Non-obese people are thought to have a lower risk for developing insulin resistance, but the information about non-obese PLWH needs further exploration.

Methods: The standards for obesity and overweight in this study were based on the cut-off points set by Taiwan's Health Promotion Administration. Specifically, a BMI of 27 or above is classified as obese. A BMI between 24.0 and 27.0 ($24.0 \leq \text{BMI} < 27.0$) is considered overweight. A BMI between 18.5 and 24.0 ($18.5 \leq \text{BMI} < 24.0$) is classified as normal, while a BMI below 18.5 is considered underweight. Study participants with a BMI < 27 without a diagnosis of DM were recruited in a medical center in southern Taiwan from December 2023 to December 2024 after informed consent was obtained. Blood fasting glucose and insulin were tested, and insulin resistance was defined by Homeostatic Model Assessment for Insulin Resistance (HOMA-IR) Index ≥ 2 . Body composition was measured by using bioimpedance analysis (InBody 270). Sarcopenia was assessed based on the skeletal muscle mass index according to Asian Working Group for Sarcopenia (AWGS) 2019 criteria.

Results: Sixty-five non-obese PLWH were included in this study. The mean age of study participants was 43.3 ± 9.1 years, and male people accounted for 93.8%. Sixty percent ($n=39$) was categorized as overweight, 33.8% ($n=22$) belonged to normal weight and only 6.2% ($n=4$) was underweight. All underweight people and 18.2% ($n=4$) of normal weight people had sarcopenia. For impaired fasting glucose, 23.1% of the non-overweight group (normal weight and underweight, $n=26$) and 30.8% of the overweight group had it ($p=0.497$). In contrast, the overweight people showed a trend of acquiring insulin resistance (48.7% vs 26.9%) ($p=0.079$), though it did not reach statistical

significance. Older age ($p=0.014$), longer duration of HIV infection ($p=0.006$) and higher body fat percentage ($p=0.01$) were associated with a higher risk for insulin resistance.

Discussion and conclusion: A substantial proportion of non-obese PLWH had impaired fasting glucose and insulin resistance, even in non-overweight group. The measurement of insulin resistance and body composition in clinical practice may identify individuals at risk of developing DM, especially for the aging population of PLWH.

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Cardiometabolic Comorbidity and Pharmacotherapy Burden on Virologically Suppressed People with HIV-1: Week 96 Results from SPRINT, A Randomized Phase 3 Trial

Wu H¹, Zhang F², Cai W³, Ma P⁴, Zhao Q⁵, Wei H⁶, Lu H⁷, Wang H⁷, He S⁸, Chen Z⁸, Chen Y⁹, Wang M¹⁰, Yun X¹¹, Fu H¹¹, Wang Y¹¹

¹Beijing Youan Hospital, Capital Medical University, Beijing, China, ²Beijing Ditan Hospital Capital Medical University, Beijing, China, ³Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China, ⁴Tianjin Second People's Hospital, Tianjin, China, ⁵The Sixth People's Hospital of Zhengzhou, Zhengzhou, China, ⁶The Second Hospital of Nanjing, Nanjing, China, ⁷Shenzhen Third People's Hospital, Shenzhen, China, ⁸Public Health Clinical Medical Center of Chengdu, Chengdu, China, ⁹Chongqing Public Health Medical Center, Chongqing, China, ¹⁰The First Hospital of Changsha, Changsha, China, ¹¹Jiangsu Aidea Pharmaceutical Co., Ltd, Yangzhou, China

Background: Cardiometabolic safety has become the primary therapeutic concern among people with HIV-1 (PWH), even those virologically suppressed. This secondary longitudinal analysis aimed to evaluate cardiometabolic comorbidity, and pharmacotherapy burden on PWH virologically suppressed on antiretroviral (ARV) treatment, including non-nucleoside reverse transcriptase inhibitor- (NNRTI), and boosted integrase strand transferase inhibitor- (INSTI) based, in the SPRINT study, a multi-center, randomized, active-controlled phase 3 trial.

Material and Methods: A total of 923 PWH were screened for eligibility of participation in the SPRINT study, comparing efficacy and safety of switch to a nucleoside reverse transcriptase inhibitor (NRTI), plus 3TC/TDF (ANV/3TC/TDF), and that to cobicistat-boosted elvitegravir plus emtricitabine and tenofovir alafenamide (E/C/F/TAF). Main inclusion criteria included age of 18 to 65 years (inclusive), stably remaining on previous NNRTI-based ARV regimen for at least 12 months, and confirmed viral suppression at an interval of at least one month without any restriction on CD4+ cell count. Participants would be excluded if with AIDS-defining conditions, or complicating moderate, or severe liver, and/or renal impairment. Medical

history, and comedications were coded using MedDRA, and WHODD, respectively.

Results: Finally, 762 PWH were enrolled, at a median age of 33 yr, with 97.1% being male, and on ARV regimen for a median duration of 56 months; 35.5% of participants were overweighted or obese (BMI ≥ 24 kg/m²). Common pre-existing cardiometabolic comorbidities or conditions included fatty liver disease (23.0%), increased LDL-C (6.3%), and increased triglyceride (5.9%). The frequencies of most cardiometabolic comorbidities, especially fatty liver disease, dyslipidemia, and hyperuricemia, were numerically lower with ANV/3TC/TDF regimen than those with E/C/F/TAF regimen through 48 weeks, but similar between ANV/3TC/TDF arm and late switch to ANV/3TC/TDF arm 48 to 96 weeks. Diagnosis of diabetes mellitus, or gout was rarely established through 96 weeks. Concomitant pharmacotherapy was also occasionally given through 96 weeks.

Conclusion: Cardiometabolic conditions, especially fatty liver disease, dyslipidemia, and hyperuricemia, are prevalent among virologically suppressed PWH, and mainly left unmanaged through ARV treatment. Identification and multidisciplinary care of these conditions are warranted in these PWH, even at a relatively low risk of cardiovascular disease.

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Profiles of Body Weight, Glucose, and Uric Acid in PWH on AINUOVIRINE-Based Antiretroviral Regimen: Week 96 Results from SPRINT, A Randomized Phase 3 Trial

Cai W¹, Wu H², Zhang F³, Ma P⁴, Zhao Q⁵, Wei H⁶, Lu H⁷, Wang H⁷, He S⁸, Chen Z⁸, Chen Y⁹, Wang M¹⁰, Yun X¹¹, Fu H¹¹, Wang Y¹¹

¹Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China, ²Beijing Youan Hospital, Capital Medical University, Beijing, China, ³Beijing Ditan Hospital Capital Medical University, Beijing, China, ⁴Tianjin Second People's Hospital, Tianjin, China, ⁵The Sixth People's Hospital of Zhengzhou, Zhengzhou, China, ⁶The Second Hospital of Nanjing, Nanjing, China, ⁷Shenzhen Third People's Hospital, Shenzhen, China, ⁸Public Health Clinical Medical Center of Chengdu, Chengdu, China, ⁹Chongqing Public Health Medical Center, Chongqing, China, ¹⁰The First Hospital of Changsha, Changsha, China, ¹¹Jiangsu Aidea Pharmaceutical Co., Ltd, Yangzhou, China

Background: In the SPRINT study, switch to ainoovirine, a novel non-nucleoside reverse transcriptase inhibitor, combined with lamivudine and tenofovir DF (ANV/3TC/TDF), resulted in favorable changes in body weight (BW) and serum uric acid (SUA), but constant fasting serum glucose (FSG), compared to that to cobicistat-boosted elvitegravir with emtricitabine and tenofovir alafenamide (E/C/F/TAF), in virologically suppressed (VS) people with HIV-1 (PWH). In the extensional study, PWH continued or switched to ANV/3TC/TDF until 96 weeks. This secondary analysis aimed to evaluate the changes in BW, FSG, and SUA of PWH switching to ANV/3TC/TDF through 48 to 96 weeks.

Material and Methods: Out of 762 randomized participants, 376 participants originally assigned to ANV/3TC/TDF (376/381, 98.7%) and 371 participants originally to E/C/F/TAF (371/381, 97.4%) completed the extensional study, respectively. The safety outcomes of special interest were absolute changes from 48 in BW, FSG, and SUA at 72 and 96 wk.

Results: Modest decline in BW was seen in both treatment arms at 72 wk (mean, ANV/3TC/TDF vs. E/C/F/TAF→ANV/3TC/TDF, -0.47 vs. -1.14 kg), to a

lesser extent at 96 wk (0.05 vs. -0.66 kg) at 96 wk. FSG remained constant in both arms from 48 wk through 96 wk (72 wk, 0.7 vs. -0.10 mmol/L; 96 wk, 0.04 vs. 0.00 mmol/L). Compared to that in ANV/3TC/TDF arm, SUA showed a marked and constant reduction in E/C/F/TAF→ANV/3TC/TDF arm at both 72 wk (24.4 vs. -17.8 μmol/L), and 96 wk (-2.9 vs. -37.6 μmol/L).

Conclusion: Continuation of ANV/3TC/TDF treatment resulted in constant profiles of BW, FSG and SUA for VS PWH. However, switch from E/C/F/TAF favored profiles of BW and SUA in the SPRINT extensional period in contrast to that to E/C/F/TAF in the randomized study.



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A Retrospective Analysis of Mortality in HIV Patients on ART in Sudur Pashchim Province, Nepal: Causes and Implications

Pant M¹, Joshi D, Pagnaroat M, Shrestha U, Rai A, Poudyal A, Bhandari D, Kamar S, Paneru L

¹Aids Healthcare Foundation Nepal, Lalitpur, Nepal, ²Seti Provincial Hospital, Dhangadhi, Nepal

Introduction: The high mortality rate among individuals living with HIV (PLHIV) remains a critical public health challenge, with limited understanding of the factors that contribute to these deaths. This study investigates mortality trends and identifies factors influencing death rates among PLHIV enrolled in antiretroviral therapy (ART) at three AIDS Healthcare Foundation (AHF) facilities in Sudur Pashchim Province, Nepal. The goal is to provide actionable insights that can improve clinical management, reduce mortality, and enhance retention in ART programs.

Methods: This study employed a retrospective cohort design, reviewing the medical records of 292 clients who began ART between 2018 and 2024. Demographic and clinical data were analyzed descriptively, and stratified analyses were performed to examine mortality risk factors. The study focused on the relationship between ART regimens, patient demographics, and outcomes, utilizing appropriate statistical tests to identify significant associations, with a p-value of <0.05 deemed significant.

Findings: The analysis revealed that 292 patients enrolled in ART between 2018 and 2024 died during the study period, with 198 males (68%) and 94 females (32%). Of these, 48% were prescribed a dolutegravir (DTG)-based ART regimen. The majority of deaths (35%) occurred in the first year of ART, with a time to death ranging from just one day (0.68%) to 16 years (1%). Common causes of death included tuberculosis (19%) and advanced AIDS (18%), but 60% of the deaths were attributed to non-HIV-related conditions. A significant number of patients (54%) died at home, while 27% passed away in healthcare settings, with family

members reporting 75% of the deaths. Statistical analysis identified significant relationships between ART regimen and survival time, with those on DTG-based regimens showing better outcomes (p-value = 0.03). The early mortality rate in the first year of ART was significantly higher, with a p-value of <0.001, suggesting that early ART initiation and more robust management could mitigate mortality risks. Additionally, the study found that the growing burden of non-communicable diseases (NCDs) and other factors contributed to mortality (p = 0.002). TB-associated mortality was significantly higher among males than females (p = 0.038).

Conclusions: The study highlights the considerable burden of non-HIV-related mortality among ART patients, underscoring the need for integrated healthcare strategies that address both HIV and non-communicable diseases (NCDs). Early detection and management of opportunistic infections (OIs) and strengthening pre-ART health screenings are crucial for improving survival rates, particularly during the first year of treatment. Further research should focus on identifying obstacles to effective care, developing targeted interventions, and enhancing retention strategies to improve long-term health outcomes for PLHIV.

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Prevalence and Risk Factors of Vitamin D Deficiency Among PWHIV in Korea

Seok H¹, Choi W¹, Park D¹

¹Korea University Ansan Hospital, Ansan-si, South Korea

Background: With the advent of antiretroviral therapy (ART), the treatment paradigm for HIV infection has shifted toward long-term management. While vitamin D is traditionally recognized for its role in bone metabolism, it has also been increasingly associated with immune dysfunction. Vitamin D deficiency (VDD) has been linked to poor outcomes in various infections; however, its impact on people living with HIV (PWHIV) remains unclear. This study aims to investigate the association of VDD in PWHIV.

Methods: A retrospective study was conducted on PWHIV who visited Korea University Ansan Hospital and had their vitamin D levels measured between January 2014 and January 2025. In addition to demographic data, CD4 T-cell counts, HIV RNA levels, inflammatory markers, lipid profiles, and types of ART were investigated.

Results: During the study period, 186 out of 523 participants had their vitamin D levels assessed. The median vitamin D level in the overall study population was 15.3 ng/mL, and 129 participants (69.3%) were in the VDD group. There were no significant differences in age, sex, and comorbidities between the VDD group and the non-deficient group. Inflammatory markers, such as C-reactive protein (0.08 vs 0.07 mg/dL, p value = 0.391) and interleukin-6 (1.95 vs 1 pg/mL, p = 0.486) levels, did not show significant differences between the two groups. The baseline CD4 T-cell count was lower in the VDD group (445 vs 536, cell/uL p = 0.02), but there was no difference in HIV RNA levels between the two groups (63095 vs 78432 copies/mL, p = 0.58). In the logistic regression, the factor associated with VDD was age (Adjusted odds ratio 3.84, 95% confidence interval 1.35-5.84, p = 0.012).

Conclusion: Vitamin D deficiency is prevalent among PWHIV. Age is associated with VDD. The VDD group have lower baseline CD4 T-cell counts.

Further studies on the relationship between vitamin D and immune function in PWHIV may be needed.

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Risk Warning and Behavioral Intervention on the Cardiovascular Disease Risk in People Living with HIV: A Non-Randomized Controlled Trial

Zhou Y^{1,2}, Xu J¹

¹The Second Affiliated Hospital, School of Public Health, Zhejiang University School of Medicine, Hangzhou, 中国

²Institute of Population Research, Peking University, Beijing, China

Background: To date, people living with human immunodeficiency virus (PLWH) can achieve a life expectancy similar to that of the general population after standardized treatment, and AIDS has become a manageable chronic disease. The increased life expectancy of PLWH is associated with an increased risk of diseases of old age, especially chronic non-communicable diseases related to cardiovascular disease (CVD). Moreover, compared with HIV-negative populations, PLWH have more CVD risk factors, more severe conditions, and faster disease progression, which can seriously affect their quality of life and even jeopardize their lives. At present, CVD has become one of the major causes of death among some PLWH. In China, daily care of PLWH does not incorporate CVD-related interventions. Therefore, in the context of higher CVD risk and more serious consequences among PLWH, it is necessary to explore interventions to reduce the CVD risk among PLWH and improve their survival rate.

Methods: This non-randomized controlled trial (nRCT) was conducted in 6 AIDS-designated hospitals in Zhejiang Province from January 2023 to January 2024, with surveys at baseline (T1), 3 months (T2), and 6 months (T3). After T1 and T2, the intervention group received risk warnings and personalized health behavior interventions regarding their CVD risk, while the control group received routine care and health education. The intervention effects—assessed via CVD perceptions, health-related behaviors, and CVD risk—were analyzed using propensity score matching (PSM) and generalized estimating equations (GEE).

Results: A total of 948 PLWH were incorporated at baseline (494 in the intervention group and 454 in the control group) and 362 pairs were successfully matched after PSM. The intervention effects were as follows: from T1 to T3, the CVD cognitive level score of PLWH in the intervention group increased more than in the control group with a statistical difference. The smoking rate, drinking rate, and 5-year/10-year CVD risk of PLWH in the intervention group decreased more than in the control group though there was no statistical difference. The percentage of PLWH in the intervention group who smoked ≥ 11 cigarettes, sat over 8 hour per day, and the drinking frequency was almost never in the intervention group decreased more than in the control group with a statistical difference.

Conclusions: Risk warning and behavioral interventions can effectively improve CVD cognitive level among PLWH. Although there were no statistical differences in the smoking rate, alcohol cessation rate, and CVD risk between PLWH between the intervention and control group during the study period, the interventions could reduce the frequency of alcohol consumption and sedentary time; meanwhile, the improvement of health-related behaviors in the intervention group was significantly more than the control group. In the future, to enhance CVD prevention and treatment, policy support and guidelines should be improved, the capacity of AIDS-designated hospitals strengthened, and integrated ART services for PLWH incorporated into daily diagnostic and treatment processes. At the same time, more effective intervention programs should be explored and validated to reduce the CVD risk among PLWH in order to improve their health and enhance the quality of life.

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Evaluation of Different Non-Invasive Models for Assessing Metabolic Associated Fatty Liver Disease in Lean Individuals Living with HIV

Wei X¹, Chen J¹, Zhang R¹, Shen Y¹

¹Department Of Infection And Immunity, Shanghai Public Health Clinical Center, Fudan University, Shanghai, China

Objective: This study aimed to investigate prevalence of lean metabolic associated fatty liver disease (lean MAFLD) in people living with HIV (PLWH) and the value of ten diagnostic models in MAFLD among PLWH.

Methods: Transient Elastography (Fibroscan), Controlled attenuation parameter (CAP) and ultrasonography were performed among PLWH. MAFLD was defined by the 2024 revised edition of the Chinese guidelines for prevention and treatment of MAFLD. Lean MAFLD was defined as a BMI < 24 kg/m² in patients with MAFLD. The SteatoText (ST), fatty liver index (FLI), NAFLD-liver fat score (NAFLD-LFS), hepatic steatosis index (HSI), index of NAFLD (ION), ZJU index, NAFL screening score (NSS), K-NAFLD, visceral adiposity index (VAI) and Lipid Accumulation Product (LAP) were evaluated. The area under the receiver operating characteristic (AUROC) curve was used to evaluate the performance of them for diagnosing MAFLD.

Results: Among the 361 PLWH, 141 were diagnosis with MAFLD, with a prevalence of 39.05%. Out of these 361 patients, 111 were overweight (BMI ≥ 24 kg/m²), and 250 were non-overweight (BMI < 24 kg/m²). MAFLD affect 58 (23.2%) in 250 lean PLWH. Among the overall population, the NSS had the highest AUROC of 0.887, followed by FLI (AUROC = 0.880), ZJU (AUROC = 0.873), LAP (AUROC = 0.849), and ST (AUROC = 0.847). ION had the lowest AUROC with value of 0.744. In the non-overweight population, the AUROC of NSS was 0.868, suggesting moderate diagnostic value. However, among overweight or obesity population, it showed limited diagnostic value with AUROC of 0.736.

Conclusion: We found a non-negligible prevalence of MAFLD in lean PLWH. Models established on chemical and metabolic indicators provide no advantage for MAFLD diagnosis in PLWH, especially for overweight patients. PLWH should be prioritized for inclusion in global trials of MAFLD management.

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Prevalence and Risk Factors of Liver Fibrosis in Metabolic Associated Fatty Liver Disease (MAFLD) Among People Living with HIV (PLWH)

Wei X¹, Chen J¹, Zhang R¹, Shen Y¹

¹Department Of Infection And Immunity, Shanghai Public Health Clinical Center, Shanghai, China

Objective: We aimed to investigate the prevalence and factors associated with liver fibrosis in metabolic associated fatty liver disease (MAFLD) among people living with HIV (PLWH).

Methods: Abdominal ultrasonography and Transient elastography (Fibroscan) were performed in PLWH without excessive alcohol intake and viral hepatitis infection. MAFLD was defined according to the 2024 revised edition of the Chinese Guidelines for the Prevention and Treatment of MAFLD. Lean MAFLD was defined as MAFLD occurring in PLWH with a body mass index (BMI) less than 24kg/m². A cutoff of liver stiffness measurement (LSM) ≥ 7.1 kPa was set for significant liver fibrosis (F2-4). Fibroscan-aspartate aminotransferase (FAST) > 0.35 was used to diagnosis non-alcoholic steatohepatitis (NASH) with fibrosis. Prevalence, correlation factors and risk factors were evaluated.

Results: Of the 361 PLWH, 69% had BMI < 24kg/m² and 39% were diagnosed as MAFLD. Based on BMI, the MAFLD subjects were categorized into two groups: 41% were classified as lean MAFLD and 59% as overweight MAFLD. Significant fibrosis was observed in 121 out of 361 PLWH, including 75 out of 141 MAFLD patients, 28 out of 58 lean MAFLD patients, and 47 in 83 overweight MAFLD patients. Among HIV-infected patients with MAFLD, the independent risk factors of significant liver fibrosis are higher ALT and Type 2 Diabetes. Cofactors associated with MAFLD among lean individuals, mainly included age, liver function (ALT), metabolic conditions (MetS components, BMI) as well as HIV-related factors (past exposure to zidovudine).

Conclusion: PLWH exhibit a high prevalence of significant liver fibrosis and NASH. Notably, the occurrence of significant liver fibrosis among PLWH is driven by a multifactorial pathogenesis. Additionally, proper weight management for lean PLWH may also be helpful to reduce the risk of fatty liver occurrence.

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Performance Characteristics of Roche Cobas® 6800 HIV Quantitative PCR

Chen Y¹, Zheng J¹, Lee H¹, Shong R¹, Yang H¹

¹Tan Tock Seng Hospital, Singapore, Singapore

Background: Tan Tock Seng Hospital is one of Singapore's largest tertiary care hospital with 2,000 beds. The hospital houses the National Centre for Infectious Diseases, which comprises of functional units including the National HIV Programme. As the clinical diagnostic laboratory servicing the campus, we perform high volume of human immunodeficiency virus-1 (HIV-1) quantitative polymerase chain reaction (PCR) tests. We aim to verify performance characteristics of Roche cobas® 6800 in comparison with existing Roche cobas® 4800, and restructure workflows to ensure accurate and timely HIV-1 viral load test results.

Materials and Methods: Tests were performed as per manufacturer's instructions. Bio-Rad Exact Diagnostics HIV-1 external controls were utilised to assess analytical sensitivity and precision. Residual plasma tested on the cobas® 4800 with high viral loads were pooled and diluted to determine the reportable range. In addition to positive clinical specimens tested on the cobas® 4800, expired plasma retrieved from blood bank were included as negative clinical specimens to assess accuracy.

Results: Cobas® 6800 demonstrated linearity, minimally between 1.99 log copies/ml to 6.72 log copies/ml, in keeping with manufacturer's linearity range of 1.00 log copies/ml to 7.00 log copies/ml. The analytical sensitivity or limit of detection (LOD) at 95% confidence interval is estimated at 1.87 log copies/ml. This is comparable to the manufacturer's LOD of 1.12 log copies/ml, especially after taking into consideration variation secondary to dilution of external controls. Precision was assessed across three concentrations, 2.30 log copies/ml, 5.70 log copies/ml and 6.00 log copies/ml. The coefficient of variation (CV) was 7.37%, 1.10% and 1.49% respectively. Viral load of external controls returned predominantly lower than target values, with an average of 2.15 log copies/ml, 5.57 log

copies/ml and 5.88 log copies/ml respectively.

Degradation of external controls during transport and storage is a possible cause.

Out of 70 clinical specimens, two were discordant (cobas® 4800 detected but cobas® 6800 not detected), likely due to viral load being near the LOD. Results were otherwise concordant, with specimens tested on cobas® 6800 being on average 0.20 log copies/ml to 0.25 log copies/ml higher than cobas® 4800.

Cobas® 6800 automates sample processing to results interpretation requiring minimal hands-on time. Interface with laboratory information system enables mass release of results after manual review of quality control results. Assays available on the cobas® 6800 may be performed either simultaneously (e.g. HIV-1, Hepatitis C virus, Cytomegalovirus, Epstein-Barr virus, Chlamydia trachomatis and Neisseria gonorrhoeae) or on a separate run (Hepatitis B virus). Two consecutive runs per day will cover all test options listed above, with the possibility of increasing runs to maximize testing capacity. After the introduction of cobas® 6800, our turnaround time for HIV-1 viral load has decreased from 7 to 2 days (including public holidays and weekends).

Conclusions: Cobas® 6800 HIV-1 quantitative PCR performance characteristics were verified to meet manufacturer's claims, with clinically acceptable difference in HIV-1 viral load when compared to cobas® 4800. Adoption of this platform has enabled streamlining of inventory, integration of workflows and the capability to expand testing options/capacity.

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Have I Taken Enough Preventive Measures? A Cross-Sectional Study Related to HIV Prevention Among MSM in Yogyakarta Region, Indonesia

Rukmi D¹, Amannah D¹, Sari I¹, Nirmalasari N¹, Hidayati R¹

¹Universitas Jenderal Achmad Yani Yogyakarta, Sleman, Indonesia

Background: The incidence of new HIV cases in Indonesia continues to increase from 16,410 in 2023 to 35,415 in 2024, with men, including MSM, accounting for 71%. Routine HIV testing is the most effective way to determine HIV status among men who have sex with men (MSM) as well as to prevent HIV acquisition. Considering the HIV positivity rate among MSM is higher than the national population, this study aimed to determine HIV prevention behaviors among MSM and its correlation with routine HIV testing.

Methods: A cross-sectional survey study was conducted in five districts in Yogyakarta province, Indonesia, from January to June 2024. A total of 175 MSM aged 18 years or older were recruited through convenience sampling. They independently completed online questionnaires on demographic characteristics, the HIV-18 Knowledge Questionnaire, and HIV prevention behaviors questions. Data were then analyzed using descriptive statistics, chi-square, and binary logistic regression.

Results: MSMs in this study have taken preventive measures to prevent HIV acquisition in the form of consistently using condoms while having sex (35.4%); 97.7% attending HIV education with 61.7% of them having a good level of HIV knowledge, and 94.3% have had an HIV test with 40.6% regularly doing so. Of the 154 (88%) MSM who knew PrEP, 61 (39.6%) stated that they had used PrEP, and 43 (70.5%) stated they used PrEP regularly. Chi-Square tests found that ever using PrEP and regularly using PrEP had a significant association with HIV testing behavior. Binary logistic regression by including the variables of ever using PrEP ($P < .001$), regularly using PrEP

($P = .007$), and routinely using condoms ($P = .119$) found that ever using PrEP ($P = .020$; AOR: 2.85; 95%CI: 1.18 to 6.85) was the most associated factor with HIV testing behavior among MSM in Yogyakarta, Indonesia.

Conclusions: The government, health workers, and HIV activists need to increase the dissemination of information about PrEP as a method of preventing the spread of HIV, which is still uneven in Indonesia. The requirement for HIV testing before starting PrEP and the need for periodic HIV testing during PrEP use can increase HIV testing as well as the use of PrEP among MSM in Indonesia.



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The Immune Response to a Third Dose of Moderna COVID-19 Vaccination in HIV-Infected Individual

Lin H², Hsia H¹, Lee S¹

¹Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan, ²E-Da Dachang Hospital, Kaohsiung, Taiwan

Background: The immunogenicity of SARS-CoV-2 vaccines in people living with HIV (PLWH) remains inadequately studied. This population may exhibit reduced immunogenicity and a higher burden of comorbidities compared to the general population. This study aimed to evaluate the humoral and cellular immune responses to a third dose of the Moderna COVID-19 vaccine in HIV-infected individuals.

Methods: This prospective observational study assessed the immune response to a third dose of the Moderna SARS-CoV-2 vaccine, comparing full-dose and half-dose regimens in HIV-infected individuals. Cellular immune response was evaluated using a commercial interferon- γ enzyme-linked immunospot (ELISpot) assay. Humoral immunity was assessed through surrogate neutralizing antibodies against both the wild-type virus and the Omicron BA.1 variant, as well as immunoglobulin G (IgG) antibodies targeting the spike receptor-binding domain (RBD) of SARS-CoV-2.

Results: A total of 108 HIV-infected individuals were enrolled. Neutralizing antibody responses against wild-type SARS-CoV-2 were robust across all participants, except in those with a CD4 count $<200/\text{mm}^3$ who received a half dose. Responses to the Omicron BA.4.1 variant, anti-S IgG levels, and ELISpot assays were significantly lower in individuals with a CD4 count $<200/\text{mm}^3$ ($p<0.0001$, $p=0.039$, and $p=0.0009$, respectively). While both full-dose and half-dose regimens demonstrated adequate neutralization activity against the Omicron BA.4.1 variant, a higher response was observed in the full-dose group, though statistical significance was not reached.

Conclusion: Both full-dose and half-dose regimens of the Moderna COVID-19 vaccine elicited

adequate humoral and cellular immune responses against wild-type SARS-CoV-2 and the Omicron BA.4.1 variant in HIV-infected individuals. However, those with a CD4 count $<200/\text{mm}^3$ exhibited significantly weaker immune responses.

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Altered Serum Metabolites are Associated with Immunologic Non-Response to Antiretroviral Therapy in HIV-Infected Men Who Have Sex with Men

Zhao H^{1,2,3}, Hou H^{1,2}, Da F^{1,2}, Luo D⁴, Feng A³, Wu H⁵, Cai Y⁵, Ling X^{1,2}, Chen J^{1,2}, Que J^{1,2}, Zou H^{6,7,8}, Li L^{1,2}

¹Guangzhou Medical Research Institute of Infectious Diseases, Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China, ²Infectious Disease Center, Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China, ³School of Public Health (Shenzhen), Sun Yat-sen University, Shenzhen, China, ⁴Nanan District Center for Disease Control and Prevention, Chongqing, China, ⁵Guangzhou Center for Disease Control and Prevention, Guangzhou, China, ⁶School of Public Health, Fudan University, Shanghai, China, ⁷School of Public Health, Southwest Medical University, Luzhou, China, ⁸Kirby Institute, University of New South Wales, Sydney, Australia

Introduction: The association between serum metabolites and immunologic non-response among people living with HIV (PLWH) on antiretroviral therapy (ART) has not been well documented. This study aimed to comprehensively delineate the profiles of serum metabolites among HIV-infected men who have sex with men (MSM) with different immunologic responses.

Methods: We recruited HIV-uninfected MSM (healthy controls, HC) and HIV-infected MSM in Guangzhou between June 1 to October 31 2021. HIV-infected MSM were categorized into good immunological responders (GIR, CD4+ T cell count ≥ 350 cells/ μ L) and poor immunological responders (PIR, < 350 cells/ μ L) after more than 24 months of ART. Blood samples were collected, and serum metabolites were analyzed using ultra-performance liquid chromatography-tandem mass spectrometry (UPLC-MS).

Results: A total of 148 MSM were included, among whom 51 were HC, 56 GIR and 41 PIR. Of the 189 metabolites quantified from serum samples, 71 were significantly different among HC, GIR, and PIR groups. Among the differential metabolites, 41, 13 and 58 potential metabolite markers were identified in HC vs. GIR, GIR vs. PIR and HC vs. PIR

comparisons, respectively. The Kyoto Encyclopedia of Genes and Genomes (KEGG) pathway enrichment analysis revealed that Biosynthesis of alkaloids, Citrate cycle, Biosynthesis of plant hormones, and Glyoxylate and dicarboxylate metabolism were significantly different between GIR and PIR. Five potential metabolite markers (including 4-methylhexanoic acid, aconitic acid, malic acid, phenyllactic acid, and taurocholic acid) that distinguish GIR and PIR were identified using least absolute shrinkage and selection operator (LASSO) regression. The corresponding area under the curve (AUC) based on these five potential markers was 0.748 (95%CI: 0.648-0.848) in the logistic regression (LR) model. Notably, 4-methylhexanoic acid was identified the most important metabolite for distinguishing between GIR and PIR based on random forest (RF) and LASSO analyses. In addition, 4-methylhexanoic displayed positive correlations with CD4+ T cell count ($r = 0.22$) and CD4+/CD8+ ratio ($r = 0.26$).

Conclusions: PLWH with different immunological responses exhibited distinct serum metabolites signatures. These findings provided insight into the mechanisms underlying immunologic non-response, and highlighted the potential of serum metabolites as novel therapeutic target, which need further longitudinal studies to establish causality.

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The Prevalence and Predictors of Elevated HOMA-IR in People Living with HIV (PLWH)

Chang S¹, Cheng C¹

¹Comprehensive AIDS Care Center, Taoyuan General Hospital, Taoyuan, Taiwan

Background: Homeostasis Model Assessment of Insulin Resistance (HOMA-IR) is an important indicator for evaluating insulin resistance. As people living with HIV (PLWH) getting aging, their risk of developing chronic diseases increases. Insulin resistance cause metabolic abnormalities, diabetes, hypertension, and other chronic diseases. This study aims to investigate the prevalence of elevated HOMA-IR and its potential predictors among PLWH.

Methods: This cross-sectional study retrospectively collected data in 2024 at one HIV-care hospital. Demographic variables included age, gender, and body mass index (BMI), while metabolic-related variables included cholesterol, triglycerides, high-density lipoprotein (HDL), low-density lipoprotein (LDL), CD4 count, viral load (VL), and type of antiretroviral therapy (ART). The cut-off point for the HOMA-IR index was set at 2.0, dividing participants into two groups: HOMA-IR < 2.0 and HOMA-IR > 2.0. Descriptive statistics, t-tests, and logistic regression analyses were conducted to identify risk factors associated with abnormal HOMA-IR.

Results: A total of 1,207 participants were included in the study, with 828 in the HOMA-IR < 2.0 group and 379 in the HOMA-IR > 2.0 group. The comparative analysis between the two groups showed the following results: Male: 777 (93.5%) vs. 353 (93.1%), HbA1c (Pre-diabetes, 5.7%–6.4%): 131 (15.8%) vs. 126 (33.2%), Age: 40.7 (±9.7) years vs. 42.1 (±9.5) years (p = .021), BMI: 23.8 (±3.3) kg/m² vs. 30.0 (±4.3) kg/m² (p < .001), HOMA-IR index: 1.01 (±0.5) vs. 7.5 (±5.0), Cholesterol: 186 (±72) mg/dL vs. 186 (±123) mg/dL (p = .958), Triglycerides: 125 (±155) mg/dL vs. 197 (±195) mg/dL (p < .001), HDL: 50 (±26) mg/dL vs. 42 (±10) mg/dL (p < .001), LDL: 120 (±41) mg/dL vs. 119 (±77) mg/dL (p = .807).

Logistic regression analysis showed that BMI (adjusted OR = 1.2, p < .001) and Triglycerides (OR = 1.0, p = .018) were significantly associated with an increased likelihood of abnormal HOMA-IR. Conversely, HDL (OR = 0.9, p < .001) was significantly associated with a decreased likelihood of abnormal HOMA-IR.

Conclusion: The results of this study indicate that BMI, triglycerides, and HDL can serve as predictive factors for elevated HOMA-IR. Higher or lower levels of these variables may indicate a greater risk of insulin resistance (IR) and metabolic abnormalities. These findings emphasize the importance of regular metabolic monitoring in PLWH undergoing highly active antiretroviral therapy (HAART). In addition to promoting healthy diets and regular exercise, routine metabolic screening may help reduce the incidence of diabetes, cardiovascular diseases, and other chronic conditions.

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Condom Use Among Older People Living with HIV in China: Findings from the Sexual Well-Being (SWELL) Study

Peng X¹, Wang B¹, Li X¹, Cai Y², Li L³, Ouyang L⁴, Wu G⁴, Yu M⁵, Meng X⁶, Zou H⁷

¹School of Public Health (Shenzhen), Sun Yat-sen University, Shenzhen, China, ²Shanghai Jiao Tong University School of Medicine, Shanghai, China, ³Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China, ⁴Chongqing Center for Disease Control and Prevention, Chongqing, China, ⁵Tianjin Center for Disease Control and Prevention, Tianjin, China, ⁶Wuxi Municipal Center for Disease Control and Prevention, Wuxi, China, ⁷School of Public Health, Fudan University, Shanghai, China

Background: Condom use is one of the most effective human immunodeficiency virus (HIV) prevention and control measures recommended by the World Health Organization. However, data on condom use among older people living with HIV (PLHIV) in China are scarce.

Methods: Data were collected from a multi-center cross-sectional study between June 2020 and December 2022. Older PLHIV aged 50 and above were recruited onsite at designated HIV treatment hospitals in four cities in China. Condom use was defined as using a condom for vaginal (or anal) intercourse in a recent sexual activity. A multivariable logistic regression model was used to assess correlates of condom use among older PLHIV.

Results: A total of 680 study participants (500 males and 180 females, mean age: 60.3±7.8 years) were included. 86.5% of participants were aware of condom use to prevent HIV, however, only 44.9% (55.8% of males and 33.3% of females) of participants used a condom in recent sexual activity. Older male PLHIV who were younger (compared to ≥ 70 years: 50-59 years: aOR=2.69, 95%CI: 1.32–5.49), had higher annual incomes (compared to < USD 1500: USD 1500-7500: 4.60, 2.36–8.95; ≥ USD 7500: 5.47, 2.51–11.95), exercise regularly (compared to never exercise: 1.84, 1.06–3.19) and sexually active (compared to sexually inactive: 3.71, 2.33–5.89) were more likely to use condom in the recent sexual activity. Depression

(0.29, 0.11–0.78) was significantly negatively associated with condom use among older male PLHIV. For older female PLHIV groups, chronic conditions (one: 0.18, 0.06–0.58) and sexually active (5.40, 1.97–14.78) were significantly associated with condom use in the recent sexual activity.

Conclusion: Less than half of Chinese older PLHIV use condoms in recent sexual activity. Identifying correlates of condom use for older PLHIV will be beneficial for informing the development of policies, intervening with condom use among older PLHIV, and reducing the risk of HIV transmission.

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Correlates of Sexual Attitudes Among Older People Living with HIV in China: Findings from the Sexual Well-Being (SWELL) Study

Peng X¹, Wang B¹, Li X¹, Cai Y², Li L³, Ouyang L⁴, Wu G⁴, Yu M⁵, Meng X⁶, Zou H⁷

¹School of Public Health (Shenzhen), Sun Yat-sen University, Shenzhen, China, ²School of Public Health, Shanghai Jiao Tong University School of Medicine, Shanghai, China, ³Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China, ⁴Chongqing Center for Disease Control and Prevention, Chongqing, China, ⁵Tianjin Center for Disease Control and Prevention, Tianjin, China, ⁶Wuxi Municipal Center for Disease Control and Prevention, Wuxi, China, ⁷School of Public Health, Fudan University, Shanghai, China

Background: As an important part of healthy aging among older people living with HIV (PLHIV), sexual health is often overlooked for the potential vulnerability to other comorbidities in this population. This article was based on a cross-section study to examine the factors associated with attitudes toward sexuality among older PLHIV in China.

Methods: Data were collected from older PLHIV aged 50 and above from designated infectious disease hospitals specialized in HIV/AIDS treatment in four Chinese cities between April 2020 and April 2022. All the participants completed the face-to-face questionnaire including demographic characteristics, sexual health status, and sexual attitudes. Logistic regression analyses were used to examine the correlates of sexual attitudes.

Results: A total of 680 older PLHIV were recruited in the study. The mean age was 60.3±7.8 years, 500 were male and 180 were female. 60.9% of participants supported PLHIV continue to have sex. 66.6% of participants believed that older adults aged over 50 years should continue to receive sexual education. Older PLHIV living in rural areas (aOR = 1.81, 95%CI: 1.16–2.83), with higher education levels (1.75, 1.103–2.97), with higher annual incomes (USD 1500-7500: 1.77, 1.06–2.94; ≥ USD 7500: 2.38, 1.23–4.61), talking about sex with partner easily (2.12, 1.36–3.31), having sexual desire (2.68, 1.67–4.28), and being sexually active

(2.52, 1.62–3.92) were more likely to support sex life of infected persons. Moreover, education level, annual income, talking about sex, having trouble with a sexless life, sexual orientation, and sexual activity were significantly associated with supporting sexual education for older adults among older PLHIV.

Conclusion: Nearly two-thirds of older PLHIV supported PLHIV to continue to have sex or supported sexual education for older adults. Demographic characteristics and sexual health status were significantly associated with sexual attitudes among older PLHIV. Sexual education tailored for older PLHIV is needed.

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Efficacy and Safety of Rapid Initiation with B/F/TAF in Elderly HIV-Infected Patients over 70 Years Old

Zou J¹, Li X¹, He Y², Lv J³

¹The Fourth People's Hospital Of Nanning, Nanning, China, ²National Clinical Research Center for Infectious Diseases;The Third People's Hospital of Shenzhen, Shenzhen, China, ³Guangxi Clinical Medical Research Center for Hepatobiliary Diseases;Affiliated Hospital of Youjiang Medical University for Nationalities, Baise, China

Background: The aging of HIV-infected patients is becoming more pronounced, and there is a lack of data to support the suitability of rapid-start ART for elderly HIV infected patients. The aim of this study was to verify the efficacy and safety of using B/F/TAF rapid start in elderly HIV-infected patients.

Method: This was a multicenter retrospective single-arm study that included HIV infected naive patients aged ≥ 70 years from three centers in China and excluded those with co-infections of cryptococcal meningitis or tuberculous meningitis, all of whom were initiated with B/F/TAF within 7 days of diagnosis. These patients were followed for 12 months for virological suppression (HIV-RNA < 50 copies/ml), recovery of CD4+T cell counts, renal function, and lipid metabolism. Among these, renal function was assessed by testing the concentration of blood creatinine and calculating eGFR values using the CKD-EPIcr formula.

Result: A total of 20 naive patients aged 70 years or older were included in this study, in which the median age was 73.5 years, the median time to initiation of ART was 4 days, the median viral load was 296,100 copies/ml, and the median CD4 was 90.5 cells/ μ L. 75% (15/20) of patients had co-infections, with the most common co-infections being syphilis and bacterial pneumonia. The rate of virological suppression was 87.5% (14/16) at 6 months and 90% (18/20) at 12 months of treatment with B/F/TAF. No one experienced virological failure. One patient changed regimens to LPV/r+3TC for economic reasons and another died at 3 months due to non-treatment related factors. The median CD4+ T cell counts increased significantly from 90.5 cells/ μ L (44 cells/ μ L, 287.75

cells/ μ L) at baseline to 299 cells/ μ L (222.5 cells/ μ L, 485.5 cells/ μ L) ($P < 0.01$). There were no adverse events reported. And the median weight of the patients recovered to 60 kg from 53.5 kg at baseline ($P=0.043$), but no significant change was found in LDL (baseline 2.54 mmol/L vs. Month 12 2.13 mmol/L, $P=0.499$) or TG (baseline 1.43 mmol/L vs. Month 12 1.93 mmol/L, $P=0.091$), and eGFR did not change significantly (baseline 76.01 $\text{min} \times 1.73 \text{m}^2$ vs. Month 12 74.29 $\text{min} \times 1.73 \text{m}^2$, $P=0.477$).

Conclusion: Rapid initiation of B/F/TAF in patients aged ≥ 70 years old does not carry risks associated with lipids and renal function and achieves high virological suppression rapidly.

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Efficacy and Safety Analysis Associated with Treatment with Fixed-Dose Combination Bictegravir, Emtricitabine, and Tenofovir Alafenamide in Old HIV-Infected Patients: A Real-World Study in China

Gao C¹, Ding Y¹, Li J¹, Zhao Y¹, Li Q¹, Liu Y¹, Liang H¹, Ni L¹, Wang F¹, Wang S¹, Yang D¹, Gao G¹, Xiao J², Zhao H¹

¹Clinical and Research Center of AIDS, Beijing Ditan Hospital, Capital Medical University, Beijing, 中国, ²Department of Infectious Diseases, Beijing Ditan Teaching Hospital, Healthscience Center, Beijing University, Beijing, 中国

Background: This study was aimed to elucidate the efficacy and safety associated with treatment with fixed-dose BIC/FTC/TAF in old HIV-infected patients in real world.

Methods: A retrospective study was conducted in Beijing Ditan Hospital from April 2023 to April 2024, the efficacy and safety associated with treatment with fixed-dose BIC/FTC/TAF in 314 HIV-infected patients aged >50 years, including 35 HAART-naïve patients and 279 HAART-experienced patients.

Results: The fixed-dose BIC/FTC/TAF displayed good efficacy among these old patients, even in 5 patients with M184V mutation site. After receiving BIC/FTC/TAF and 48-week follow-up, change of absolute value of BMD was compared, and results indicated as following: 0.8876 ± 0.1193 vs. 0.9321 ± 0.1071 g/cm² in L1 ($p=0.030$), 0.9260 ± 0.1327 vs. 0.9758 ± 0.1208 g/cm² in L2 ($p=0.029$), 0.9559 ± 0.1386 vs. 1.0139 ± 0.1355 g/cm² in L3 ($p=0.018$), and 0.9411 ± 0.1486 vs. 1.0250 ± 0.1709 g/cm² in L4 ($p=0.003$), while that in left or right hip joint (neck, trochanter and inside) presented improvement trend, renal biomarkers presented improved trend, despite of significantly increased serum creatinine and reduced eGFR levels ($p<0.001$); change of lipid panel indicated that 1.86 ± 1.21 mmol/L vs 1.66 ± 1.00 mmol/L in TG ($p=0.013$) and 1.11 ± 0.30 mmol/L vs 1.15 ± 0.32 mmol/L in HDL ($p=0.018$) 48-week after receiving

BIC/FTC/TAF. Among patients receiving lipid-lowering drugs due to coronary atherosclerosis disease, change of serum TG indicated as 3.68 ± 3.31 mmol/L vs 2.71 ± 2.15 mmol/L ($p=0.025$) 48-week after receiving BIC/FTC/TAF.

Conclusion: BIC/FTC/TAF presented the optimal antiretroviral efficacy including in patients with M184V mutation site, and significantly improved outcome in BMD in lumbar spine and serum TG level, while outcome in left or right hip joint, renal biomarkers and other lipid panels presented improved trends 48-week after treatment and follow-up in this real-world study.

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The Efficacy of Rapid Initiation of B/F/ATF Therapy at Different Stages: Acute HIV Infection VS Chronic HIV Infection

Mengli C¹, Yun H¹

¹The Third People's Hospital Of Shenzhen, Shenzhen, China

Background: Testing as a treatment is an important measure to end the HIV epidemic, but it is currently unclear whether there are differences in clinical outcomes when initiating ART at different stages. This study aims to compare the efficacy and immune function recovery of rapid ART initiation in the acute and chronic stages of HIV infection.

Method: This study is a single center retrospective cohort study that included newly diagnosed HIV infected patients who received treatment from January 2022 to January 2024. These patients started antiviral therapy with B/F/TAF within 7 days of diagnosis. After excluding patients in the AIDS stage and late stage, they were divided into the acute HIV Infection (AHI) and the chronic HIV Infection (CHI). The virus suppression (HIV-RNA < 50 copies/ml), CD4+T cell count changes, and CD4/CD8 changes after using B/F/TAF were compared between the two groups after 48 weeks of follow-up.

Results: A total of 172 patients were enrolled in this study, including 31 in the acute phase group and 141 in the chronic phase group. Follow up for a total of 48 weeks. The median viral load at baseline in the AHI group was 394000 copies/ml, the median CD4+T cell count was 332 cells/ul, the median CD4/CD8 ratio was 0.37, and the median start time was 5 days. There was no significant difference compared to the various parameters in the CHI group (HIV-RNA: 239500 copies/ml, $P=0.05$; CD4+T cell count: 295 cells/ul, $P=0.083$; CD4/CD8: 0.29, $P=0.267$; Start time: 5 days, $P=0.086$). After 48 weeks follow-up, there was no significant difference in virus suppression rate between the two groups (AHI 88.9% vs. CHI 93.4%, $P=0.361$). However, the AHI group showed a significant advantage in early immune function

recovery. At 24 weeks, the median CD4+T cell count (603 cells/ul) in the AHI phase was significantly higher than that in the CHI group (501 cells/ul) ($P=0.021$), and the CD4/CD8 ratio of HIV infected individuals in the AHI phase was significantly higher than that in the chronic phase (0.766 vs. 0.545, $P=0.039$); It is worth noting that although no patient in the AHI group had a CD4/CD8 ratio greater than 1 at baseline, the AHI group showed significant advantages over the CHI group in terms of CD4/CD8 return to normal ($CD4/CD8 > 1$) in both early treatment and follow-up endpoints. At 12 weeks, 16.1% of patients in the AHI group had CD4/CD8 return to normal, while only 8.5% in the CHI group. As of 48 weeks, 25.9% of patients in the AHI group had CD4/CD8 return to normal, while only 19.3% in the CHI group had returned to normal.

Conclusion: Whether in the acute or chronic infection phase, rapid initiation of B/F/TAF for ART can achieve ideal viral suppression and immune function recovery. However, initiating treatment in the early stages of the disease can better help patients recover their immune function. Therefore, screening in the acute phase and prompt initiation of antiviral therapy should be emphasized.

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Implementation of a Dedicated Clinic for People Living with HIV Aged 50 Years and Above at Singapore General Hospital

Lee K¹, Hamid L¹, Lim S¹, Chua N¹, Koomanan N¹, Ng R¹, Teh Y¹

¹Singapore General Hospital, Singapore, Singapore

The availability of effective antiretroviral therapy, coupled with socio-economic advancements have significantly improved the survival rates of people living with HIV (PLWH). Consequently, the number and proportion of older PLWH, internationally recognized as individuals aged 50 years and older, has seen a substantial increase. UNAIDS estimates that worldwide, the number of PLWH aged 50 years and older has increased from 5.4 million in 2015 to 8.1 million in 2020. Similarly, in our centre, a 2000-bed acute quaternary hospital with a 600-patient HIV program, about 65% of the patients are above 50 years of age, signifying a demographic shift that necessitates age specific care strategies.

Older PLWH experience distinct challenges, including an increased risk of multimorbidity, polypharmacy, and a lack of tailored medical care. Healthcare services are often fragmented and do not adequately integrate geriatric considerations into clinical management. A comprehensive and patient-centred healthcare approach should be incorporated into the clinical care of older PLWH to identify and address their needs and optimise patient outcomes.

To better meet the challenges in caring for aging PLWH, we implemented a dedicated clinic for PLWH above 50 years old at Singapore General Hospital. In addition to discussing and carrying out recommended age-appropriate screening for non-communicable diseases, we performed frailty screening with the Rockwood Clinical Frailty Score, mental health screening with PHQ2 and GAD2, assessment scoring of cumulative burden of anticholinergic medications and identified patients with polypharmacy. Modifiable risk factors were addressed with lifestyle advice, concomitant medication changes, active de-prescribing and

referrals to relevant specialties and allied health services.

Thirty patients were seen in the clinic from September 2024 to January 2025. The median age was 63 years (IQR 54-67). There were 93.3% (28/30) males and 6.7% (2/30) females. The median time from HIV diagnosis was 9 years, with a range of 2 to 27 years. All patients had a viral load of <20 copies/ml. The median number of comorbidities was 3 (IQR 1-5). The median Rockwood Clinical Frailty Score was 2 (IQR 2-3). On assessing their frailty status, 86.7% (26/30) were non-frail (CFS 1–3), 10% (3/30) mildly frail (CFS 4–5) and 3.3% (1/30) moderately frail (CFS 6). Additionally, 6 individuals required walking aids, and 7 reported a fall in the past 1 year. 26.7% (8/30) of patients experienced polypharmacy and 13.3% (4/30) had an anticholinergic burden score of 3 and above. None of our patients had a PHQ-2 or GAD-2 score of 3 and above.

The findings from this pilot initiative allow us to identify the care needs of our local population. By integrating geriatric principles into HIV care frameworks, clinicians can better tailor interventions, enhance multidisciplinary care coordination, and ultimately improve the quality of life for aging PLWH. Further longitudinal follow up is necessary to assess the long-term impact of our interventions on patient outcomes.

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The Changing Progress of Injection Reactions of Long-Acting Injectable ART

Chiu P¹, Lai Y¹, Liu H¹, Tang Y¹, Lin Y¹, Wang Y¹, Li M²

¹Center for infection control, National Cheng Kung University Hospital, Tainan, Taiwan, ²Division of Infectious Diseases, Department of Internal Medicine, National Cheng Kung University Hospital, Tainan, Taiwan

Background: HIV infection has been regarded as a manageable chronic disease. Although oral antiretroviral therapy (ART) is highly effective, high medication adherence is still mandatory. Long-acting injectable ART can reduce risk of missing daily medication, and enhance the privacy of people living with HIV (PLWH). However, potential side effects are an important consideration when choosing this treatment. This study aims to evaluate the changing progress of injection reactions of long-acting injectable ART.

Methods: A self-administered side effect questionnaire was used to assess reactions after the first and second injections for people receiving long-acting cabotegravir/rilpivirine from May 2024 to February 2025. The local injection reaction was recorded for each of gluteal area during a one-week period one week after the first dose and second dose. Pain score on a scale from 0 to 10 was rated daily by PLWH after injection. Demographic characteristics, infection risks, BMI, and prior ART usage were collected. Descriptive statistics, paired t-tests, and correlation analyses were used to examine changes and correlations.

Results: There were 30 PLWH receiving long-acting injectable treatment during the study period with an average of 41.8 and around 30% over 50 years old. Males accounted for 93.3%, and 36.7% had comorbidities including primarily hypertension (HTN) and dyslipidemia. Those with a BMI over 30 accounted for 16.7%. The oral ART at baseline was predominantly second-generation integrase strand-transfer inhibitor-based regimens (80.0%). The most common injection reactions were injection site pain (84.2%), followed by swelling at the injection site (14.2%), diarrhea (6.7%), fever, fatigue (5%), and headache (3.3%). By using paired

t-tests, the average number of days with pain after the second injection was significantly shorter than the first dose, with the pain duration after rilpivirine decreasing from 3.13 (± 1.68) days to 2.47 (± 2.10) days ($P < 0.05$), and the pain duration after cabotegravir decreasing from 3.60 (± 2.49) days to 2.79 (± 2.66) days ($P = 0.032$). The maximum pain score (0-10) for cabotegravir after the second injection (2.97 ± 2.77) was significantly lower than during the first injection (3.92 ± 2.42) ($P = 0.035$), but there was no difference for rilpivirine. There was no significant difference in average pain duration or maximum pain score between cabotegravir and rilpivirine for each injection. For both the first and second injections, the average pain score significantly decreased on the third day (rilpivirine first injection $P = 0.024$; rilpivirine second injection $P = 0.002$; cabotegravir first injection $P < 0.001$; cabotegravir second injection $P = 0.009$). In addition, there is 10% of people experiencing a pain reaction after injection that does not occur on the first day, or the pain reoccurs after it has completely disappeared. On average, this delayed reaction happens on the 4.25th day.

Conclusion: This study provides evidence supporting that the number of days with pain was shorter after the second injection compared to the first. The maximum pain score for cabotegravir after the second injection was lower than the first injection, but there was no difference for rilpivirine. Significant pain score decreased was also shown on the third day after injections. The above findings can add information for people would like to receive long-acting ART.

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Do I Need Other Therapies Besides ART? Complementary Alternative Medicine Used and Associated Factors Among MSMLHIV on ART in Yogyakarta, Indonesia: A Cross-Sectional Study

Rukmi D^{1,2}, Setiawan Z¹, Tan C², Lutfiyati A¹

¹Universitas Jenderal Achmad Yani Yogyakarta, Sleman, Indonesia, ²Lincoln University College, Petaling Jaya, Malaysia

Background: Most PLHIV around the world are still using ART to maintain their health. However, long-term ART adherence is often interrupted or even stopped as PLHIV chooses to replace it with Complementary Alternative Medicine (CAM) therapies. Whilst CAM can be used to alleviate symptoms experienced by PLHIV, it can also have adverse effects that can interfere with the performance of ART. The use of CAM among MSM living with HIV (MSMLHIV) still needs to be done because HIV cases in MSM were the most significant in Indonesia in 2024. This study examined CAM use among MSMLHIV on ART and associated factors in Yogyakarta, Indonesia.

Methods: A quantitative cross-sectional study was conducted among 161 MSMLHIV on ART in 5 districts in Yogyakarta Province, Indonesia, from February to April 2024. A questionnaire on demographic characteristics, Morisky Medication Adherence Scale, and CAM use were distributed to MSMLHIV on ART at public health centers and hospitals. Data were analyzed using descriptive statistics, Chi-Square, and binary logistic regression tests.

Results: Among 161 MSMLHIV, 91.9% of them had health insurance, 90.7% had accessed ART for more than one year, and 93.2% of them started ART in the same year as their HIV diagnosis. 80.7% were on TLD ART and reported no significant side effects (80.7%). MSMLHIVs were educated about adherence (89.4%) and U=U messages (82.6%). Although 100% were on ART, only 22.4% had good adherence, and 68.9% reported using CAM in addition to ART. The most commonly used CAMs

were edible in the form of herbal medicines and vitamins/supplements. Chi-square and binary logistic regression tests consistently showed that ART adherence ($P=.016$; AOR: 2.65; 95%CI: 1.20 to 5.85) was the most associated factor with CAM use among MSMLHIV.

Conclusions: The results indicate that over half of MSMLHIV (68.9%) continue to use CAMs alongside ART, while their adherence to ART remains low. The relationship between ART adherence and CAM use highlights the importance of enhancing ART programs in Indonesia to educate individuals about the benefits of ART, including adherence, TasP, and the U=U concept. Additionally, research is needed to explore the effects of CAMs on ART performance, whether improving or diminishing it.

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Sexual Awareness and Confidence as Motivations for Treatment Re-engagement and Adherence Among Young People Living with HIV in Antipolo City, Philippines

Goopio D, Bagasol Jr E¹

¹*Family Health International 360, Makati City, Philippines*

Significant progress has been made in the Philippines' HIV case finding and treatment enrollment, achieving 61% and 67% of the 95-95-95 global targets to date. However, the viral suppression rate among people living with HIV (PLHIV) remains low at only 39%. Young people aged 15–24 account for a significant portion of this gap (Department of Health, 2024).

Antipolo City Social Hygiene Clinic recorded a 20% treatment interruption rate within five months among its 163 clients during the first quarter of 2024, 63% of whom are under 25 years old. In response, a young leader from a PLHIV support group co-designed the "Loss of Juan is Loss of All" project through the Free To Be YOUTH HUB, an upskilling program led by Family Health International (FHI) 360. The project aimed to re-engage young PLHIV in treatment and reduce their risks of treatment interruption.

Implemented over four months, the project employed a two-pronged approach. The first component equipped 45 clinic and community counselors on pleasure-positive messaging and self-care practices. Trained providers then facilitated social support sessions for 21 young PLHIV aged 18-27 who had experienced treatment loss, which constituted the project's second component. Guided by the WHO Quality of Life framework, the support sessions explored barriers and motivations to treatment through storytelling and creative workshops. Process documentation from the support sessions was thematically analyzed.

Young PLHIV's relationship with pleasure and intimacy were negatively impacted by internalized

stigma and rejection, as well as a hyperawareness of transmitting HIV or opportunistic infections to their partners. This limited their choices to abstinence and complete avoidance of romantic relationships. Participants also cited a lack of motivation to continue treatment, economic challenges in going to a facility, and a loss of social confidence stemming from HIV stigma and treatment fatigue causing health deterioration.

All 21 clients successfully re-enrolled in treatment following the support sessions, flattening cases of treatment interruption in the facility. They are provided with ongoing guidance by the counselors as they work on their individual self-care plans. Young PLHIV shared that openness to discuss their sexuality and regaining confidence to engage in sex were key motivations for returning to treatment. They highlighted the importance of learning strategies to navigate safe and pleasurable sex while managing their condition, which was vital for rebuilding their confidence. Beyond using condoms and encouraging their partners to take PrEP, they stressed the significance of understanding how to negotiate sexual boundaries, ensure consent, and advocate for protection use as essential components of enjoying a fulfilling sexual life.

Enhancing PLHIV's sexual awareness and confidence should be integrated into case management strategies and counseling messages. Community counselors and peer support workers are well-positioned to deliver these messages but must ensure alignment with those provided by service providers in healthcare facilities.

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The Impact of Continuous Mental Health Counseling on Depression and Anxiety Scores Among People Living with HIV (PLWH): A Preliminary Analysis

Simpauco E¹, Valino L¹, De Villena R

¹SHIP Clinic, Mandaluyong City, Philippines

Background: Mental health disorders, particularly depression and anxiety, significantly impact antiretroviral therapy (ART) adherence and retention in care among people living with HIV (PLWH). Integrated mental health care is thus crucial for optimizing overall health outcomes in this population. This study examines the effects of continuous mental health counseling on depression (PHQ-9) and anxiety (GAD-7) scores among PLWH receiving care at SHIP Clinic, a primary care facility in Mandaluyong City, Metro Manila, Philippines.

Methods: A retrospective review of patient records (N = 248) was conducted at SHIP Clinic. The study focused on PLWH with complete PHQ-9 and GAD-7 assessments at baseline and follow-up. Participants were categorized based on their engagement in counseling: those attending at least five sessions were classified as "engaged," while those with fewer than five sessions were classified as "less engaged." The primary outcome measures were the change in PHQ-9 and GAD-7 scores from baseline to the most recent follow-up assessment. Statistical analyses included independent t-tests to compare score changes between the "engaged" and "less engaged" groups.

Results: Preliminary findings suggest that PLWH attending at least five counseling sessions ("engaged" group) demonstrated statistically significant reductions in both depression and anxiety scores compared to those in the "less engaged" group.

Conclusions: This preliminary analysis indicates that continuous mental health counseling is associated with notable reductions in depression and anxiety symptoms among PLWH at SHIP Clinic. These findings support the role of sustained

psychological support in improving mental health outcomes and potentially enhancing quality of life and retention in care.

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Handgrip Strength and Six-Minute Walk Distance in Adolescents and Young Adults Living with Perinatal HIV in Northern Thailand

Aurpibul L¹, Thammalangka R¹, Khamrong C¹, Chaiyarat S¹, Kiattivej S¹

¹Research Institute for Health Sciences, Chiang Mai University, Muang Chiang Mai, Thailand

Background: Currently many adolescents and young adults living with perinatally-acquired HIV (AYA-PHIV) in Thailand are grown-up. As we know, people living with HIV are at an increased risk of metabolic syndrome, premature cardiovascular disease, and sarcopenia. There is no validated biomarker to predict the risk of adverse events. Handgrip strength was reported as associated with metabolic syndrome, cardiovascular disease, and frailty. Functional exercise capacity tests are widely used to assess cardiopulmonary function in patients with chronic health conditions. In this study, we measured handgrip strength and six-minute walk distance in AYA-PHIV.

Materials and Methods: The cross-sectional study was conducted at Chiang Mai University. Inclusion criteria were 1) AYA-PHIV aged 16-30 years, 2) having perinatal HIV infection, and 3) receiving antiretroviral treatment from the National AIDS Program at HIV clinics in Chiang Mai and Lamphun province. After enrollment, anthropometry and self-administered questionnaires were performed. Data on alcohol use, smoking, and exercise habits were collected. Handgrip strength was measured using the digital hand grip dynamometer (TKK 5401; Takei, Japan); the Korean reference ranges were used. The six-minute walk test (6MWT) was performed to assess functional exercise capacity. The regression equation from a Singaporean study was adopted to calculate predicted values.

Results: Thirty-four AYA-PHIV were included; 19 (56%) were female. Their median age was 23.5 years (interquartile range, IQR 19.8, 26.6). Half of them finished school and worked full-time. The median body mass index was 21.7 kg/m² (IQR 18.6, 24.2). The median waist circumferences were

74 centimeters (IQR 70, 83) in females and 79 (IQR 69, 84) in males. Four (13%) reported being current smokers (cigarette or e-cigarette), 16 (53%) drank alcohol occasionally, while 8 (27%) and 2 (7%) drank 1-2 times a month and 1-2 times a week, respectively. Ten (33%) reported rarely exercising, 14 (47%) exercised occasionally, and 6 (20%) exercised 1-2 times a week.

The median handgrip strength was 23.8 kilograms (IQR 20.8, 30.3) in females and 33.6 kilograms (IQR 26.1, 40.2) in males. There were 20 participants (59%) with low handgrip strength. The median 6-minute walk distances were 489 meters (IQR 447, 523) in females and 536 meters (IQR 485, 568) in males. There were 6 participants (18%) with walking distance < 10% of the predicted values. The peak heart rate achieved during 6MWT was 52.5% of the maximum predicted heart rate (IQR 46.0, 58.2), and the median metabolic equivalent time (MET) was 3.4 (indicated light work). The maximum oxygen consumption (VO₂max) was 38.1 mL/kg/min (IQR 35.8, 40.7) in females and 44.0 (IQR 38.1, 46.0) in males.

Conclusions: Despite good physical health and functional exercise capacity, more than half of AYA-PHIV in this study had low handgrip strength, reflecting poor muscle strength. We recommend aerobic and muscle strengthening exercises to decrease metabolic risk, increase muscle mass, and minimize the risk of sarcopenia in this aging young population.

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Dermatological Adverse Effects of Doxycycline as Post-Exposure Prophylaxis for Sexually Transmitted Infections: A Note for Caution

Chen L¹, Chen Y¹, Sun H^{2,3}, Huang Y², Cheng A^{2,3}, Liu W⁴, Kuo P⁵, Wu T⁶, Luo Y¹, Wu P¹, Chang H¹, Lin K^{1,2}, Hung C^{2,6}

¹Center for Infection Control, National Taiwan University Hospital, Taipei, Taiwan, ²Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan, ³National Taiwan University College of Medicine, Taipei, Taiwan, ⁴Department of Internal Medicine, National Taiwan University Hospital Cancer Centre, Taipei, Taiwan, ⁵Department of Internal Medicine, National Taiwan University Hospital Hsin-Chu Branch, Hsinchu, Taiwan, ⁶Department of Internal Medicine, National Taiwan University Hospital Yunlin Branch, Yunlin, Taiwan

Background: Doxycycline post-exposure prophylaxis (Doxy-PEP) effectively reduces the risk of bacterial sexually transmitted infections (STIs), and has been implemented among men who have sex with men (MSM). While Doxy-PEP is generally well tolerated in clinical trials, its real-world side effects remain underreported and could impact adherence in high-risk populations. This study examined the rate and characteristics of dermatological side effects among MSM receiving Doxy-PEP.

Material and Methods: We conducted a multicenter, retrospective observational study from October 2023 to February 2025. The study included adult MSM, including people with HIV (PWH) and individuals using pre-exposure prophylaxis (PrEP), who were prescribed Doxy-PEP during the study period. Electronic medical records were reviewed to collect demographic data, STI history, prior doxycycline use, and documented history of drug allergies. Dermatological side effects were assessed for clinical patterns and risk factors.

Results: During the 17-month study period, 671 MSM were included, comprising 460 (68.6%) PWH and 211 (31.4%) PrEP users. The median age of individuals was 35.3 years, and 308 (45.9%) had a history of STIs within the past 12 months. Among the included individuals, 356 (53.1%) had

previously received therapeutic doxycycline at a dose of 100 mg twice daily, 36 (5.4%) had a documented history of allergic reactions to any medication, and 3 (0.4%) had a history of allergic reactions to therapeutic doxycycline. A total of 9 individuals (1.3%) experienced dermatological side effects following Doxy-PEP use: 5 had macular or patch lesions, 2 had bullous lesions, 2 developed penile ulcers, and 1 experienced photosensitivity. Seven cases were classified as fixed drug eruptions (FDE), characterized by well-demarcated hyperpigmented macules recurring at the same site upon re-exposure to the offending drug. Symptoms appeared within 24 hours in 5 individuals, and all cases resolved after discontinuing Doxy-PEP and receiving symptomatic treatment. Individuals with a history of allergic reactions to any medication had a significantly higher risk of developing Doxy-PEP-related skin reactions (AOR 15.71, 95% CI 3.68–67.10). All individuals with FDE had a history of prior doxycycline exposure.

Conclusions: Individuals using Doxy-PEP for STI prevention may develop dermatological side effects after exposure to a higher dose of doxycycline (200 mg). While these allergic reactions were generally mild, they led some individuals to discontinue Doxy-PEP, thereby limiting their preventive options for STIs. Clinicians should assess allergy history before prescribing Doxy-PEP and educate users on recognizing early skin reactions.

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High-risk Sexual Behaviors and Antiviral Therapy Outcomes in Acute HIV Infection: A Retrospective Cohort Study from China

Zhang Q¹, Peng Q¹, Zhang L¹, Jia X¹, Zhao F¹, Rao M¹, Wang S¹, Zhang H¹, Shi Y¹, Hou M², Li J³, He Y¹

¹Third People's Hospital of Shenzhen, National Clinical Research Center for Infectious Diseases, Shenzhen, China, ²The Sixth People's Hospital of Zhengzhou, Affiliated Infectious Diseases Hospital of Zhengzhou University, Henan Infectious Diseases Hospital, Zhengzhou, China, ³The Ninth People's Hospital of Dongguan, Dongguan, China

Background: Acute HIV infection (AHI) is frequently characterized by non-specific clinical manifestations, which are easily missed by routine clinical diagnosis process. During this critical phase, untreated individuals with persistent high-risk behaviors pose significant risks for secondary transmission within the first year following infection. This study investigates sexual risk behaviors and evaluates the real-world effectiveness of antiretroviral therapy (ART) among Chinese patients with AHI.

Methods: This study was a single-center retrospective cohort study, including patients with acute HIV infection who were admitted to the Third People's Hospital of Shenzhen from January 2022 to January 2024. All subjects were questioned about the high-risk sexual behaviors after diagnosis before antiviral treatment initiated, the virological suppression (HIV-RNA <50 copies/ml), changes in CD4+ T-cell counts, and changes in CD4/CD8 during 48 weeks were analyzed.

Result: A total of 42 patients were enrolled in this study, of whom 34 (80.95%) patients remained sexually active between post-infection and pre-treatment, of whom 82.35% (28/34) had no regular sexual partner, 50% (17/34) did not use condoms, and 23.53% (4/17) chose not to use condoms because of that knowledge about U=U. The median viral load at baseline was 434,500 copies/ml, the median CD4+ T-cell count was 327.5 cells/ul, and the median CD4/CD8 ratio was 0.34. B/F/TAF is the most common antiviral therapy, with 85.71% (36/42) patients using B/F/TAF

regimen, followed by DTG-based regimen (9.5%, n=4). virological suppression rates at 4, 12, and 48 weeks were 33%, 77.5%, and 86.49%, respectively. No virological failure and related drug resistance occurred. The immune function was significantly recovered at 48 weeks of follow-up, with a significant increase in CD4+ T-cell counts to 629 cells/ul ($P < 0.01$) and CD4/CD8 ratio to 0.75 ($P < 0.01$).

Conclusion: Acute HIV-infected patients are still at high risk for high-risk sexual behavior after diagnosis, and clinicians should suppress the viral load of patients to the lower limit of detection as soon as possible. It is recommended to start ART on the same day of diagnosis with B/F/TAF, which can quickly suppress the virus and achieve virological suppression, which is helpful to reduce the spread of HIV.

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Sexually Transmitted Infections in People with Human Immunodeficiency Virus 1: Secondary Longitudinal Analyses of RACER, and SPRINT Studies, Two Multi-Center, Randomized, Active-Controlled, Phase 3 Trials

Wang M¹, Wu H², Cai W³, Ma P⁴, Zhao Q⁵, Wei H⁶, Lu H⁷, Wang H⁸, He S⁹, Chen Z¹⁰, Chen Y¹¹, Zhang F¹², Fu H¹³, Yun X¹³, Wang Y¹³

¹Institute of HIV/AIDS, The First Hospital of Changsha, Changsha, China, ²Clinical and Research Center for Infectious Diseases, Beijing Youan Hospital, Capital Medical University, Beijing, China, ³Infectious Disease Center, Guangzhou Eighth People's Hospital, Guangzhou Medical University, Guangzhou, China, ⁴Department of Infectious Diseases, Tianjin Second People's Hospital, Tianjin, China, ⁵Department of Infectious Diseases, The Sixth People's Hospital of Zhengzhou, Zhengzhou, China, ⁶Department of Infectious Diseases, The Second Hospital of Nanjing, Nanjing, China, ⁷National Clinical Research Centre for Infectious Diseases, The Third People's Hospital of Shenzhen, The Second Affiliated Hospital of Southern University of Science and Technology, Shenzhen, China, ⁸Department of Infectious Diseases, Shenzhen Third People's Hospital, Shenzhen, China, ⁹Department of Infectious Diseases, Public Health Clinical Medical Center of Chengdu, Chengdu, China, ¹⁰Drug Clinical Trial Institution, Public Health Clinical Medical Center of Chengdu, Chengdu, China, ¹¹Division of Infectious Diseases, Chongqing Public Health Medical Center, Chongqing, China, ¹²Clinical and Research Center for Infectious Diseases, Beijing Ditan Hospital Capital Medical University, Beijing, China, ¹³Clinical Research & Development, Jiangsu Aidea Pharmaceutical Co., Ltd, Yangzhou, China

Background: People with HIV-1 (PWH) are susceptible to sexually transmitted infections (STIs), and concomitant STIs, especially syphilis, impact immune reconstitution negatively in PWH. We performed the secondary longitudinal analyses of RACER, and SPRINT studies, two multi-center, randomized, active-controlled phase 3 trials. These two studies examined efficacy, and safety profiles of a combination of tenofovir plus lamivudine, and tenofovir versus active comparators, in treatment-naïve, and virologically suppressed PWH, respectively. The secondary analyses aimed to evaluate baseline, and post-baseline STIs, as well as use of antibiotics, in PWH on antiretroviral treatment.

Methods: PWH, aged 18 to 65 years, were followed up at outpatient clinic visits through 96 weeks, and pooled from the aforementioned two studies for analyses. Any participant would be excluded if presenting with active syphilis or concurrent viral hepatitis at baseline. STIs of special interest included syphilis, gonorrhea, genital herpes, urogenital mycoplasma or chlamydial infection, anogenital warts, and newly-emerging mpox. Medical history, and comedications were coded using the most recent Medical Dictionary for Regulatory Activities, and WHODrug Dictionary, respectively.

Results: A total of 1,392 participants were pooled, including 630 treatment-naïve, and 762 virologically suppressed participants. The study population was at a mean age of 33±8.9 years, the vast majority of whom were men (95.9%) but a minority of whom were immunocompromised (6.4%). A numerically smaller proportion of treatment-naïve participants reported current practice of protected sex compared to that of virologically suppressed participants (50.7% vs. 99.9%). Previous history of STIs included syphilis (18.6%), gonorrhea (0.1%), genital herpes (0.1%), urogenital mycoplasma or chlamydial infection (0%), and anogenital warts (2.1%), without any report of mpox. Main post-baseline newly-emerging or recurrent STIs were syphilis (0 to 48 weeks, 2.9%; 48 to 96 weeks, 3.8%), gonorrhea (0.2%; 0.2%), genital herpes (0.1%; 0%), urogenital mycoplasma or chlamydial infection (0%; 0%), and anogenital warts (1.3%; 0.8%). Mpox was detected in two virologically suppressed participants during the year of 2023. Prior prescription of penicillins was common (5.8%), while in-trial use of penicillins, and cephalosporins was also common: 0 to 48 weeks, 11.6%, and 6.4%, respectively; 48 to 96 weeks, 9.1%, and 5.1%, respectively. In contrast, antimicrobial prophylaxis was rarely used against bacterial STIs in either treatment-naïve or virologically suppressed PWH.

Conclusions: Syphilis is prevalent among both treatment-naïve, and virologically suppressed PWH followed up at HIV trial outpatient clinics although the latter population reported almost 100% practice of protected sex. Other STIs are relatively less common probably due to inadequate testing, and monitoring. Involvement of sexual health care, including antimicrobial prophylaxis, into HIV outpatient followup is warranted for sexually active PWH, regardless of whether virally suppressed.

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Repeat Syphilis Infection Among HIV-Infected Men in Busan, Korea: A Retrospective Study

Lee S¹, Lee S¹, Lee J¹, Lee S¹

¹Pusan National University Hospital, Busan, South Korea

Background: Repeat syphilis infections (RSI) are common among HIV-infected individuals and may play a central role in both syphilis and HIV transmission. This study aimed to assess the temporal trends in and the risk factors associated with RSI.

Material and Methods: We identified all cases of primary, secondary, and early latent syphilis among HIV-infected men attending an HIV clinic in Korea between 2005 and 2022 and data were evaluated through the end of 2024. RPR titers are typically assessed every 3-6 months. Those who exhibited an appropriate response to therapy (≥ 4 -fold decrease in RPR) and had at least one subsequent RPR titers were included. RSI was defined as an episode in a person who had a ≥ 4 -fold increase in RPR titers. Cox regression analysis was conducted to identify risk factors for RSI.

Results: Of 955 men with HIV, 101 patients with early syphilis were included and contributed to 536.4 person-years (PY) of the observation periods. Twenty-nine patients were diagnosed with RSI, with an overall incidence of 5.41/100 PY (95% confidence interval 3.62-7.76). The incidence of RSI per 100 PY decreased from 10.23 (3.31-23.8) in 2005-2009 to 1.29 (0.03-7.14) in 2010-2014, however, it increased to 2.87 (0.93-6.7) in 2015-2019, further to 7.64 (4.5-12.1) in 2020-2024. A multivariate analysis identified history of incarceration (adjusted HR 3.22, 1.07-9.64, $p=0.037$) and HCV infection (13.2, 1.93-91, $p=0.009$) as risk factors for RSI.

Conclusions: We observed a recent increasing trend in the incidence of RSI among men with HIV in Korea, suggesting the need for enhanced regular screening.

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Retrospective Mpox Surveillance Among a Cohort of PLHIV in Thailand: Earlier than What we Thought

Co E¹, Promnarate P¹, Peachman-Bartolomeo K⁴, Macedo Cincotta C⁴, Imbach M⁵, Sacdalan C², Phanuphak N³, Garges E¹

¹Armed Forces Research Institute of Medical Sciences, Bangkok, Thailand, ²SEARCH Research Foundation, Bangkok, Thailand, ³Institute of HIV Research and Innovation, Bangkok, Thailand, ⁴Walter Reed Army Institute of Research, Silver Spring, USA, ⁵Henry Jackson Foundation, Bethesda, USA

Monkeypox virus (MPXV) is an enveloped double-stranded DNA virus of Orthopoxvirus genus of the Poxviridae family, which causes skin and systemic disease similar to smallpox infections. With 2 different clades, MPXV disease or Mpox results in significant morbidity and mortality in certain immunocompromised conditions and has biowarfare potential. In July of 2022 and August 2024, the WHO declared two separate Public Health Emergencies of International concern (PHEIC) for this pathogen. In Thailand, the 1st clinical case of Clade II Mpox was reported at the end of July of 2022, with reports of wastewater identification 1 month prior. In this study, we conducted (MPXV) serology on a cohort PLHIV from an acute HIV study RV254.

The RV 254 study recruits participants with acute HIV and follows them for up to 1058 weeks, with periodic blood collections for diagnostic and research testing. Banked plasma samples from the study visits in 2022 were tested using the Meso Scale system (MSD) on the V-PLEX Orthopoxvirus Panel 1 (IgG) kit (Meso Scale Discovery). Demographics, clinical characteristics and participant course at the time of tested sample collection were extracted from case report form from time of plasma collection. Nine hundred and seven samples were reviewed and stratified based on having 2 or more risk factors for MPVX infection. Risk factors are defined as having 3 or more sex partners, any STI positivity at the time of visit, and illicit drug use. Among these samples, one hundred fourteen were selected and tested for MPVX IgG serology, with 97 (82%) and 17 (18%) having 2 and 3 risk factors respectively. One

hundred percent are male, had a median age of 33 (IQR=8). Eight three (72%) had ≥ 3 insertive and 85 (74.5%) had receptive partners. Nineteen out of 114 (16.7%), 17/114 (14.9%) and 89/114 (78%) were positive for gonococcal, Chlamydial infection and RPR respectively. Twenty-seven (23%) were enrolled in a concomitant gonococcal vaccine study. Fifty one out of 114 (44.7%) have admitted to illicit drug use. On MSD testing, 8/114 participants had evidence of previous MPVX infection. Five of 8 were positive prior to the 1st reported case in Thailand, with the earliest positive sample collected in February of 2022. No Mpox compatible symptoms were reported during the visit on case report form review. Except for age ranges, there was no statistically significant difference in risk factors between positive and negatively tested samples.

This study suggests possible unrecognized early and asymptomatic Mpox infection in Thailand during the 2022 outbreak, predating diagnosed human cases by at least 6 months. This study also highlights the need to understand and explore the role of serology in predicting future disease outbreaks.

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Anal Dysplasia, Oncogenic Human Papillomavirus and Anal Microbiota in Women Living with HIV in Northern Taiwan

Cheng S¹, Hsieh H¹, Chen C¹, Lin Y¹, Cheng C¹, Li S¹, Yang Y²

¹Taoyuan General Hospital, Taoyuan, Taiwan, ²Taipei Medical University, Taipei, Taiwan

The study aims to explore the difference in HPV genotyping, spectrum of anal microbiota between women living with HIV (W-LWH) who had anal dysplasia and had normal/ inflammatory anal cytology.

The study cohort were adult W-LWH and visited the out-patient clinics of Taoyuan General Hospital, Ministry of Health and Welfare in the year of 2022-2023. Demographic data were collected. HPV genotyping and ThinPrep cytology interpreted by Bethesda systems was performed on anal samples from 99 patients. Samples were characterized by high-throughput sequencing of dual-index barcoded 16s rRNA (V3–4).

Their mean age was 49.8 ($\pm$ SD, 9.53) years. The mean duration of HIV infection was 15.7 ($\pm$ 5.9) years. All of them were on antiretroviral therapy, and among them, 91.9% of the participants had HIV viral load less than 50 copies/ml. The mean CD4+ T cell counts was 699.9 ($\pm$ 296.6) cells/ μ l. Anal cytology showed normal in 42.2% of the participants, inflammation in 30.3% of them, atypical squamous cells-unknown significance (ASCUS) in 18.2%, low-grade squamous intraepithelial lesion (LSIL) in 3.0%, high-grade squamous intraepithelial lesion (HSIL) in 0%, and atypical squamous cells cannot exclude HSIL(ASC-H) in 3% of them. In total, 24.2% of W-LWH presented abnormal anal cytology. And, oncogenic HPVs were detected in 18.2% of samples. Comparing the anal microbiota between the group yielding ASCUS or higher grades and the group yielding normal or inflammation, there were richness of Proteobacteria, Gammaproteobacteria, Enterobacteriales, and Enterobacteriaceae. We concluded that understanding the interaction

among immunocompromised hosts, oncogenic HPVs, and microbiota is essential, and the contribution of these factors to anal precancerous lesions needs more in-depth exploration.

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Impact on Quality of Life of Cabenuva for People Living with HIV

Strong B¹, KOH K¹

¹Gladstone Road Medical Centre, Highgate Hill, Australia

Background: The quality of life (QoL) of people living with HIV is an area of research that is understudied, particularly that of the impact of HIV treatment.

Cabotegravir 600 mg plus rilpivirine 900 mg (CABENUVA) is a long-acting medication for the treatment of HIV-1 infection, administered intramuscularly every two months. Available in Australia since 2022, CABENUVA has been gaining increasing popularity. As of December 2024, 36 people living with HIV were receiving CABENUVA at Gladstone Road Medical Centre (GRMC), an inner city community based high caseload HIV General Practice, in Brisbane, Queensland. Using the PozQoL survey, a validated online digital tool developed in Australia for measuring health-related QoL among people living with HIV, we sought to investigate the health-related QoL for people living with HIV currently receiving CABENUVA at GRMC.

Materials/Methods: A cohort-study of people living with HIV currently receiving CABENUVA at GRMC who had at least two PozQoL assessments completed at the clinic between December 2023 to December 2024 were included in this study. Covering health, relationships, life satisfaction, and well-being, each of the 13 questions in the PozQoL survey are categorised into four areas: Psychological, Social, Health, and Functional, establishing an overall score. This two-part study 1) compared overall QoL scores, defining a score of 3.54 or higher as high QoL; and 2) measured trends over a 12-month period comparing first and final PozQoL scores recorded in the study's time frame.

Results: From Dec 2023 to Dec 2024, 34 people living with HIV receiving CABENUVA at GRMC had completed two or more PozQoL tests. Of these, 28 (84%) recorded a score of 3.54 or higher on their final test, placing them in the upper range of

testing and indicating a high QoL score, with the remaining 6 scores ranging from 2.67 to 3.08. Of the 34 scores, 17 reported higher scores on their most recent PozQoL compared to their initial score, while 17 had scores equal to or lower than their initial score.

Conclusion: The PozQoL tool is not itself a definitive metric for satisfaction with care in people living with HIV. External factors in the person's personal life can affect their scores, however, it remains a useful tool for determining overall QoL in people living with HIV receiving long-acting HIV treatment. With 28 out of 34 (84%) participants reporting high QoL scores, and 50% reporting an improvement in their overall QoL scores, these results suggest long-acting treatments like CABENUVA may positively impact the overall quality of life for a significant portion of people living with HIV. However, further research is needed to better understand the influence of external factors and the long-term effects of HIV treatments on the QoL of people living with HIV.

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Clinical Applications of AI in Sexually Transmitted Infection and Anogenital Dermatoses in Sexual Health: A Systematic Review and Meta-Analysis

Soe N¹, Kusnandar I³, Latt P^{1,2}, Fairley C^{1,2}, Chow E^{1,2,4}, Maatouk I⁵, Johnson C⁵, Shah P^{5,6}, Peters R⁵, Subissi L⁵, Zhang L^{1,2,7}, Ong J^{1,2,8}

¹Melbourne Sexual Health Centre, Melbourne, Australia, ²School of Translational Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia, ³National School of Medicine, Doctor of Medicine, University of Notre Dame, , Australia, ⁴Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia, ⁵Global HIV, Hepatitis and STIs Programmes, World Health Organization, Geneva, Switzerland, ⁶UNAIDS Regional Support Team Asia Pacific, , Thailand, ⁷China-Australia Joint Research Center for Infectious Diseases, School of Public Health, Xi'an Jiaotong University Health Science Center, Xi'an, China, ⁸Department of Clinical Research, London School of Hygiene and Tropical Medicine, London, United Kingdom

Background: Artificial intelligence (AI) excels in dermatology. However, its applications to sexually transmitted infections (STIs) remain unclear. We assessed the performance of AI algorithms and their applications in detecting STIs and anogenital dermatoses in sexual health.

Methods: We followed the PRISMA guidelines and searched six databases from January 1, 2010, to April 12, 2024, for studies using AI to identify STIs and anogenital dermatoses. We used a modified QUADAS-2 tool and the CLEAR Derm checklist for quality assessment. We conducted a bivariate random-effect meta-analysis to estimate the pooled sensitivity and specificity of AI applications for the conditions where sufficient data existed. Subgroup analysis and meta-regression were conducted to explore potential heterogeneity sources for mpox studies.

Results: Of 5,381 studies screened, 141 met the inclusion criteria. Most studies reported on mpox (111, 62.4%), while anogenital conditions, including syphilis, genital herpes, genital warts, scabies, psoriasis, lichenoid changes, and molluscum contagiosum, received less attention (each <6.0% of the studies). Meta-analyses showed high performance of AI for mpox

identification (pooled sensitivity: 0.96 [95% CI: 0.93-0.97], pooled specificity: 0.98 [0.97-0.99]), herpes simplex (0.91 [0.71-0.98], 0.97 [0.94-0.98]), genital warts (0.87 [0.67-0.96], 0.98 [0.95-0.99]), psoriasis (0.90 [0.78-0.95], 0.98 [0.96-0.99]), and scabies (0.89 [0.84-0.93], 0.98 [0.95-0.99]). We could not pool the sensitivity and specificity for other conditions due to insufficient data points. Meta-regression for mpox studies revealed higher pooled sensitivity in models with larger datasets (≥ 1000 images) and binary classification approaches compared to those with smaller datasets and multiclass predictions ($p < 0.05$). Study quality was variable and our assessment identified high risk of bias across the population selection (76.1%), reference standards (76.1%), and index tests (20.0%). Most studies relied on open-source datasets (87.8%), lacked external validation, and remained at the proof-of-concept stage without clinical implementation.

Conclusions: While AI shows promising performance for identifying STIs and anogenital dermatoses, significant research gaps exist. Future work should prioritise understudied STI and differential conditions, while improving data quality, conducting external validation, and validating in clinical settings. Clear policy guidance and standards are needed to determine how best to implement AI tools for diagnostic purposes and to provide clear performance criteria and frameworks for AI developers, healthcare providers, and clients.

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Digital Directly Observed Treatment (dDOT) in HIV clinic: From Planning to Implementation

Chan S¹, Chan S¹, Fong C¹, Au S¹, Chan K¹, Yiu Y¹, Ng S¹, Li S¹, Ho Y¹, Wong W¹, Yeung K¹, Kwong T^{1,2}, Lee M¹, Tang H^{1,2}

¹HIV Clinical Service, Department of Medicine, Queen Elizabeth Hospital, Hong Kong SAR, China, ²Division of Infectious Diseases, Department of Medicine, Queen Elizabeth Hospital, Hong Kong SAR, China

Background: With advancements in anti-retroviral therapy (ART), the mortality rate of people with HIV (PWH) has significantly decreased, and their life expectancy is almost similar to that of the general population. ART adherence is crucial for HIV viral suppression so as to achieve U=U (Undetectable = Untransmittable). However, PWH with suboptimal or poor ART adherence who fail to achieve sustained viral suppression, putting them at risk of immunological deterioration and developing of ART resistance. As the HIV Specialty Nurses, monitoring ART adherence is a key component of their role.

Directly observed treatment (DOT) has been widely implemented in the management of various diseases, such as tuberculosis and psychiatric illnesses, and has proven effective in improving treatment outcomes. Additionally, the use of digital tools, like the software Zoom, has become increasingly common since the COVID-19 pandemic. To apply the benefits of these digital tools into HIV clinical practice, HIV Specialty Nurses designed a Digital DOT (dDOT) pilot program in March 2024. The program combines the advantages of DOT and telemedicine to address PWH who have drug adherence problem at HIV Clinic of Queen Elizabeth Hospital (QEH), Hong Kong China.

Objectives: • To improve ART adherence among non-adherent PWH.

- To improve HIV viral load (VL) suppression of non-adherent PWH.

Methods: The dDOT program utilizes Zoom to conduct DOT. A Zoom link was provided by the QEH Information Technology Department after

obtaining verbal consent from PWH. dDOT sessions were carried out at a scheduled meeting time daily during clinic office hour and continued for at least four weeks. During the Zoom meeting, PWH took their medication under direct supervision. To protect PWH privacy, discussions of HIV-related issues were prohibited.

Inclusion Criteria:

1. PWH who failed to achieve virologic suppression (HIV VL > 1000 copies/mL) due to suboptimal ART adherence;
2. PWH were on a daily ART regimen;
3. PWH agreed to join dDOT on voluntary basis;
4. PWH knew how to operate the Zoom software.

Results: Outcomes of selected PWH enrolled in the dDOT pilot program from March 2024 to January 2025 were retrospectively reviewed. Five PWHs were selected during the recruitment period. All PWHs had a VL exceeding 1000 copies/mL before initiating dDOT. After the implementation of dDOT, four out of five PWHs exhibited a decreasing trend in their VL. Three out of five PWHs' latest VL were less than 200 copies/mL, with one PWH achieving well viral suppression. One PWH dropped out of the dDOT program due to poor network connectivity.

Conclusion: dDOT is effective in helping non-adherent PWH to improve their viral suppression. From planning to implementation, dDOT has demonstrated both technically and logistically feasibility, offering promising applications for other clinical services in the near future.

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Enhancing HIV Detection Among MSM Through Index Partner Testing: Evaluation of Client and Provider Referral Models at the Thai Red Cross AIDS and Infectious Diseases Research Centre, Bangkok

Jomja P^{1,2}, Nontarak J², Aimyong N², Chaveepojnkamjorn W², Putcharoen O¹, Suksom C¹

¹Thai Red Cross AIDS and Infectious Disease Research Centre, Bangkok, Thailand, ²Department of Epidemiology, Faculty of Public Health, Mahidol University, Bangkok, Thailand

Introduction: In Thailand, HIV remains a major public health concern, especially among men who have sex with men (MSM). This critical issue calls for effective strategies to enable early HIV detection and curb viral transmission. The Index Partner Testing approach has emerged as a promising intervention to tackle these challenges.

Method: This study was conducted at the Thai Red Cross AIDS and Infectious Diseases Research Centre in Bangkok to assess the effectiveness of Index Partner Testing through both client referral and provider referral models.

- Phase 1: A cross-sectional survey was carried out with 217 MSM attending an anonymous clinic to evaluate their baseline partner notification behaviors.
- Phase 2: A quasi-experimental study was implemented with 106 HIV-positive participants to measure the effectiveness of the client referral model in increasing partner testing uptake. Additionally, logistic regression analysis was used to examine factors influencing partner notification, with significance set at $p < 0.05$.

Results: The client referral model significantly increased partner testing rates, from 7.8% using traditional methods to 30.2%. Among those notified, 54.2% underwent HIV testing, and approximately 22% of these tests identified new HIV cases. Moreover, 66.4% of participants expressed a preference for the provider referral model. Analysis revealed that having a regular partner was significantly associated with successful

partner notification, with individuals in steady relationships being 7.75 times more likely to notify their partners. Other factors—including age, education, occupation, income, access to healthcare, attitudes toward HIV prevention and testing, perceived stigma, and social support—did not show statistically significant associations with partner notification.

Discussion and Conclusion: The study findings demonstrate that implementing the Index Partner Testing strategy, via both client and provider referral models, is an effective means of increasing HIV testing rates among MSM. This approach not only enhances partner notification and testing uptake but also provides critical insights for developing targeted public health strategies for high-risk MSM populations in Thailand. The absence of any reported partner violence further reinforces the safety and feasibility of this intervention, underscoring its potential role in mitigating HIV transmission.

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Peer Promoters Gamified Sexual and Social Networking Strategy for HIV Testing and PrEP Enrolment in Pasig City, Philippines

Bagasol Jr E¹, Cruz J¹, Isaac K, Sumagaysay M¹

¹Family Health International 360, Makati City, Philippines

The Sexual and Social Network Strategy (SSNT) presents significant opportunities to increase HIV testing uptake among individuals at high risk of HIV transmission by mobilizing peers with extensive networks for recruitment into HIV testing. With support from Family Health International (FHI) 360, Positibong Pasigueño (PP), a youth organization in Pasig City, Philippines, developed an SSNT model called 'Talk1, Test1, Save1,' engaging peer promoters from government youth councils to conduct house-to-house HIV education, testing recruitment, and immediate PrEP offer to HIV-nonreactive clients.

Thirty (30) peer promoters participated in the gamified SSNT model, undergoing a full-day training on sexual agency, choice-based peer counseling, and PrEP promotion. They were paired with five (5) community-based screening motivators who assisted them during a full-day gamified testing outreach in three (3) selected villages with high HIV incidence in the city. For every client reached for testing, they received corresponding points, and whoever accumulated the highest points at the end of the activity won.

In a single day, 30 recruiters successfully engaged 250 young people (1 recruiter to 8 participants), screening 170 men who have sex with men (MSM) and transgender individuals. Among those screened, 25 individuals received their first bottle of PrEP on the same day.

The strategic engagement of youth council members as peer promoters was key to the success of the activity. With their influence and knowledge of youth hotspots in their respective villages, these peer promoters effectively reached their target clients. By utilizing positive messaging,

they gained access to these hotspots without intruding.

Offering immediate PrEP to HIV-nonreactive clients proved effective among young people, especially when promoted by trusted peers. However, case finding needs improvement, as only four reactive clients were identified during the activity.

Additionally, gamifying the recruitment process significantly enhanced the outreach effort. This approach not only demedicalized implementation but also made discussions on HIV testing and PrEP uptake more engaging for peers. While incentives helped encourage participation in the gamified testing strategy, the activity was carried out with minimal expenses (\$850.00), showcasing its cost-effectiveness.

This youth-led SSNT strategy showcased innovation, creativity, and cost-effectiveness. As the HIV epidemic continues to evolve, greater investment in youth-led approaches that prioritize these key indicators is essential for effective response scale-up.

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Prevalence of Peer-Recommended HIV Self-Testing Among Men Who Have Sex with Men in Mainland China

ZHOU C¹, Tan M¹, Qiu Y², Jia C³, Lyu F¹, Xu J¹

¹National Center for AIDS/STD Control and Prevention, China CDC, Beijing, 中国, ²STD and AIDS Prevention and Control Institute, Shijiazhuang Center for Disease Control and Prevention, Shijiazhuang, China, ³Shijiazhuang Tongxing Non-Governmental Organization, Shijiazhuang, China

Objective: To understand the prevalence of peer-recommended HIV self-testing among men who have sex with men (MSM), and provide clue for identifying key individuals who can promote peer-recommended HIV self-testing.

Methods: Data was derived from the HIV self-test kits application system operated by Tongxing Non-Governmental Organization from July 1, 2022 to May 31, 2024. This study identifies recommenders and recommendees through the use of mobile phone numbers. When individuals applying for HIV self-test kits enter the recommender's mobile phone number in the electronic questionnaire, the applicant is recognized as the recommendee, while the user of the mobile phone number is identified as the recommender. Subsequently, the recommender's mobile phone number is checked for duplicates and matched within the application system. It is important to note that this study does not provide any reminders or incentives for either recommenders or recommendees; the referral status is a result of natural and voluntary conditions. Finally, statistical analysis was conducted using SPSS 29.0 software, employing the Chi-square test to assess differences between groups. Visual analysis of recommendation networks was performed using yEd Graph Editor software based on six-month intervals.

Results: A total of 1,574 men who have sex with men (MSM) applied for HIV self-test kits. The majority of applicants were unmarried (74.7%), held a college degree or higher (65.5%), and were employed (53.2%). Among the applicants, 54.8% (862/1,574) reported using condoms consistently during sexual intercourse in the past three

months, while 37.2% (585/1,574) uploaded their HIV test results. Additionally, 53 MSM (3.4%) recommended peers for HIV self-testing. Notably, MSM aged 30 years and older, as well as those who consistently used condoms during sexual intercourse in the past three months, were more likely to recommend self-testing to peers. These 53 individuals collectively recommended a total of 740 peers for self-testing, averaging 14 recommendations per person. Among the recommenders, three HIV-positive cases were identified, indicating one HIV infection per 17.7 recommenders. Within the four-round recommendation network, 10 MSM participated in more than one round, all of whom were HIV prevention volunteers. Others are all common MSM, 11 individuals recommended two or more peers for HIV self-testing.

Conclusions: MSM demonstrates a high efficiency in peer-recommended HIV self-testing, with HIV prevention volunteers serving as the primary force and the common MSM acting as a supportive role. Future efforts should continue to leverage the influence of key individuals to promote the implementation of HIV self-testing.

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Optimizing Health Resource Allocation for Improving Timely HIV Diagnosis in China

Zhang L¹

¹Melbourne Sexual Health Centre, Alfred Health, Australia, Carlton, Australia

Introduction: The Joint United Nations Programme on HIV/AIDS (UNAIDS) updated the 95-95-95 targets for the HIV endgame in 2030. To achieve the first target in a timely manner, we investigate the optimized strategy of resource allocation to maximize timely HIV diagnosis in 14 populations in China.

Methods: We developed a mathematical model by integrating epidemiological, demographical and behavioural data from 12 high-risk and two general populations to evaluate the impact of various resource allocation strategies of HIV testing on HIV incidence in China. We identified the optimized allocation strategy that maximizes the number of HIV diagnoses at an estimated total spending on HIV tests in China and calculated the per-capita cost of new HIV case detection.

Results: We estimated that 144,795 new HIV cases may occur annually in 14 populations in China, with a total annual spending of US\$2.8 billion on HIV testing. The largest proportion of spending was allocated to general males (44.0%), followed by general females (42.6%) and pregnant women (5.1%). Despite this allocation strategy, only 45.5% (65,867/144,795, timely diagnosis rate) of annual new infections were diagnosed within a year of acquisition, with a cost of \$42,852 required for each new HIV case detection. By optimizing the allocation of HIV testing resources within the same spending amount, we found that general females received the highest proportion of spending allocation (45.1%), followed by low-risk men who have sex with men (13.9%) and pregnant women (8.4%). In contrast, the proportion of spending allocation for the general males decreased to 0.2%. With this optimized strategy, we estimated that 120,755 (83.4%) of annual new infections would be diagnosed within a year of acquisition, with the cost required for one HIV case detection reduced to \$23,364/case. Further spending

increases could allow for significant increases in HIV testing among lower-risk populations.

Conclusions: Optimizing resource allocation for HIV testing in high-risk populations would improve HIV timely diagnosis rate of new infections and reduce cost per HIV case detection.

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High Acceptability and Medical Eligibility of Long-Acting Cabotegravir/Rilpivirine Treatment Among Youth Living with HIV in Thailand

Auaboonkanok P^{1,2}, Songtaweasin W³,
Anugulruengkitt S^{1,2}, Saisaengjan C², Seesuksai J²,
Teeraananchai S⁴, Puthanakit T^{1,2}

¹Division Of Infectious Diseases, Department Of Pediatrics, Faculty Of Medicine, Chulalongkorn University, Bangkok, Thailand, ²Center of Excellence for Pediatric Infectious Diseases and Vaccines, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ³School of Global Health, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, ⁴Department of Statistics, Faculty of Science, Kasetsart University, Bangkok, Thailand

Background: Long-acting cabotegravir/rilpivirine (LA-CAB/RPV) represents the only approved injectable antiretroviral therapy (ART) for youth living with HIV (YLHIV). This treatment, however, is not yet available through the Thai National AIDS Program (NAP).

Objectives: This study aimed to evaluate the acceptability of LA-CAB/RPV among Thai YLHIV and to determine the proportion of medically eligible YLHIV within the Thai National AIDS Program.

Methods: Two cross-sectional studies were conducted: the first in an HIV clinic in Bangkok involving YLHIV aged 13-24 years, assessing acceptability via self-report questionnaires; the second within the NAP, encompassing 14,670 youths aged 12 to 24 years, focused on medical eligibility defined by no history of virological failure (HIV RNA > 1000 copies/ml) and no potential archived resistance to CAB/RPV.

Results: From April to June 2024, 100 YLHIV (median age 20 years; IQR 19.0-21.7) were enrolled, including 29 with perinatally acquired HIV (PHIV). Overall, 85% were willing to use LA-CAB/RPV. Despite longer median treatment duration of ART (14.3 vs 2.7 years), PHIV youth showed less interest in this novel regimen– (odds ratio 0.14, 95%CI: 0.04-0.47). Injectable ART was considered more convenient than oral pills by 76% of participants, although 42% anticipated injection

site reactions. Among YLHIV in the national database (median age 22 years; IQR 20-23) where 61% had started on Non-Nucleoside Reverse Transcriptase Inhibitor (NNRT)-based treatments. We found 64% across Thailand were medically eligible, with a lower rate among PHIV (32%) compared to non-PHIV (70%)– (adjusted odds ratio 0.5, 95%CI: 0.42-0.59).

Conclusions: The majority of Thai YLHIV show a positive attitude towards LA-CAB/RPV, with two-thirds meeting medical eligibility criteria. Enhancing access to generic formulations of this regimen could significantly impact lifelong HIV management.

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The Impact of Same-day ART Initiation on Clinical and Non-Clinical Outcomes: A Scoping Review

Chen B^{1,3}, Seekaew P^{1,2,3}, Vollmer B⁴, Reed D⁵, Heck C⁶, Ganesan K², Lamb M², Mathema B², Phanuphak P³, Abrams E², Phanupak N³

¹Johns Hopkins University School Of Medicine, Baltimore, United States, ²Department of Epidemiology, Columbia University Mailman School of Public Health, New York City, United States, ³Institute of HIV Research and Innovation, Bangkok, Thailand, ⁴Taub Institute for Research in Alzheimer's Disease and the Aging Brain, Columbia University, New York City, United States, ⁵Center for Communicable Disease Dynamics, Department of Epidemiology, Harvard T.H. Chan School of Public Health, Boston, United States, ⁶Division of Infectious Diseases, Department of Medicine, Columbia University Irving Medical Center, New York City, United States

Background: Accelerated antiretroviral therapy (ART) initiation, including starting ART on the day of HIV diagnosis, has emerged to be one of the approaches to improve ART uptake by shortening or removing some preparatory steps before ART initiation. By doing so, accelerated ART initiation is thought to remove some structural barriers associated with ART initiation process. However, several concerns still need to be addressed, such as whether the expedited process would lead to adverse treatment outcomes after ART initiation.

Materials and Methods: Search strategy was developed using both MeSH and free text terms relevant to accelerated ART initiation (same-day, immediate, rapid). Exclusion criteria were studies that did not focus on HIV, did not involve HIV treatment, included individuals with HIV aged lower than 12, and contained non-human subjects. Additionally, we excluded articles that were case-reports, qualitative studies, systematic reviews, commentary, points of view, and conference presentations. Four electronic databases (PubMed, Embase, Web of Science, MEDLINE) were used to identify relevant studies published in English between January 2015 and December 2023. Outcomes were retention, viral suppression, pre-ART screening procedures, preferred baseline antiretroviral regimens, additional baseline medications, and adverse events after ART initiation. Two independent researchers were involved in the study selection process.

Results: Of 5,455 studies retrieved, 25 studies were included in the review (Cohen's kappa: 0.88). Six studies reported findings from randomized controlled trials conducted in Lesotho (n=2), Haiti (n=1), South Africa (n=3), and Kenya (n=1), with one study conducted in both South Africa and Kenya; 19 studies were observational cohort study from Ethiopia (n=4), West Africa (n=1), Italy (n=2), the United States (n=3), South Africa (n=3), Kenya (n=1), Rwanda (n=1), Sub-Saharan African region (n=1), the United Kingdom (n=1), Turkey (n=1), and China (n=1). The majority of the studies were conducted in urban areas (n=19). Of the 25 included studies, 19 had same-day ART initiation as the intervention or the exposure (three studies measured the time to ART initiation from the day of care engagement, and 16 studies measured it from the day of HIV diagnosis). There was heterogeneity in the pre-ART screening procedures, from relying on symptomatic screening and history assessment to using non-molecular rapid tests to help identify individuals with increased risk of clinical contraindications. Despite this, individuals with symptoms consistent with WHO stage 4 neurological diseases were not eligible for ART. Efavirenz-based ARV was the most regimen reported. The majority of PWH preferred to start ART within 7 days of HIV diagnosis or care engagement (range: 56.5%-86%). Our review suggested mixed results on retention in care and viral suppression after ART initiation, although many studies indicated potential benefits. Despite this, no study reported an association between clinical adverse events, including deaths, and accelerated ART initiation.

Conclusions: Our review suggested that accelerated ART initiation can potentially increase ART uptake while not negatively impacting treatment outcomes in some settings. New tools in HIV treatment, such as safer drug regimens and injectable ART, may help improve PWH's experience and reduce the burden associated with pill burden and frequent clinic visits.

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HIV Care Cascade of an Apex Hospital in Iloilo City, Philippines: Best Practices and Lessons Learned

Labiano R^{1,2}, Domingo R¹, Velasco A¹, Sorongon-Divinagracia E¹, Benliro Jr. R¹, Gorriceta C^{1,3}

¹Mother Candide Center - St. Paul's Hospital Of Iloilo, Inc., Iloilo City, Philippines, ²Team Dugong Bughaw, Inc., Iloilo City, Philippines, ³Sustained Health Initiatives of the Philippines, Inc., Iloilo City, Philippines

Background: This study describes the stages of the HIV cascade at the Mother Candide Center - St. Paul's Hospital of Iloilo, Inc., one of the Philippines' Department of Health-designated treatment hubs in Iloilo City providing medical and spiritual care for people living with and affected by HIV. Building on Nepomuceno et al.'s (2023) work, this study modifies their methods to examine healthcare outcomes locally.

Method: Treatment trajectories of those who received HIV care at the Mother Candide Center between December 2019 and were reviewed in a retrospective analysis. Utilizing descriptive statistical techniques, information on virologic suppression, retention rates, ART initiation, and patient enrollment was gathered and examined. Data processing and interpretation were done using Microsoft Excel version 16.0.

Results: A total population of 279 people were enrolled in HIV treatment. Following an HIV diagnosis, 93 of these were referred by partner facilities, while 103 were screened as reactive and tested positive within the facility. 83 people also came in to continue ART after transferring from other treatment centers. ART was started by 277 of the enrolled individuals, 22% on the day of diagnosis, 52% within a week, and 26% after seven days. 224 people are still on ART; 15 were lost to follow-up, 16 died, and 22 were transferred out to other facilities due to changes in residential location. 123 of them underwent viral load testing and 84.6% (104 PLHIV) achieved viral suppression. Viral load testing had not yet been performed on the remaining 116 PLHIV, indicating deficiencies in monitoring and follow-up treatment.

Lessons Learned: Improving medication adherence and lowering follow-up loss are two important benefits of timely ART beginning. In order to ensure smooth transitions for those just diagnosed with HIV, strengthened referral networks and coordinated linkage to care are essential. Teleconsultation has become a useful technique for ensuring continuity of care, particularly for patients with mobility or geographic limitations. In addition to lowering stigma and promoting adherence among PLHIV, spiritual care has demonstrated beneficial effects on mental health. The need for better resource allocation and logistical support to improve treatment monitoring is highlighted by persistent obstacles in viral load testing.

Best Practices: To address these challenges, same-day ART initiation has been implemented, significantly improving adherence and retention. Structured follow-up mechanisms, including counseling and education sessions, have reinforced long-term engagement in care. Social media platforms have been leveraged to expand outreach, raise awareness, and strengthen engagement with PLHIV and their support networks. Teleconsultation services have been integrated into routine care, providing accessible medical guidance for individuals in remote or resource-limited settings. Additionally, community-based peer support systems and strong collaborations with referral facilities have facilitated smoother transitions in care, ensuring that PLHIV remain connected to essential services.

Conclusion: It has been found that expedited ART initiation, digital health innovations, and community-driven support enhance outcomes. However, addressing viral load monitoring gaps and expanding healthcare access remain critical. To improve HIV care results in Iloilo City and elsewhere, best practices must be continuously improved under the direction of empirical data.

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Cost-Effectiveness of a Community-Based Model for Delivery of Antiretroviral Therapy Among Stable People Living with HIV in Cambodia

Yi S¹, Yam E¹, Chhoun P², Tian Z¹, Nagashima-Hayashi M¹, Tuot S², Sameth S³, Ngauv B³, Ouk V³, Prem K¹

¹National University of Singapore, Singapore, Singapore,

²KHANA Center for Population Health Research, Phnom Penh, Cambodia, ³National Center for HIV/AIDS, Dermatology, and STD, Phnom Penh, Cambodia

Background: In Cambodia, the national HIV program has achieved significant progress, with 89% of people living with HIV aware of their status, 89% receiving antiretroviral therapy (ART), and 87% achieving viral load suppression in 2023. To further reduce the burden on individuals and health facilities, the multi-month dispensing (MMD) model was introduced in 2017, allowing fewer clinic visits for ART refills. Building on this, a quasi-experimental study evaluated the community ART delivery (CAD) model in Cambodia, wherein community action workers (CAWs) delivered pre-packaged antiretrovirals to peers in their communities. This study assessed the cost-effectiveness of CAD compared to the MMD model.

Methods: The study was conducted between 2020 and 2023, involving 2,040 stable people living with HIV in the CAD arm and 2,049 in the MMD arm. Baseline and endline surveys captured self-reported ART adherence, quality of life, and medical and non-medical expenses. Intention-to-treat (ITT) analyses were conducted using multiple imputations for participants lost to follow-up at the endline. Incremental cost-effectiveness ratios (ICERs) for ART adherence and quality of life outcomes were calculated from both health system and societal perspectives. Cost-effectiveness thresholds (CETs) were one-time gross domestic product (GDP) per capita and opportunity cost. Sensitivity analyses applied a complete case analysis (CCA) approach.

Results: Both arms experienced declines in ART adherence and good physical health, but the

decline was less pronounced in the CAD arm. A higher proportion of CAD participants reported good mental health compared to the MMD arm, although the difference was not statistically significant. From ITT and CCA analyses, the ICERs for good physical health at both health system and societal levels were below the one-time GDP per capita threshold (Incremental Net Benefit = 59.50–93.53). However, these ICERs exceeded the opportunity cost CET. ICERs for ART adherence exceeded CETs in ITT and CCA analyses at the health system and societal levels.

Conclusions: The CAD model demonstrated cost-effectiveness in mitigating the decline in physical health among people living with HIV during the COVID-19 pandemic in Cambodia when evaluated against a less stringent cost-effectiveness threshold. These findings suggest that CAD has potential as an alternative ART delivery model, particularly under challenging circumstances. However, the cost-effectiveness of CAD in improving ART adherence was not established, emphasizing the need for further investigations. Future research should consider the broader benefits of CAD, including potential productivity gains within the health system, to provide a more comprehensive assessment of its economic value.

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Breaking Barriers: A Three-Decade Journey of the Tokyo HIV Healthcare Network

Yotsumoto M¹, Muramatsu T¹, Imamura A², Amano K¹, Kojima K³, Miyazaki N⁴, Tsukada K⁵, Kidokoro T⁶, Hagiwara T¹, Sekine Y¹, Kikuchi T⁷, Taniuchi T³, Matsumoto H⁸, Kinai E¹, Takada Y¹, Negishi M⁹, Fukutake K³

¹Tokyo Medical University Hospital, Shinjuku-ku, Japan, ²Tokyo Metropolitan Cancer and Infectious Diseases Center Komagome Hospital, Bunkyo-ku, Japan, ³Ogikubo Hospital, Suginami-ku, Japan, ⁴smART Ouju, Japan, ⁵Hospital Saitama Medical Center, Kawagoe-shi, Japan, ⁶Independent, Japan, ⁷National Institute of Infectious Diseases, Shinjuku-ku, Japan, ⁸Bunkyo Garden Tokyo Dental, Bunkyo-ku, Japan, ⁹Negishi Naika Clinic, Shinjuku-ku, Japan

Background: The Tokyo HIV Healthcare Network, founded in October 1994, is a voluntary collaboration of healthcare professionals committed to addressing HIV-related challenges across institutional and disciplinary boundaries. Over the past 30 years, it has played a pivotal role in overcoming evolving issues in HIV care by leveraging collective expertise, fostering interdisciplinary cooperation, and advocating for healthcare systemic improvements. Unlike formal institutions, the network consists of physicians, nurses, pharmacists, social workers, mental health professionals, and community workers, all participating in their individual capacities to share experiences, propose solutions, and implement strategies in response to Japan's shifting HIV landscape.

Description: In the late 1980s to early 1990s, amidst limited treatment options, the network addressed the lack of a structured healthcare system for people living with HIV (PLWH), leading to the creation of a disability certificate system to improve access to care. Additionally, it played a critical role in advocating for a fast-track drug approval system for HIV medications, compassionate use programs providing unapproved medications to patients, and the provision of unapproved HIV medications through a research team. In the late 1990s, as antiretroviral therapy (ART) became available, the network facilitated the management of treatment complications, drug resistance, and regimen

optimization through clinical data sharing. More recently, with improved life expectancy for PLWH, discussions have shifted to aging-related comorbidities, long-term ART management, and psychosocial issues like mental health, substance use, and social isolation, reflecting the evolving needs of this population.

Lessons Learned: The network's non-hierarchical, voluntary structure has fostered flexibility and innovation, enabling rapid responses to emerging challenges in HIV care. Its interdisciplinary approach has been essential in providing holistic care, integrating medical, psychological, and social support for PLWH.

Continuous peer discussions and the sharing of real-world clinical experiences have enhanced clinical decision-making, particularly in ART initiation, drug resistance management, and integrating new treatments. This model has also encouraged local hospitals and clinics to adopt best practices, improving consistency in HIV care across Tokyo. Policy advocacy has been another core strength.

The network has directly engaged policymakers to secure systemic improvements, such as financial support mechanisms for PLWH and the expansion of healthcare services tailored to their specific needs. This proactive involvement has helped bridge the gap between frontline clinical practice and public health policy, leading to tangible improvements in healthcare access and quality. Adaptability has been key to the network's success. As the needs of PLWH have evolved, the network has continuously shifted its focus to address new challenges, including multimorbidity, aging, and persistent social stigma. Its ability to pivot in response to emerging issues has ensured its continued relevance and impact in Japan's HIV response.

Conclusion: The Tokyo HIV Healthcare Network exemplifies how a voluntary, interdisciplinary collaboration can successfully navigate the evolving landscape of HIV care. Through three decades of proactive engagement, it has driven significant advancements in treatment access, clinical management, and policy reform in Japan.

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Pre-Implementation Findings on the Barriers and Potential Facilitators to Initiate Same-Day Antiretroviral Therapy Among People Who Inject Drugs in Malaysia

Oliveros D^{1,6}, Jenarun G², Mohd Salleh N², Saifi R², Earnshaw V³, Madden L^{1,4}, Bromberg D^{1,6}, Nikitin B¹, Kamarulzaman A⁵, Altice F^{1,4,6}

¹Department of Internal Medicine, Yale University School Of Medicine, New Haven, United States, ²Department of Social and Preventive Medicine, Universiti Malaya, Kuala Lumpur, Malaysia, ³Department of Human Development and Family Sciences, University of Delaware, Newark, United States, ⁴APT Foundation, New Haven, United States, ⁵Monash University Malaysia, Kuala Lumpur, Malaysia, ⁶Center for Interdisciplinary Research on AIDS, New Haven, United States

Background: Rapid-start antiretroviral therapy (RS-ART), including same-day ART (SD-ART), is an evidence-based strategy that effectively reduces HIV transmission by speeding up treatment initiation. Malaysia's HIV epidemic is concentrated among people who inject drugs (PWID) who currently do not receive RS-ART. High documented levels of stigma towards PWID and people with HIV (PWH), especially among healthcare providers, likely contributes to delays in ART initiation. Data from HIV experts in Malaysia demonstrate that ART initiation is delayed for PWID relative to other key populations. The criminalization of drugs in Malaysia, a form of structural stigma, further perpetuates negative attitudes towards PWID. Stigma is enacted through clinician stereotypes of PWID as irresponsible, often leading to expectations by clinicians that PWID must first demonstrate adherence to medication before being granted access to HIV treatment. As a pre-implementation activity utilizing the PRISM/RE-AIM implementation framework, we assessed barriers and facilitators to scaling-up SD-ART for PWID in Malaysia using insights from multiple stakeholders.

Methods: As part of a larger implementation trial, we conducted four focus groups using nominal group technique (NGT), a rapid mixed-methods research strategy, with PWID, HIV experts, and community health workers (CHWs) in Greater

Kuala Lumpur, Malaysia. This technique was chosen due to its rank-ordering strategy that provides in-depth qualitative data best suited for prioritizing evidence-practice gaps in implementation science. The method involved an open question followed by individual round-robin feedback and participant voting to yield information saturation and generate a rank-ordered list of ideas that were mapped onto the socioecological model to suggest opportunities for implementation.

Results: Among PWID (n=5: 15 votes), highest-ranking barriers included fear of police (40%), procedural complexity (30%), and discomfort with HIV providers (27%). HIV experts (n=12: 36 votes) ranked readiness for treatment (27%), risk of opportunistic infections (20%), and incarceration concerns (13%) as key challenges. CHWs (n=7: 21 votes) pointed to complex appointment systems (33%), delays in confirmatory testing (19%), and stigma-reinforcing interactions with clinicians (19%) as obstacles. Facilitators for PWID included initiating ART before reviewing results (27%) and same-day counseling (27%). For HIV experts, essential strategies were enhancing NGO partnerships (33%) and expanding ART options like using dolutegravir (20%). CHWs recommended simplifying treatment processes (33%) and creating a dedicated clinic for HIV services (29%).

Discussion: Despite the availability of harm reduction services and HIV and opioid use disorder treatments, PWID in Malaysia continue to encounter significant structural and interpersonal stigma, which impedes the initiation of antiretroviral therapy. SD-ART is a proven method that not only has the potential to reduce stigma but also to enhance outcomes throughout the HIV care continuum. Although Malaysian HIV management guidelines advocate for swift ART initiation, its implementation is limited by pervasive stigma, logistical challenges, and stereotypes portraying PWID as irresponsible and unlikely to adhere to treatment protocols. Overcoming these barriers will necessitate a multifaceted approach, including organizational coaching to enhance process efficiencies, task-shifting to broaden healthcare capacity, and the introduction of checklists, tools, or protocols designed to address stigma and expedite ART initiation by relying on objective clinical criteria.

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From Beneficiaries to Partners: Integrating Youth Power into Local Health Systems in Iloilo City, Philippines through Project HIV & AIDS Youth Initiative (HAYI)

Amon A¹, Vijar J¹, Barbaton A¹, de los Santos K^{1,2}, Bordon J¹, Ganadillo K¹, Labiano R^{1,3}, Simpao C¹

¹Team Dugong Bughaw, Inc., Iloilo City, Philippines, ²University of the Philippines Visayas, Miagao, Philippines, ³St. Paul's Hospital of Iloilo Inc., Mother Candide Center, Iloilo City, Philippines

Background: The Philippines faces a growing HIV epidemic, with nearly half of new cases in 2023 involving individuals aged 15-24 years. In Iloilo City, 34% of newly diagnosed cases fall within this age group. To address this, Team Dugong Bughaw, Inc. launched Project HIV & AIDS Youth Initiative (HAYI), utilizing the peer-to-peer strategy in HIV education, stigma reduction, HIV testing, and referral in Higher Education Institutions (HEIs) and Local Government Units (LGUs) to improve health systems by bridging the gap between service providers and the young key population.

Description: Implemented in Iloilo City, Project HAYI targeted youth in HEIs, focusing on HIV awareness and prevention through boot camps, peer-to-peer education, the establishment of school-based reproductive health corners ("The Nook"), and partnerships with HEIs and LGUs. The project is strengthened by public-private partnerships, referral networks, and the piloting of Community-Led Monitoring (CLM).

Lessons Learnt: - Project HAYI achieved significant outcomes, including:

- Educating 11,524 students on HIV (significant increase in post-test scores $p < 0.001$).
- Dispensing 9,796 condoms, 1,436 lubricants, and testing 909 individuals for HIV.
- Signing Memoranda of Understanding (MOUs) with five HEIs to support HIV awareness programs, establish "The Nook," and create school-based organizations
- Securing a ₱5.5-million commitment from the Iloilo City government to boost HIV investments.

- Establishing referral networks with five treatment hubs and piloting CLM in two health institutions.
- Challenges included resistance from HEIs due to conservative views, bureaucracy, and the transient nature of student populations. Community mobilization efforts faced risks of political co-optation and short-term partnerships.
- Lessons learned emphasize the importance of baseline data assessments, realistic goals, inclusive targeting, strategic program integration, and robust monitoring and evaluation for sustainable and impactful HIV programs.

Conclusions/Next Steps: These findings underscore the capacity of young people to significantly advance HIV awareness, prevention, and care in resource-limited settings by integrating youth-focused approaches into local health systems. Integrating HIV education into academic curricula, normalizing HIV testing among young people, institutionalizing CLM at the national level, and advocating for an HIV-dedicated LGU budget beyond Gender and Development (GAD) funds will ensure a sustained HIV response in Iloilo City.



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Preferences and Willingness to Use Pre-Exposure Prophylaxis for HIV Among Men Who Have Sex with Men in Mainland China and Hong Kong

Sun J¹, Ong J^{1,2,3}, Schmidt H^{4,5}, Chan C⁶, Bavinton B⁶, Green K⁷, Phanuphak N^{8,9}, Poonkasetwattana M¹⁰, Suwandi N¹¹, Fraser D⁶, Tang W¹², Cassell M¹³, Boonyapisompan H¹¹, Choi E¹⁴, Zhang L^{1,2}, Tiesapjaroen W^{1,2}

¹School of Translational Medicine, Faculty of Medicine, Nursing and Health Sciences, Melbourne, Australia, ²Melbourne Sexual Health Centre, Melbourne, Australia, ³Faculty of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, London, United Kingdom, ⁴Joint United Nations Programme on HIV/AIDS (UNAIDS), Geneva, Switzerland, ⁵World Health Organization, Geneva, Switzerland, ⁶Kirby Institute, University of New South Wales, Sydney, Australia, ⁷PATH, Hanoi, Vietnam, ⁸Institute of HIV Research and Innovation (IHRI), Bangkok, Thailand, ⁹Centre of Excellence in Transgender Health (CETH), Chulalongkorn University, Bangkok, Thailand, ¹⁰Asia Pacific Coalition on Male Sexual Health (APCOM), Bangkok, Switzerland, ¹¹Asia Pacific Transgender Network, , Thailand, ¹²The University of North Carolina at Chapel Hill Project-China, Guangzhou, China, ¹³Family Health International (FHI) 360, North Carolina, United States, ¹⁴School of Nursing, LKS Faculty of Medicine, The University of Hong Kong, Hong Kong, China

Background: Pre-exposure prophylaxis (PrEP) uptake remains low in mainland China and Hong Kong. We examined preferences for different PrEP modalities among men who have sex with men (MSM) in mainland China and Hong Kong.

Methods: We conducted a cross-sectional online survey from May to November 2022 in mainland China and Hong Kong. Eligible participants were aged ≥ 18 years, identified as MSM and self-reported HIV-negative or unknown. Random forest models and SHAP (SHapley Additive exPlanations) analysis were used to identify key factors influencing preferences for six PrEP options: daily oral, on-demand oral, monthly oral, 2-monthly injectable, 6-monthly injectable, and implant PrEP.

Results: Among 2,142 participants, the mean age was 28.4 (± 7.0) years in mainland China and 34.7 (± 9.5) years in Hong Kong. Current PrEP use was similar between mainland China and Hong Kong (18.0% vs. 17.8%, $p=0.93$), with an additional

10.5% and 8.0% reporting past PrEP use ($p=0.11$), respectively. Oral PrEP options were most preferred. A greater proportion of participants from mainland China preferred on-demand PrEP compared to those from Hong Kong (55.7% vs. 48.1%, $p<0.01$), while more participants from Hong Kong preferred monthly oral PrEP (53.2% vs. 47.3%, $p=0.02$). Willingness to use non-oral options was lower, with 2-monthly injectable PrEP preferred by 21.1% (19.1%-23.1%) in mainland China and 15.4% (12.3%-18.5%) in Hong Kong ($p<0.01$). Among Hong Kong participants, condom use frequency and migration status were important predictors of willingness to use both oral and injectable PrEP options. Peer influence played a more significant role for Chinese participants. Current PrEP use status and initial PrEP attitudes were consistently important predictors. Individuals who preferred six-monthly injectable PrEP tended to dislike the two-monthly option.

Conclusion: While oral PrEP remains the preferred choice among MSM in both mainland China and Hong Kong, factors influencing PrEP preferences differ between mainland China and Hong Kong.

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Navigating Implementation Challenges for Preventive Lung Health Assessments at a Publicly Funded Antiretroviral Therapy Center for People Living with HIV in Pune, India

Nimkar S¹, Borse R², Ansari I², Suryavanshi N¹, Padriwad P¹, Londhe S¹, Zarekar K¹, Pawar A¹, Bhosale H¹, Surawase S¹, Lele G¹, Potphode V¹, Mave V^{1,3}, Marbaniang I^{1,4}

¹B J Govt Medical College-Johns Hopkins University Clinical Research Site, Pune, India, ²B J Govt Medical College & Sassoon General Hospitals, Pune, India, ³Johns Hopkins University, Baltimore, USA, ⁴Department of Epidemiology, McGill University, Montreal, Canada

Background: People living with HIV (PLHIV) are at higher risk of lung morbidities, making lung health assessments (LHA) a potentially important measure for secondary prevention. Despite publicly funded settings being the primary source of healthcare for most PLHIV in low-and-middle-income countries (LMICs), implementing LHA within these settings poses unique challenges. Here, we outline key challenges from an LHA conducted at BJ Government Medical College, Pune, India, to inform future efforts.

Description: Using a pragmatic non-randomized approach, 397 PLHIV were enrolled from January 2023 to January 2024. Participants completed computer-assisted questionnaires and underwent high-resolution chest computed tomography (HRCT) and spirometry under the supervision of trained study staff. Implementation challenges were systematically documented and thematically categorized using the Consolidated Framework for Implementation Research (CFIR). Participant feedback on study procedures was collected and integrated with thematic findings to identify barriers and facilitators.

Lessons learned: Challenges and facilitators were identified across CFIR's five domains. 1. Within Intervention Characteristics (attributes of the LHA itself; 0.3%), procedural complexities highlighted the need for well-defined workflows and contingency planning, underscoring the

importance of staff training and workflow optimization through a time-and-motion study. 2. Inner Setting (organizational context and readiness for LHA implementation; 9.6%) revealed inefficiencies such as multitasking, limited staff availability, and equipment malfunctions, despite effective team coordination and escalation protocols. 3. Outer Setting (external influences such as patient needs and socio-cultural factors; 89.4%), patient delays and refusals due to logistical and cultural barriers emphasized the need for patient-centered strategies: aligning study visits with routine healthcare visits minimized disruptions, though logistical hurdles persisted despite telephonic reminders and travel reimbursements. 4. Characteristics of Individuals (participants knowledge, beliefs, and abilities; 0.6%) indicated low engagement and literacy challenges, suggesting visual aids to improve comprehension. 5. Process domain (steps involved in LHA implementation; 0.1%), regular reviews with the study coordinator supported task coordination; however, documentation gaps and overlapping priorities underscored the need for structured management training.

Conclusions: Addressing multi-level barriers through tailored strategies, including enhanced patient engagement, structured staff training, and workflow optimization, could improve LHA implementation. Findings emphasize the importance of aligning implementation strategies with the realities of LMIC public health systems to support LHA delivery.

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Determinants of PrEP Adoption Among MSM: Insights from the Information-Motivation-Behavioral Skills Model

Xue H¹, Yu F², Xue H², Chen Z², Zhang D¹

¹National Center for AIDS/STD Control and Prevention, Chinese Center for Disease Control and Prevention, Beijing, 中国

²Danlan goodness, Beijing, 中国

Objective: This study aimed to analyze the current status of pre-exposure prophylaxis (PrEP) use among men who have sex with men (MSM) and bisexual individuals and explore key factors influencing PrEP utilization based on the Information-Motivation-Behavioral Skills (IMB) theory. The findings provide scientific evidence and theoretical support for promoting PrEP adoption in this population.

Methods: A cross-sectional study was conducted in July 2024 using online recruitment via Hehealth to collect data from MSM individuals in Beijing. A self-developed questionnaire, structured according to the IMB model and covering three core components (information, motivation, and behavioral skills) across eight dimensions, was utilized. Structural equation modeling (SEM) was constructed using AMOS to analyze factors associated with PrEP use. Confirmatory factor analysis (CFA) and model fit indices were employed to evaluate the model's validity and adaptability. Additionally, separate SEMs were developed for high-risk and low-risk subgroups to compare influencing factors under different risk stratifications.

Results: A total of 879 valid questionnaires were analyzed. For the model of total population, CFA demonstrated good structural validity, with composite reliability and convergent validity exceeding 0.7 and 0.5, respectively. SEM fit indices (Chi/DF = 3.390; GFI = 0.956; AGFI = 0.934; RMSEA = 0.052) met acceptable thresholds, indicating robust model fit. For SEM analysis results of the total population, all IMB components significantly influenced PrEP use. "PrEP information" directly and indirectly (via "acquisition skills") enhanced

PrEP use. Motivational factors showed mixed effects: "perceived benefits" positively affected "self-efficacy" but negatively impacted "acquisition skills", while "obstacles to PrEP use" negatively affected both "self-efficacy" and "acquisition skills". "Perceived benefits" and "obstacle to PrEP use" indirectly influenced PrEP use through "acquisition skills" (positive and negative effects, respectively). "Behavioral skills" components revealed that "self-efficacy" positively impacted "acquisition skills", which in turn directly promoted PrEP use. In terms of subgroup differences, "PrEP information" significantly affected "acquisition skills" only in the high-risk subgroup, while "obstacles to PrEP use" had stronger negative effects in the low-risk subgroup. "Perceived benefits" showed no significant impact in either subgroup, suggesting potential confounding in the total population analysis.

Conclusion: The IMB-based questionnaire demonstrated strong reliability, validity, and model fit in analyzing factors associated with PrEP use. Key components exhibited distinct positive or negative effects, supporting the potential of IMB-guided interventions to enhance PrEP use. Given divergent influences of information and perceived obstacles between risk subgroups, differentiated intervention strategies tailored to specific populations are recommended to optimize PrEP promotion efforts.

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Community Led Monitoring Coordinator of HIV Service in Mongolia

Zedbadi C, Badamdorj B, Chultemsuren B

¹Youth for health center NGO, Ulaanbaatar, Mongolia

Background: Community-led monitoring (CLM) plays a crucial role in engaging communities in program and service delivery. Introduced in Mongolia in 2019 with technical support from the Asia Pacific Coalition on Male Sexual Health (APCOM), CLM initially focused on men who have sex with men (MSM). Following a successful pilot, efforts were scaled up to include female sex workers (FSW) and transgender people (TGP). This report presents an analysis of CLM data collected in 2024.

Methods: An updated CLM questionnaire, developed by Health Equity Matters NGO in Australia, facilitated online data collection. The analysis encompassed CLM data from MSM, FSW, and TGP to evaluate the availability, accessibility, acceptability, and quality of HIV service indicators.

Results: The overall availability of HIV services was assessed at 62%, while accessibility was at 88%, acceptability at 80%, and quality at 54%. The most accessible service was HIV screening, with 93% of participants who sought the service successfully receiving it. However, ART initiation availability was notably low at 19%. Community center-provided HIV services demonstrated the highest accessibility, ranging from 83% to 100%, in contrast to services from NCCD and other clinics, which had accessibility rates between 36% and 85%. Variations in acceptability were observed across different health facilities. Acceptability rates at NCCD and other clinics hovered around 70%, while youth-focused health centers (YFHC) and PL NGO reported higher rates of 88.3% and 100%, respectively. In assessing service quality through three key indicators, the provision of necessary information received the highest score at 73%. Meanwhile, supply of necessary commodities scored 58%, and long waiting times were noted as a significant issue, with a problematic score of 27%.

Conclusions: The CLM data provides critical evidence for enhancing the quality of HIV services. The findings underscore the necessity for dedicated services for key populations, which received higher ratings compared to private or other health facilities. Each community exhibits distinct access barriers, highlighting the importance of tailored solutions rather than a one-size-fits-all approach. Service availability was rated highly across participating facilities, yet it is essential to further understand the varying perceptions of service quality among key populations, particularly the underrepresented transgender community.

The absence of reported serious incidents within the CLM findings necessitates careful interpretation. While data quality issues were noted for the 10 individuals who were followed up, underlying distrust in the follow-up process may have played a role.

Linking data analysis with actionable outcomes in this CLM context involves refining data collection tools as the initiative expands. Moreover, it is vital to demonstrate to community members that their feedback is valued by implementing specific actions informed by their input.

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Global Trends and Disparities in Pre-Exposure Prophylaxis (PrEP) Acceptance Among High-Risk Populations: A Systematic Review and Meta-Analysis

Zhao M¹, Zhang L²

¹*Xi'an Jiaotong University, Xi'an, China*, ²*monash university, Australia*

Background: Pre-exposure prophylaxis (PrEP) is a highly effective HIV prevention strategy, yet its global acceptance varies widely across regions and populations. This systematic review and meta-analysis evaluated global PrEP acceptance, including oral and injectable formulations, among high-risk populations.

Methods: A comprehensive literature search was conducted in PubMed, Web of Science, and Embase for studies published between 2003 and November 2020, with a supplementary search in August 2024 to capture newly published studies. The search strategy included terms such as "pre-exposure prophylaxis," "PrEP," "acceptance," "willingness," "attitudes," "intention," and "HIV," with filters for English-language journal articles. After deduplication and screening, 431 studies were included in the final analysis. Studies were selected based on the PICO framework, focusing on high-risk groups such as men who have sex with men (MSM), HIV serodiscordant couples, sex workers, people who inject drugs, and young heterosexuals in high-incidence areas.

Results: The pooled global acceptance rate for oral PrEP was 59.90% (95% CI, 57.20%–62.60%), with the United States contributing the most studies (n=192, 57.20% acceptance). Peru and Cameroon reported the highest oral PrEP acceptance rates at 96.20% and 95.00%, respectively. Injectable PrEP acceptance was higher, with a pooled rate of 65.40% (95% CI, 59.10%–71.80%), and Nigeria and Malaysia showing the highest rates at 88.20% and 86.50%, respectively. Stratified analyses revealed higher acceptance among sex workers (oral: 70.8%; injectable: 81.9%) and adolescents/students (oral: 70.0%; injectable:

81.8%). Low-income countries demonstrated the highest acceptance rates for both oral (84.9%) and injectable PrEP (81.9%), while high-income countries had the lowest (oral: 55.8%; injectable: 60.0%).

Temporal trend analysis showed increasing oral PrEP acceptance among MSM, sex workers, people who inject drugs, and transgender populations globally, with notable increases in Africa, Asia, and North America. However, declining trends were observed among women and adolescents/students, particularly in North America. Studies in South America and Europe primarily focused on MSM, with acceptance rates of 61.8% and 53.0%, respectively. Oceania, particularly Australia, exhibited the most substantial annual increase in MSM PrEP acceptance (2.99% from 2011 to 2020). Heterogeneity analysis by economic level revealed significantly higher oral PrEP acceptance in low-income countries across most populations, including MSM, women, adolescents/students, and HIV serodiscordant partners. However, no significant differences were observed for transgender individuals, people who inject drugs, and sex workers, indicating that macroeconomic context does not uniformly influence PrEP acceptance across all groups.

Discussion: These findings highlight disparities in PrEP acceptance across regions and populations, emphasizing the need for context-specific and tailored interventions to improve PrEP uptake. Continuous monitoring and adaptive strategies are essential to ensure equitable access to PrEP, particularly in low-income countries and among underserved populations such as sex workers and adolescents/students. Addressing these disparities is critical for achieving global HIV prevention goals.

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Constructing PrEP (mis) Trust: Experiences from Chinese Gay, Bisexual, and Men Who Have Sex with Men

LEI Z¹, Xie H², Ding R³

¹School of Nursing, LKS Faculty of Medicine, The University of Hong Kong, Hong Kong, Hong Kong, ²Zilber College of Public Health, University of Wisconsin-Milwaukee, Milwaukee, US, ³School of Culture and Communication, Swansea University, Swansea, UK

Background: HIV Pre-exposure prophylaxis (PrEP) has proven highly effective in preventing HIV transmission and has been implemented in regions with high HIV/AIDS burdens. However, significant barriers still exist in PrEP access, uptake, and adherence among gay, bisexual, and other men who have sex with men (GBMSM). One of the primary obstacles to effective PrEP implementation is medical mistrust, which persists within the GBMSM communities globally. This mistrust not only impedes the PrEP adoption but also undermines efforts to achieve the global goal of ending HIV/AIDS by 2030. This study aimed to explore how PrEP mistrust is shaped and constructed within the GBMSM communities in China.

Methods: This qualitative study employed a phenomenology approach. From December 2021 to March 2023, 31 semi-structured in-person interviews were conducted with GBMSM who have PrEP use experience in the metropolis of China. The interviews explored their experience of knowing and purchasing PrEP, PrEP uptake, and feelings and attitudes toward PrEP adherence. The ecological model was employed to analyze and structure the data using NVivo 14.

Results: Our results show that PrEP mistrust was constructed from four structure levels. At the social politics and policy level, participants regarded PrEP as “hypercorrection” originating in the West, and associated China with a negative stance toward LGBT communities. At the institutional level, negative experiences engaged within the Chinese healthcare system, insufficient sexuality education, and undeveloped sexual health infrastructure are identified as contributing

factors. At the cultural and community levels, Chinese conservative sexual culture, social stigma toward HIV/AIDS and GBMSM, and stigmatization disclosure of PrEP use circulated within the communities are identified. At the individual level, participants expressed embodied side effects, invisible medication effects, and skeptical belief that PrEP is contradictory to condoms, causes HIV resistance, and cannot achieve 100% prevention effectiveness.

Conclusion: This study provides a comprehensive understanding of the multifaceted factors contributing to PrEP (mis)trust and uptake. Implementation strategies to address medical mistrust of PrEP requires a systematic approach. Policymakers should address PrEP mistrust by improving sexual health education, and reducing sociocultural stigmas within both the healthcare system and broader society.

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A Study of Behavioral Outcomes Among HIV Patients Post-Harm Reduction Interventions for Drug Use

Sun N¹

¹Taoyuan General Hospital, Tao Yuan City, Taiwan

Background and Motivation: Taoyuan Hospital established the "Taoru Xin Drug Harm Reduction Group for People Living with HIV" due to the increasing prevalence of chemsex (the use of illicit drugs for sexual enhancement) among men who have sex with men. Frequent participation in chemsex activities among people living with HIV leads to various negative emotions and mental health issues, including substance use disorders and depression. To address these challenges, the group facilitates a variety of activities that leverage the power of peer support and shared experiences among people with similar substance use histories. Through these activities, participants are encouraged to provide mutual care and support, fostering self-help and mutual aid to achieve harm reduction and recovery goals.

Objective: The purpose of this study is to investigate whether the behaviors and psychological emotional problems of individuals engaging in chemsex improve after receiving treatment from our hospital's multi-faceted harm reduction group.

Methods: A total of 40 members with chemsex experience were recruited for this study. They participated in a series of harm reduction activities for 42 weeks, with one session per week lasting 2 hours. Activities included harm reduction courses, psychodrama, dance/art therapy, personal storytelling, and ceramic art therapy, allowing members to participate freely. Retrospective questionnaires were used to collect pre- and post-test assessments, including four dimensions: managing/reducing substance use, emotional and psychological/physical health, social and family health, and work and economic health. In addition, the Brief Symptom Rating Scale (BSRS-5) and the Chinese version of the Beck Depressive Inventory-second edition (BDI-II) were used to assess sleep quality, physical and mental health, and explore

the behavioral changes of individuals engaging in chemsex before and after substance use.

Results: All participants in this study were gay men with an average age of 38 (± 8 years). After participating in 42 weeks of multi-faceted harm reduction group treatment, significant behavioral changes were observed in the following areas: total average ($\pm$ standard deviation) of managing/reducing substance use, emotional and psychological/physical health, social and family health, and work and economic health (157.1 [± 38.982] vs. 180.17 [± 28.957], $p=0.0001$); total average ($\pm$ standard deviation) of BSRS-5 (6.378 [± 5.8040] vs. 4.378 [± 4.6449], $p=0.0014$); total average ($\pm$ standard deviation) of BDI-II (15.946 [± 12.392] vs. 8.676 [± 8.269], $p=0.0002$); and total average ($\pm$ standard deviation) of sleep quality and physical and mental health assessment (28.973 [± 10.7283] vs. 21.929 [± 7.99], $p=0.0001$).

Conclusion: After participating in multi-faceted treatment activities, individuals engaging in chemsex showed significant improvement in behavioral assessments, including managing/reducing substance use, emotional and psychological/physical health, social and family health, work and economic health, as well as BSRS-5, BDI-II, and sleep quality and physical and mental health assessment. Therefore, providing diversified life interventions and companionship for individuals with chemsex addiction can improve their work performance, alleviate depression, enhance sleep quality, and improve their overall quality of life, thereby reducing the harm caused by chemsex and achieving overall mental and physical health.

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Treatment Satisfaction was Linked to Improved Adherence, and Mental, Physical, Sexual and Overall Health Among People Living with HIV in the Positive Perspectives 3 Study

Iwahashi K¹, Allan B², Brough G³, Cascio M⁴, Castellanos E⁵, Cingolani A⁶, Dubula V⁷, Hardy W⁸, Mbudwini S⁹, McBritton M¹⁰, Ndungu M¹¹, Richman B¹², Shibemba M¹³, Appiah A¹⁴, Fox D¹⁵, Mayer M¹⁶, Mellors S¹⁴, Patel R¹⁴, Vega V¹⁵, Nwokolo N¹⁴

¹Akita, Tokyo, Japan, ²National Association of People Living with HIV Australia, Newtown, Australia, ³Transformation Partners in Health and Care, London, UK, ⁴European AIDS Treatment Group (EATG), , Bruxelles, Belgium, ⁵Global Action for Trans Equality (GATE), , Netherlands, ⁶Fondazione Policlinico A. Gemelli, IRCCS, Catholic University of the Sacred Heart, Roma, Italy, ⁷The Global Fund, Geneva, Switzerland, ⁸USC Rand Schrader (HIV) Clinic, Keck School of Medicine of USC, Los Angeles, USA, ⁹Nelson Mandela University, Port Elizabeth, South Africa, ¹⁰Barong, São Paulo, Brazil, ¹¹Women's Health in Women's Hands Community Centre, Toronto, Canada, ¹²Prevention Access Campaign, Brooklyn, USA, ¹³Manchester, , UK, ¹⁴ViiV Healthcare, London, UK, ¹⁵ViiV Healthcare, Durham, USA, ¹⁶ViiV Healthcare, Rueil-Malmaison, France

Background: Challenges to antiretroviral therapy (ART) adherence are well-documented. This study provides new insights into emotional, psychosocial, physical, and other treatment-related challenges.

Methods: This analysis utilized interim data from 834 participants in Positive Perspectives Study Wave 3 from adults on ART from Australia, Argentina, Chile, South Africa, Colombia, Italy, and USA. Treatment challenges assessed included emotional/ psychosocial (e.g. stigma, privacy concerns), physical issues (e.g. side-effects) and adherence barriers. Multivariable logistic regression examined the impact of treatment satisfaction on behaviours and self-rated health, adjusting for age, gender and income.

Results: Among 834 participants, 72.8% were <50 years, 49.3% female. 76.5% were on single-tablet

regimens, 20.7% on multiple tablets, and 2.8% on injectables or other unspecified regimens. While 67.2% were satisfied with their ART, half of all participants felt there was still room for improvement. Key treatment-related challenges included fear of missing doses (59.1%), side-effects (25.3%), and the emotional toll of a lifelong condition (18.3% struggling to adapt to lifelong treatment and 33.8% feeling worn out by its demands). Privacy concerns were also common: 71.4% were afraid that someone would discover their HIV status (e.g., friend, family member, co-worker). Additionally, stigma and isolation were common themes: 32.3% felt their medication was a reminder of their diagnosis, and 25.2% reported feeling lonely due to their HIV status. Among 75% of participants who had ever switched ART regimen, reasons for switching included reducing side-effects (29.0%), addressing virological failure (18.0%), or reducing the number of pills (16.8%). Satisfaction with ART was closely linked to improved outcomes; satisfied individuals were less likely to skip doses (AOR=0.51, 95% CI:0.32–0.83), more likely to recommend their treatment (AOR=5.92, 95% CI:3.80–9.22), and to report optimal mental (AOR=2.74, 95% CI:1.76–4.25), physical (AOR=2.77, 95% CI:1.84–4.19) sexual (AOR=2.60, 95% CI:1.71–3.96) and overall (AOR=2.74, 95% CI:1.81–4.13) health.

Conclusion: A small majority of people expressed treatment dissatisfaction and emotional distress due to privacy and stigma related concerns. These challenges must be acknowledged and addressed when offering people support services and new ART options.



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Peer-Led Educational Intervention to Enhance Adolescents' Safe Sexual Behavior Intentions: A Study Based on the MAPP Framework

Yen W¹

¹Yuanpei University Of Medical Technology, Hsinchu, Taiwan,

²Yuanpei University Of Medical Technology, Hsinchu, Taiwan,

³Yuanpei University Of Medical Technology, Hsinchu, Taiwan

In Taiwan, discussions on sexuality remain relatively conservative due to privacy concerns and cultural attitudes toward sex education, making its implementation challenging. However, the rising incidence of sexually transmitted infections (STIs) among young individuals indicates a need to strengthen adolescents' awareness of safe sexual practices. In contrast, the United States has increasingly recognized sexual health as a critical public health issue, incorporating it into national health priorities. A growing body of research supports proactive and positive sexual health promotion initiatives to enhance individual, group, community, and societal well-being. These efforts not only contribute to overall well-being but also reduce the risk of HIV and other STIs while mitigating adverse health outcomes associated with sexual behavior.

This study collaborated with the Taoyuan LGBTQ+ Health Center and was based on the Mobilizing for Action through Planning and Partnerships (MAPP) framework. A peer-led intervention was designed and implemented to increase condom use intention among participants. The program lasted six weeks, with weekly sessions of two hours each, aiming to strengthen participants' willingness to use condoms in future sexual encounters, thereby promoting safer sexual practices and reducing associated health risks.

A total of 40 participants were recruited for this study, and a paired-sample t-test was conducted for analysis. The results showed that attitude scores increased from a pre-test mean of 330.7 ± 110.28 to a post-test mean of 763.23 ± 28.13 . Subjective norm scores improved

from 30.3 ± 2.81 in the pre-test to 344.21 ± 23.29 in the post-test. Perceived behavioral control scores rose from 521.77 ± 88.31 before the intervention to 1317.2 ± 48.73 after the intervention. Higher scores in these three measures indicate a greater willingness to use condoms. The significant improvements observed after the intervention suggest that the program effectively enhanced participants' intention to use condoms during sexual activity. Furthermore, gender-specific health education programs should be developed to optimize intervention effectiveness.

This program specifically targeted men who have sex with men (MSM), demonstrating a significant increase in condom use intention and attitudes within this group. Additionally, participants in the program can serve as peer educators, further strengthening their influence within their social networks and promoting the adoption of safer sexual practices.

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The Impact of Behavioral Economic-Informed Interventions on Care Cascade for HIV and Sexually Transmitted Diseases: A Systematic Review of Randomized Control Trials

Zhao M¹, Zhang L^{1,2}

¹*Xi'an Jiaotong University, Xi'an, China,* ²*Monash University, , Australia*

The evidence regarding the impact of behavioral economics (BE)-based interventions on HIV and sexually transmitted diseases (STDs), including HIV, HPV, HBV, HCV, and other STIs was limited. The aim of this study is to systematically evaluate the effectiveness of BE-based interventions for STD care using robust RCT evidence.

This comprehensive review was conducted across MEDLINE (via PubMed), Embase, CINAHL (EBSCOhost), Web of Science, and Cochrane databases to identify RCTs involving BE interventions. A total of 30 RCTs were included, most of which employed incentive-based interventions (n=24), and they mainly focused on HIV (n=23), were concentrated in Africa (n=19), and were conducted in local medical facilities or clinics (n=19). Among these, monetary and voucher-based incentives emerged as highly effective strategies for improving outcomes across various stages of the STD care cascade.

Further analysis revealed that both the intensity (amount) and timing of monetary and voucher incentives were found to be crucial for maximizing their impact. While lottery incentives showed less effectiveness, particularly in improving the return rate of Chlamydia screening kits and promoting male medical circumcision (MMC), monetary and voucher-based incentives proved superior in those areas. In addition, defaults, norms and framing-based interventions also demonstrate unique strengths, and Planning prompts and reminders, when combined, demonstrated greater effectiveness in increasing HIV test kit returns than prompts alone or standard of care. The current

application of BE strategies in STD care has not yet been widely implemented. Given their flexibility and potential for large-scale implementation, further research is needed to determine the optimal intensity and timing of these interventions, ensuring their cost-effectiveness and sustainability. Combining multiple BE strategies should also be considered to enhance their effectiveness and develop more comprehensive approaches to improving STD prevention and care outcomes.

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Machine Learning for Personalised Risk Assessment of HIV, Syphilis, Gonorrhoea, and Chlamydia: A Systematic Review and Meta-Analysis

Latt P^{1,2}, Soe N^{1,2}, Fairley C^{1,2}, Chow E^{1,2,3}, Johnson C⁴, Shah P⁴, Maatouk I⁴, Zhang L^{1,2,5}, Ong J^{1,2,6}

¹Monash University, Melbourne, Australia, ²Melbourne Sexual Health Centre, Melbourne, Australia, ³Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia, ⁴Global HIV, Hepatitis and STIs Programmes, World Health Organization, Geneva, Switzerland, ⁵Clinical Medical Research Centre, Children's Hospital of Nanjing Medical University, Nanjing, China, ⁶Department of Clinical Research, London School of Hygiene and Tropical Medicine, London, United Kingdom

Background: Optimising sexually transmitted infection (STI) risk estimation remains challenging. Machine learning (ML) approaches promise to enhance STI risk estimation. This study systematically evaluated the performance of ML models in estimating individual risk for HIV, syphilis, gonorrhoea, and chlamydia.

Methods: Following PRISMA guidelines, Following PRISMA guidelines, we systematically searched six electronic databases (Embase, MEDLINE, Scopus, CINAHL, Web of Science, and IEEE), three preprint archives, and conference proceedings from January 2010 to April 2024. Studies were eligible if they reported performance metrics for supervised ML-based STI risk prediction models. Two independent reviewers assessed the risk of bias using PROBAST (Prediction Model Risk Of Bias Assessment Tool). We employed bivariate random-effects meta-analysis to estimate pooled sensitivity, specificity, and area under the curve (AUC) with 95% confidence intervals. We conducted sequential analyses of studies with complete and reconstructed confusion matrices. Subgroup analyses and meta-regression explored potential sources of heterogeneity, including study population (general versus specific populations such as men who have sex with men (MSM) and other gender-specific groups), sample size (<50,000 versus ≥50,000 participants), and income level settings (high-income versus low and middle-income).

Results: Among 3,877 records screened, 25 studies comprising 45 unique models met inclusion criteria, with sample sizes ranging from 547 to 4,384,178 participants across 14 countries. For HIV risk estimation, the SROC curve analysis of studies reporting complete confusion matrices (7 studies with 9 contingency tables) demonstrated a summary AUC of 0.91 (95% CI: 0.88-0.93), with a pooled sensitivity of 0.84 (0.76-0.90) and specificity of 0.84 (0.70-0.93). The analyses demonstrated substantial heterogeneity ($I^2 > 98\%$). Subgroup analyses revealed higher performance in specific populations (AUC 0.94, 95% CI: 0.92-0.96) than in general populations (AUC 0.85, 95% CI: 0.81-0.87). Limited evidence was available for meta-analysis of other STIs, with AUCs ranging from 0.75-0.87 for syphilis (N=5), 0.73-1.00 for gonorrhoea (N=6), and 0.67-1.00 for chlamydia (N=6). Despite comprehensive subgroup analyses, substantial statistical heterogeneity persisted across all analyses.

Discussion: While ML models show promising performance, particularly for HIV risk estimation, significant heterogeneity complicates interpretation. Only four studies transformed their research into an accessible clinical tool, highlighting the gap between model development and real-world application. Future research should prioritise external validation, standardised reporting following TRIPOD-AI guidelines, and robust implementation studies.

Registration: PROSPERO CRD42024532154

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Developing and Implementing a New Standard Operating Procedure to Enhance ART Adherence in Outpatient Pharmacy Dispensing

Raghavan P¹

¹Hospital Sungai Buloh, Malaysia, Sungai Buloh, Malaysia

Background: Timely antiretroviral therapy (ART) medication pickup is crucial for viral load suppression and retention in HIV care. The World Health Organization highlights timely ART refill pickup as an Early Warning Indicator for effective treatment outcomes. A 2019 prospective cohort study among 691 Malaysian HIV-infected individuals revealed that 15% had late ART refills, with work commitments and intentional non-adherence being primary reasons. Multivariate analysis identified self-reported non-adherence, traveling over 20 kilometers to the hospital, and a medication possession ratio (MPR) below 90% as significant predictors of late refills. These findings underscored the need for targeted interventions to improve adherence.

Methodology: A new Standard Operating Procedure (SOP) was developed and implemented at the outpatient pharmacy of the National Referral Center, Hospital Sungai Buloh, Malaysia, which dispenses ART to approximately 1,000 patients monthly and 7,000 patients on ART annually. The SOP aimed to systematically identify and intervene with patients at risk of late refills. Pharmacists screened for late refills during the verification stage of outpatient pharmacy dispensing. Patients identified as late were referred to the Medication Therapy Adherence Clinic (MTAC) for enhanced adherence counseling, which focused on identifying root causes, offering personalized solutions, and reinforcing the importance of timely refills. To strengthen this approach, a new referral SOP was designed and approved by the Infectious Disease team and the Head of Pharmacy Department. Under this system, late ART refill patients were flagged at the outpatient pharmacy and referred to an MTAC pharmacist for further intervention. A new "ART Late Pick-Up" note was

incorporated into the electronic hospital system to record key details, including reasons for the delay, duration of late pick-up, and interventions or referrals provided. Patients were then directed back to the pharmacy for medication collection. Additionally, the introduction of updated refill cards enabled better tracking of medication pick-up dates, enhancing both clinician monitoring and patient accountability. The SOP also integrated value-added adherence support services, including medication delivery (postage and locker services), referrals to peer counselors and infectious disease consultants, and reinforced ART adherence education.

Results / Lessons Learned: The SOP significantly improved ART adherence outcomes. Over 50% of late refills were detected and addressed through timely interventions, leading to an 8% reduction in late ART pick-ups within a month. The systematic approach also enabled early identification of high-risk patients, including frequent defaulters and those with repeated intentional non-adherence. MTAC pharmacists and infectious disease physicians were able to proactively engage these patients, preventing treatment failures. A key factor in the SOP's success was multidisciplinary collaboration between pharmacists, infectious disease physicians, counselors, and nurses, ensuring a comprehensive approach to adherence support.

Conclusion: The integration of research findings into a structured SOP provided a scalable model for improving ART adherence in resource-limited settings. The introduction of a referral SOP with electronic documentation streamlined patient identification and management, allowing for early interventions and targeted counseling. These efforts not only enhanced clinical outcomes but also established a model for the practical application of research in improving adherence strategies in HIV care.

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Estimating Cost of HIV Services for Key Population Provided by Community-Led Organizations in Mongolia

Jamsran G², Ser-Od E¹, Ankhbayar B², Zayasaikhan S¹, Chultemsuren B¹, Pan H³

¹Youth For Health Center NGO, Ulaanbaatar, Mongolia, ²HIGO Mongolia, Ulaanbaatar, Mongolia, ³Health Equity Matters, Sydney, Australia

Background: With Mongolia's transition from a lower-middle-income to an upper-middle-income country, the need for domestic funding for HIV programs targeting key populations (KPs) is becoming increasingly urgent. Until now, programs for men who have sex with men (MSM) and female sex workers (FSWs) have been fully reliant on Global Fund support. This study aims to estimate the cost of essential HIV prevention services for these two key population programs to support the Ministry of Health in medium- and long-term budget planning.

Methods: The unit cost of HIV prevention services for KPs was estimated using a top-down costing approach, based on the 2023 financial and operational reports of two civil society organizations (CSOs): Youth for Health Center (serving MSM and transgender individuals) and Perfect Ladies (serving FSWs). The estimation followed differentiated HIV/STI prevention service packages for key populations, as adopted from the Global Fund. A unit was defined as a service package delivery encounter. In 2023, MSM and transgender individuals reached by HIV/STI prevention programs received an average of 1.7 public health service packages per year, while FSWs received an average of 1.9 encounters.

Results: Prevention services accounted for 67% of the total operational costs of Youth for Health Centre and 90% of the operational costs of Perfect Ladies, with the remaining costs allocated to activities such as training and advocacy. The average cost per service unit for MSM and transgender program was \$16.80, while for FSW program it was \$15.38. For MSM and transgender program, unit costs for different service packages ranged from \$6.30 to \$59.40, with outreach

services forming the primary package at \$18.70 per unit. Among individual services, the most expensive activities included: virtual outreach prevention package – \$53.00 per unit, event-based outreach – \$39.30 per unit. The high cost of virtual outreach is primarily due to initial investments in demand generation and the limited number of users compared to traditional outreach programs, as the approach is still relatively new. For the FSW program, the unit cost of individual public health services ranged from \$11.30 to \$26.50, with outreach services—the core package—costing \$17.40 per unit. The most expensive services were focus group discussions – \$26.50 per unit and Interactive training – \$19.70 per unit.

Conclusion: The efficiency of the current model needs improvement. HIV prevention services should be tailored to individual risk levels, reducing service encounters for lower-risk individuals while expanding coverage to previously unreached populations. Moving forward, the cost-effectiveness of high-cost services should be evaluated by linking expenditures to measurable outcomes. A results-based assessment will enable more effective resource allocation and enhance the impact of HIV prevention programs in Mongolia. Additionally, there are opportunities to reduce costs—providing NGOs with office space in state-owned facilities could result in overall savings of up to 10%.

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Strengthening Community-Led Organizations' Participation in HIV Service Delivery through C364 - Ontext-Based Utilization of Monitoring and Evaluation Data and Participatory Performance Discussions

Manahan R¹, Maynes J, Pagtakhan R, Ruanto J, Becios C, Rivera J, Legaspi J, Imus R, Tisang M, Alipon F, Acuña S

¹Loveyourself, Inc., Mandaluyong City, Philippines

Background: Community-led Organizations (CLO) play a crucial role in delivering HIV services in the Philippines, yet there remains a gap in translating Monitoring and Evaluation (M&E) data into actionable strategies. This initiative aimed to bridge this gap by providing CLOs supported by the Global Fund with structured feedback and participatory tools to enhance their performance as HIV service providers and project implementers.

Intervention: This initiative integrated Goal Question Metric (GQM+) strategies with basic performance management frameworks to transform M&E data into meaningful performance insights aligned with the community-led service providers' daily operations. Implemented among 33 CLOs across the Philippines, a structured participatory feedback mechanism was introduced quarterly from July 2024 after the generation of their first-semester scorecards. These scorecards provided percentage scores and performance insights on key indicators, including timeliness of activity proposals, programmatic and financial report submissions, client reach and testing, linkage to care for reactive clients, reactivity and outreach success rates, and average investment per client tested.

Performance discussions were conducted virtually, where CLOs identified best practices, analyzed challenges, defined improvement objectives, formulated strategies, and selected M&E tools to track progress. To reinforce accountability, CLOs formalized their commitments through performance improvement forms submitted after

each meeting, ensuring structured planning and follow-through.

What Worked: The scorecard format translated numerical data into actionable insights relevant to daily operations. The performance improvement form provided a structured approach for CLOs to document best practices, challenges, and planned strategies. Mentoring sessions facilitated discussions to refine strategies and M&E tools, ensuring feasibility and effectiveness.

Implementation Challenges: Initially, some CLOs perceived the process as an additional task rather than an opportunity for improvement. Most CLOs personnel were also not adept in creating M&E tools to monitor their own strategies, thus mentoring was needed in this area.

Actual Outcomes: To gain insights on the initiative's outcomes, CLO performance data from the first semester of 2024 (January to June) was compared with the second semester (July to December). Results showed a 12.89% increase in performance under the Key Populations (KPs) Tested indicator and a 7.49% growth in the KPs Reached indicator. The number of high-performing CLOs—those achieving an overall scorecard rating of 80% or higher—increased from 11 to 21. Additionally, a 23.04% increase was observed in the CLOs' contribution to the overall KP Testing accomplishments of the Global Fund HIV project in the Philippines.

Conclusion: The integration of context-based scorecard insights, structured performance improvement forms, and mentoring sessions fosters a more engaged and effective approach to performance improvement. Subsequently, this participatory methodology empowers CLOs to take ownership of their improvement strategies, ultimately strengthening their participation and impact in HIV service delivery in the Philippines.

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Using Implementation Science to Assess Barriers and Facilitators of Community-Led Human Rights and Gender Services for Key Population in Thailand

Jatupornpimol N¹, Siriphan J², Janyam S³, Piakhuntod R¹, Janploy N¹, Duangmala P², Sukthongsa S³, Pengnonyang S¹, Ramatuarsing R¹, Phanuphak N¹

¹Institute for HIV Research and Innovation, Bangkok, Thailand,

²Foundation for Action on Inclusion Rights (FAIR), Bangkok, Thailand, ³Service Workers in Group Foundation (SWING), Bangkok, Thailand

Background: Key populations (KPs) with intersecting identities face stigma, discrimination, and complex socio-economic and health challenges. In Thailand, more than half of HIV testing and prevention services are delivered by trained lay providers in KP-led health service clinics. We explored facilitators and barriers of establishing Community-led Human Rights and Gender Services (CLHRGS) which integrate human rights and gender into existing KP-led organizations.

Methods: We conducted a longitudinal, pre-implementation mixed-method study using COM-B Model for Behavior Change, Theoretical Domains Framework (TDF), and Consolidated Framework for Implementation Research (CFIR) to assess barriers and facilitators of the CLHRGS implementation in 1 KP-led legal aid organization in Bangkok and 1 KP-led sexual health clinic in Pattaya. In-depth interviews and focus groups discussions were conducted during August-September 2024 with service providers, internal and external stakeholders, and key informants. Results were used to select and tailor implementation strategies based on the Expert Recommendations for Implementing Change (ERIC).

Results: Both organizations highlighted a lack of capability (i.e. knowledge about human rights and law, mental health service, and case management skills). Service delivery becomes more complex

with additional services, more time-consuming, and requires extra financial resources and qualified human resources. Both sites also face difficulties in referring clients to receive quality mental health and harm reduction/rehabilitation services. Facilitators includes service providers' motivation (i.e. belief about the impacts on clients' life and service providers' empathy). Based on these findings, the organizations identified the following ERIC strategies: development of training curricula, capacity building, education, creating internal enablers and regulations (e.g. developing drafts of standard operating procedures, service guidelines and tools), and establishing new partnerships for referrals and support. External enablers identified included advocating for policy changes to mandate enhancement of mental health services.

Conclusions: Facilitators and barriers for the implementation of CLHRGS identified through COM-B, TDF, and CFIR frameworks led to identification of context specific ERIC strategies. Using, evaluating, and revisiting these strategies during the implementation phase will enable successful integration of CLHRGS into existing services in KP-led legal aid and sexual health clinics, thereby addressing stigma, discrimination and other challenges faced by their clients.

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Pharmacist-Led HIV Care: A Literature Review of Global Practices and Local Insights

Li C¹, Tung W¹

¹Department of Pharmacy, Yuanlin Christian Hospital, Yuanlin, Changhua, Taiwan

Background: Taiwan has made significant progress in human immunodeficiency virus (HIV) prevention, achieving the 91-96-95 targets in 2023: 91% of people living with HIV (PLHIV) are diagnosed, 96% receive treatment, and 95% achieve viral suppression. While pharmacists play a crucial role in medication management and patient education, their involvement in HIV care varies across healthcare systems. This study reviews global pharmacist-led HIV care models, identifies key trends, and compares them with pharmacist services at a district hospital in Taiwan to explore potential improvements in local HIV pharmaceutical care.

Material and Methods: A PubMed search was conducted using MeSH terms and Boolean logic with the keywords "HIV", "pharmaceutical services", and "pharmacists". Studies published in the past decade were screened based on title, abstract, and full-text review. Only studies with accessible abstracts and full texts relevant to the research topic were included.

Results: A total of 13 articles were initially identified through the literature search. After title, abstract, and full-text screening, five studies were selected for inclusion. Among the identified studies, two from the United States focused on community pharmacy-based HIV care, demonstrating improvements in medication adherence, viral suppression, and cost reduction. A study from a tertiary healthcare facility in Nigeria assessed patient satisfaction with pharmaceutical services, identifying the need for longer pharmacist-patient interactions, enhanced counseling, and increased pharmacist staffing. In Pakistan, pharmacists at HIV clinics utilized a smartphone application to monitor antiretroviral adherence, showcasing their expanding role in medication compliance monitoring through digital tools. A study from Spain examined quality

indicators in HIV pharmaceutical care, emphasizing the integration of specialized pharmacists into multidisciplinary teams and the necessity of pharmacist prescription reviews at treatment initiation or modification. Collectively, these studies demonstrate that expanded pharmacist roles enhance HIV care outcomes.

These studies highlight the evolving role of pharmacists in HIV care. The scarcity of recent studies may indicate that HIV pharmacist services are already well-integrated in many developed countries. Notably, in the United States, research has expanded to include community-based HIV pharmaceutical care, indicating a shift toward decentralized patient management.

Conclusions: At a district hospital in Taiwan, pharmacists provide HIV pharmaceutical care tailored to individual patient needs, including medication counseling, interdisciplinary case discussions, health education programs, and the development of educational materials. However, these services are not routinely provided due to pharmacist shortages and limited health insurance coverage, which hinder consistent service delivery and reimbursement.

In contrast, many developed countries have successfully integrated specialized HIV pharmacists into healthcare systems, with community pharmacists increasingly participating in HIV care. While Taiwan's district hospital pharmacists play an essential role, developing a structured pharmacist training and certification system could further enhance HIV patient care. Strengthening interdisciplinary collaboration and integrating pharmacists into standardized HIV treatment programs may also optimize care outcomes.

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HIV-Related Stigma Among Pregnancy Women Living with HIV in Thailand

Phonphithak S¹, Hirunsuthikul N¹, Rattananupong T¹, Bureechai S²

¹Preventive and Medicine, Faculty of Medicine Chulalongkorn University, Bangkok, Thailand, ²The HIV Netherlands Australia Thailand Research Collaboration (HIV-NAT), Bangkok, Thailand

Introduction: HIV-Related stigma in pregnant women living with HIV is a barrier and creates problems that affect their way of life. HIV postpartum care is necessary to promote the health and well-being of mothers and their infants. Only a few studies have evaluated stigma and its determinants as concerns pregnant women living with HIV/AIDS. This study investigates the factors associated with stigma in pregnant women living with HIV in Thailand.

Methods: A cross-sectional study recruited a total of 222 pregnant women living with HIV: 68 teenage pregnant women and 154 adult pregnant women living with HIV. Berger's HIV stigma scale was used for stigma assessment. All Participants (n = 222) were recruited during pregnancy and postpartum from two hospitals and completed self-reports. Data analyzed factors associated with stigma were used multiple linear regression by STATA11.

Result: The results showed that the mean age of teenagers pregnant with HIV was 18.44 years (standard deviation of 1.57), and the mean age of other HIV-infected pregnancies was 29.95 years (standard deviation of 6.15). The mean age of the two groups was statistically significant (P-value <0.001). The stigmatization among pregnant women with HIV was found. A lower stigmatization score was found in pregnant teenagers than in another HIV-infected pregnant woman. A statistically significant p-value=0.024 was found. Factors that influenced the stigmatization were age, gestational age, sources of income, antenatal care, periods of HIV infection, and HIV status disclosure.

Conclusion: Stigmatization was significantly found in the adolescent group. Family support is another crucial factor in helping pregnant women with HIV.

Getting over the problems by revealing HIV status in pregnant women to family members is the priority to get past stigmatization.

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Challenging Stigma to Promote Resilience and Positive Self-Concept Among PLHIV Who Use Drugs in Kazakhstan

Wiginton J¹, Turpin G¹, Lyons C¹, Dunaway K², Brion S², Nangombe H³, Dong D⁴, Savin P⁵, Baral S¹

¹Johns Hopkins University Bloomberg School of Public Health, Baltimore, United States, ²International Community of Women Living with HIV (ICW), , ³Global Network of People Living with HIV (GNP+), , ⁴The Vietnamese Network of People Living with HIV (VPN+), , ⁵ALE Central Asian Association of PLHIV, ,

Background: People who use drugs are disproportionately burdened by HIV in Kazakhstan, a former Soviet republic in Central Asia. HIV stigma persists in Kazakhstan, and while the trauma of HIV stigma can act as a barrier to treatment and prevention efforts, it can simultaneously act as a motivator to action. We sought to explore the extent to which HIV stigma may motivate action to challenge community HIV stigma and promote resilience and positive self-concept among people living with HIV (PLHIV) who use drugs in Kazakhstan.

Methods: Using 2020-2021 data from the PLHIV Stigma Index 2.0 (N=534), we calculated descriptive statistics for variables of interest: past experience of enacted HIV stigma (range=0-11; e.g., exclusion), past engagement in HIV stigma change efforts (range=0-7; e.g., challenged/educated someone engaging in HIV discrimination), current positive perceptions of one's own HIV status (range=0-10; e.g., self-confidence positively affected by status), and current internalized HIV stigma (0-6; e.g., worthlessness due to HIV status). We performed linear regressions to determine associations between experience of enacted HIV stigma and HIV stigma change efforts; HIV stigma change efforts and positive perceptions of one's own HIV status; and HIV stigma change efforts and internalized HIV stigma. We then explored whether HIV stigma change efforts mediated enacted HIV stigma's association with positive perceptions of one's own HIV status and with internalized HIV stigma.

Results: Mean participant age was 41.9 years. More than two thirds of participants were cisgender men (n=370; 69.3%). Over half (n=296; 55.4%) had high school education, with more than a third (n=182, 34.1%) being unemployed. Mean enacted HIV stigma score was 1.2; mean HIV stigma change efforts score was 2.7; mean positive perceptions of one's own HIV status score was 1.2; and mean internalized HIV stigma score was 2.6. Experience of enacted HIV stigma was associated with HIV stigma change efforts (b=+0.50, SE=0.08; p<0.001), and HIV stigma change efforts were associated with positively perceiving one's own HIV status (b=+0.07, SE=0.03; p=0.008); HIV stigma change efforts were not associated with internalized HIV stigma (b=-0.03, SE=0.02; p=0.266). Setting HIV stigma above the centered mean (e.g., 0.10-0.60) yielded a significant natural indirect effect (b range=-0.04 to -0.05; p-value range=0.003 to p=0.035), meaning the effect of HIV stigma on internalized stigma partially operated through HIV stigma change efforts. No other mediation effect was observed.

Conclusions: Our findings indicate that greater experiences of enacted HIV stigma may motivate greater engagement in efforts to challenge HIV stigma in one's community, which in turn may lower internalized HIV stigma. That is, PLHIV who use drugs in Kazakhstan may build resilience in the face of enacted and internalized HIV stigma by challenging community stigma and discrimination. In addition to reducing internalized HIV stigma, efforts to challenge community HIV stigma may facilitate positive reframing of one's own HIV status. Creating safe opportunities for PLHIV to engage in efforts to challenge HIV stigma may be a promising strategy to improve quality of life while effecting broader community change. Future research is needed to explore these relationships longitudinally to establish causality.

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Body Mapping: An Art Therapy Workshop Addressing Diagnosis Trauma in Heterosexual People Living with HIV in Greater Western Sydney

Costello J¹, Njeri P¹, Heslop A¹, Schlosser P¹

¹Positive Life Nsw, Sydney, Australia

Background: For heterosexual people living with HIV (PLHIV), especially those from highly marginalized communities, an HIV diagnosis often triggers profound trauma. This trauma is compounded by self-stigma, characterized by feelings of loss, grief, and fear of cultural disconnection due to shame and misunderstanding. Such stigma can be debilitating, hindering individuals from rebuilding their lives post-diagnosis. Positive Life NSW (PLNSW) has observed that this inability to move beyond the trauma of diagnosis negatively impacts quality of life (QoL), mental health, social connections, and physical and sexual health.

Description: In April 2023, PLNSW hosted a body mapping art therapy workshop in Casula, targeting heterosexually identifying PLHIV in Greater Western Sydney who reported ongoing trauma related to their diagnosis. The workshop involved 18 participants, many of whom had been living with HIV for over 15 years. Body mapping—a therapeutic process where participants create life-sized artworks representing their past, present, and future selves—was facilitated by an artist and a registered psychotherapist. This safe and supportive environment enabled participants to explore themes of self-acceptance, self-love, and stigma reduction while fostering a foundation for improved QoL.

Implications: The workshop received overwhelmingly positive feedback. Participants described the experience as cathartic, engaging, and transformative, with many becoming actively involved in PLNSW's community development initiatives. By combining creative expression and therapeutic reflection, body mapping empowered

participants to articulate their life experiences and envision their aspirations, demonstrating its potential as a powerful tool for addressing diagnosis trauma and self-stigma. This presentation explores the workshop's design, its impact on participants, and its broader implications for promoting resilience and community engagement among PLHIV.

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The Prevalence of Depression and Suicidal Ideation Among People with HIV in Bangkok, Thailand

Toomcharoen P¹, Avihingsanon A¹, Nochaiwong T¹, Timachai N¹, Suksawek S¹, Hiranburana N¹, Su Lwin H¹, Phonphithak S¹, Wongvoranet C¹, Jirapasiri J¹

¹The HIV Netherlands Australia Thailand Research Collaboration (HIV-NAT), Thai Red Cross AIDS and Infectious Diseases Research Centre, Pathum wan, Thailand

Background: Depression and suicidal ideation are significant mental health issues, particularly among people with HIV (PWH) in Thailand. The People with HIV have 7-36 times greater risk for completing suicide associated with depression compared to HIV-uninfected population. However, there is limited data among PWH, particularly older PWH in Thailand. This study is aimed to assess the prevalence and predictor for suicidal ideation among PWH older than 50 years versus younger in Thailand.

Material and Methods: A cross-sectional study was conducted in an adult PWH aged ≥18 years at HIV-NAT, Thai Red Cross AIDS and Infectious Diseases Research Centre in Bangkok, Thailand from 16 November 2020 and 12 July 2023. The Patient Health Questionnaire version 9 (PHQ-9) was used to assess depression severity, which can be self-administered by the patient. The PHQ-9 scores can be used to guide treatment planning and assessment. A score of 0-4 indicates no or minimal depression, a score of 5-9 indicates mild depression, and a score greater than 10 indicates moderate to severe depression. Multiple linear regression analysis was also used to assess relationships factors associated with total depression and suicidal ideation score.

Results: A total of 1,857 PWH were included in the study, of which 69.8% were male, with a median age of 44.7 years (interquartile range [IQR]: 32.1-53.5), 19.7% were younger than 30 years and 35.9% were older than 50 years. Of these participants, 60.1% had an education level lower than a bachelor's degree, and 57.7% had a monthly income of less than 500 USD. Smoking was reported by 29.5% of participants, with 13.7%

being current smokers. Alcohol consumption was reported by 27.8% of participants, while 4.9% reported substance use. Substance use was 5.7% among those younger than 30 years. All PWH were on antiretroviral therapy (ART), with a median duration on ARV of 10.1 years (IQR: 2.7-20.0). The current CD4 cell count was 558 cells/mm³ (IQR: 435-780), and 89.4% had undetectable HIV-RNA (<50 copies/mL). Most PWH were not depressed (72.4%); 19.4% had mild depression and 8.2% experienced moderate to severe depression. Among PWH with moderate to severe depression 53.3% had suicidal ideation. In the multiple regression analysis, being female, younger age, viral load non-suppression, and being single by marital problems were associated with higher depression scores, while younger age and a monthly income of less than 500 USD were associated with higher suicidal ideation scores.

Conclusion: Despite of majority of PWH were not depressed. Depression still commonly found in younger PWH compared to older PWH. Other factors associated with higher depression scores included being female, having an unsuppressed viral load, and being single by marital problems. Furthermore, the higher suicidal ideation scores were associated with younger PWH, who had low monthly income. These results highlight the need for tailored mental health interventions and regular screening for depression and suicidal ideation, particularly among vulnerable groups such as younger individuals and those with lower socioeconomic status. Further research is needed to explore effective strategies for addressing these mental health challenges in PWH.

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HIV Stigma and Quality of Life in Late Presentation of AIDS in Taiwan

Yu C^{1,2,3,5}, Lee M^{4,5}, Hsieh C^{3,6}

¹Chung Shan Medical University, Taichung City, Taiwan, ²Chung Shan Medical University Hospital, Taichung City, Taiwan, ³The Taiwan AIDS Nurses Association, , Taiwan, ⁴National Kaohsiung Normal University Graduate Institute of Gender Education, , Taiwan, ⁵CARE AIDS Association of Taiwan, , Taiwan, ⁶Taichung Veterans General Hospital, , Taiwan

Background: In Taiwan, despite a decline in new HIV diagnoses since 2018, approximately 30% of HIV cases are still diagnosed at a late stage. Delayed diagnosis can lead to increased morbidity, mortality, and healthcare costs. Understanding the behavioral characteristics associated with late-stage AIDS diagnosis is essential for improving prevention and treatment strategies. This study investigates the relationship between quality of life (QOL) and HIV-related stigma among late-stage AIDS patients in Taiwan, aiming to provide insights for better healthcare interventions.

Methods: A cross-sectional study was conducted between May and November 2023 at a Taiwanese HIV treatment center. A total of 200 patients with late-stage AIDS participated and completed the WHOQOL-HIV BREF and the Chinese HIV Stigma Scale. Descriptive statistics, one-way ANOVA, and Pearson correlation analyses were used to assess the relationship between HIV stigma and QOL.

Results: The majority of participants were male (98%) and identified as homosexual (78%). Most were aged between 25 and 34 years (47.5%), unmarried (89.5%), held a college degree (54.5%), and were employed full-time (82.5%). About 25.5% of participants resided in Taipei. Dermatology and gastroenterology were the most frequently consulted specialties before HIV diagnosis. Nearly half (50.5%) reported no religious affiliation, and the most common monthly income range was 30,001–50,000 TWD. The mean QOL score was 80.30 ± 13.45 , while the mean HIV stigma score was 51.87 ± 8.74 . Pearson correlation analysis revealed a strong negative correlation ($r = -0.483$, $p < 0.01$) between HIV stigma and QOL, indicating that higher perceived stigma is associated with lower QOL.

Conclusion: The study highlights the significant impact of HIV-related stigma on the QOL of individuals diagnosed with late-stage AIDS in Taiwan. These findings emphasize the need for targeted public health strategies aimed at reducing stigma, improving social support, and enhancing the overall well-being of this vulnerable population. Addressing HIV stigma through education, policy changes, and community-based interventions is crucial to improving healthcare outcomes for late-stage AIDS patients.

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Lessons Learnt: The Importance of a Timely 'Good Death' Conversation

Binte Ismail F¹, Sng E¹

¹Changi General Hospital, Singapore, Singapore

Background: While there is currently much emphasis on improving quality of life among people living with HIV with WHO's fourth 90 target, having a "good death" is equally important. In Singapore, strict confidentiality laws under the Infectious Diseases Act permit physicians to disclose HIV status to next-of-kin upon death for public health reasons. This may result in anxiety among people living with HIV over reputational harm and impact on their loved ones. A timely conversation on what a "good death" entails can alleviate anxiety and combat lingering stigma of HIV after death. Here, we describe the challenges faced by our multi-disciplinary team in caring for two patients to highlight the importance of having timely "good death" conversations.

Case 1: Case 1 was a 78-year-old male who was diagnosed with HIV in 2004. He was non-compliant to anti-retroviral treatment and presented with pulmonary tuberculosis in 2024. Further evaluation revealed a ring-enhancing brain lesion but he declined brain biopsy. Throughout his stay, he had consistently requested that the team not reveal his HIV diagnosis to his family, including his daughter whom he was close to. On day 27 of hospitalisation, he passed away unexpectedly at night, likely from a cardiac event. After death, the on-call team disclosed the HIV diagnosis to several family members who were present. The family was shocked. His daughter appeared distraught - she was worried that the family would think that she had been concealing his diagnosis, and his grandchildren would lose their respect for their grandfather. In retrospect, a timely "good death" conversation would have prevented such a turn of events. It would have provided the patient with the opportunity to express his wishes, such as the specific family members to whom he would have his diagnosis revealed after death.

Case 2: Case 2 was a 58-year-old male who was diagnosed with HIV in 2012. He developed lung

adenocarcinoma in 2022 and was subsequently given a prognosis of three months in 2023. He expressed sadness over his prognosis and was fearful about having HIV status disclosed after death. Being the eldest son, it was important to him to maintain his good reputation among his family members. He was regretful about his past behaviour and wanted his son to learn from his mistakes but struggled to express these feelings in person. To address his fears and concerns, the medical social worker facilitated legacy work alongside care planning. After his passing, his HIV diagnosis was disclosed to the sibling he had designated, with strict instructions to keep the information confidential. His last rites were carried out in accordance with his wishes, and a video recording of his final message was given to his son as per his instructions.

Conclusion: The juxtaposition of two cases illustrates the stark difference a timely "good death" conversation could make. Incorporating discussion on a "good death" into personalised HIV care planning empowers patients to take control of their end-of-life decisions, alleviating anxiety and preserving dignity, while safeguarding family members from emotional and social harm.

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The Lived Experience of Resilience Among Women Living with HIV in Malaysia: A Qualitative Study

Cheong J, Che Mohd Yusoff M

¹Universiti Sains Malaysia, Kota Bharu, Malaysia

Introduction: Living with HIV carries significant stigma, especially for women, who face numerous challenges beyond the medical implications of the condition. The stigma and discrimination surrounding HIV contribute to a sense of shame and can exacerbate physical health concerns, thereby increasing their risk of developing mental health issues. The present study aimed to explore the lived experiences of resilience among women living with HIV (WLWH) in Malaysia.

Methods: WLWH attending services in Community Healthcare Clinic and Kuala Lumpur AIDS Support Services Society were approached to participate in this study. Purposive and snowball sampling were used to recruit participants. Inclusion criteria required participants to be Malaysian citizens, at least 18 years old, diagnosed with HIV for at least one year, and able to communicate in either Malay or English. Semi-structured in-depth interviews were conducted using an interview guide to elicit participants' insights on the meaning of resilience and the factors that contribute or hinder it. All interviews were audio-recorded and transcribed. Thematic analysis was used to analyse the data using NVivo12. Ethics approval was obtained from the Human Research Ethics Committee of Universiti Sains Malaysia.

Results: Ten WLWH, aged 26 to 50 years (Mage = 42, SDage = 8), with majority of participants were between 40 and 49 years old. Marital status varied, with four participants married, three unmarried, and three divorced or separated. Most participants identified as Malay (70%), with the remaining being Chinese (30%). All participants had been formally diagnosed with HIV, with the duration since diagnosis ranging from 3 to 21 years. Additionally, 80% of the participants reported having children.

Three major themes emerged: 1) Conceptualization of resilience, 2) Barriers of resilience, 3) Facilitators of resilience. Resilience was described as building mental and physical strength, accepting their situation, and supporting others who share similar hardships.

The results also show that WLWH navigate complex emotional landscapes, with resilience shaped by a combination of individual, interpersonal, and community-level factors. At the individual level, participants struggled with psychological issues such as depression, fear, worry, and shame, along with physical health challenges exacerbated by HIV medication side effects. Interpersonal barriers included family problems, stigma and discrimination from healthcare workers, and uncertainties in romantic relationships. Furthermore, factors such as stigma and concerns about breaches of confidentiality contribute to community-level challenges.

Contrary to earlier assumptions that WLWH are passive and ignorant, the results showed that WLWH actively engaged in altruistic efforts to support others within their communities in the same way they have received the support from others. They also demonstrated resilience through various strategies like acceptance, faith, while maintaining a healthy lifestyle. On the interpersonal level, social support from family and friends, the experience of parenthood, and empowerment from medical professionals significantly contributed to resilience among WLWH.

Conclusion: Overall, these findings highlight the multifaceted challenges faced by WLWH and emphasize the need for holistic support systems. By addressing resilience at multiple levels, mental health and medical professionals can better meet the unique needs of WLWH, empowering them to lead healthier and more resilient lives.

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Investigation on Adherence and Needs of HIV Patients During Antiviral Therapy

Liu J¹

¹The Third People's Hospital Of Kunming, Kunming, China

Introduction: This study aimed to investigate the adherence patterns and unmet clinical needs of HIV patients undergoing antiviral therapy, with a focus on identifying barriers to adherence and patient preferences for treatment options.

Methods: A cross-sectional questionnaire survey was conducted among 312 HIV/AIDS patients receiving treatment at The Third People's Hospital of Kunming. The survey assessed challenges, preferences, and adherence behaviors among patients on various antiviral treatment regimens.

Results: Of the 312 HIV/AIDS patients, 67.31% were male and 32.69% were female, with a median age of 42 years (range: 18–65 years). The distribution of treatment initiation was as follows: before 2010 (14.42%), 2011–2016 (26.92%), 2016–2021 (29.81%), and after 2021 (28.85%). The current antiviral regimens included Efavirenz/Lamivudine (37.5%), Bictegravir/Emtricitabine/Tenofovir Alafenamide (23.08%), Doravirine/Lamivudine/Tenofovir (22.76%), AINUOVIRINE/Lamivudine/Tenofovir (2.24%), unclear treatment regimen (5.77%), and others (8.65%).

Key findings from the survey revealed:

Stigma and Privacy Concerns: 83.97% of patients feared disclosure of their HIV status to friends or colleagues, 85.9% hid or altered drug packaging to conceal their HIV status, and 70.19% took medications in private.

Lifestyle and Adherence Challenges: 72.44% expressed concerns about the inconvenience of carrying medications while traveling, 52.56% forgot to take their antiviral drugs daily, and 70.19% skipped or delayed doses to enjoy social activities or a sense of freedom.

Psychological and Health Concerns: 42.63% experienced emotional distress or depression, 82.37% worried about the long-term adverse effects of antiviral drugs, and 68.59% feared drug

interactions with other medications or supplements.

Interest in New Therapies: 88.14% showed a keen interest in new antiviral drug options, and 80.13% expressed strong anticipation for long-acting injectable drugs.

Conclusion: Despite ongoing adherence education by healthcare providers, adherence to antiviral therapy among HIV/AIDS patients remains suboptimal. This is closely linked to psychological challenges such as anxiety, depression, and fear, as well as external factors like stigma, medication fatigue, and lifestyle constraints. A significant proportion of patients expressed a strong interest in novel antiviral treatments, particularly long-acting injectable drugs, highlighting the need for innovative therapies that can improve adherence and enhance quality of life.

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Crowdsourcing to Reduce HIV Stigma in Singapore: Insights from an Open Call for Ground-Up, Community-Led Solutions

Ng W¹, Tan R², Lin L², Low S², Kumar A², Yeo B³, Kwok C⁴, Chong D^{1,5}, Elicia E⁶, Ismail F⁷, Ho L⁸, Goh L^{10,11}, Teh Y¹³, Tang W⁹, Tucker J⁹, Archuleta S¹², Wong C¹⁴, Tan R¹

¹Saw Swee Hock School of Public Health, National University of Singapore and National University Health System, , Singapore,

²National Centre for Infectious Diseases, , Singapore,

³Department of Sexually Transmitted Infections Control Clinic, , Singapore, ⁴Action for AIDS Singapore, , Singapore, ⁵National University of Singapore Public Health Club, , Singapore, ⁶Project X, , Singapore, ⁷Changi General Hospital, , Singapore, ⁸NCID Cares, , Singapore, ⁹University of North Carolina, Chapel Hill, United States, ¹⁰Singapore Management University, , Singapore, ¹¹Kayos Collective, , Singapore, ¹²National University Hospital, , Singapore, ¹³Singapore General Hospital, , Singapore, ¹⁴National HIV Programme, , Singapore

Despite significant medical advancements, HIV stigma remains a major barrier to care. The 'undetectable=untransmittable' (U=U) social movement to promote the concept that People Living with HIV (PLHIV) who have undetectable viral loads have zero risk of transmitting HIV has been effective in empowering PLHIV and reducing stigma toward them, but this only works when people are aware of the concept. Awareness of U=U remains suboptimal even within key populations. This may perpetuate the HIV epidemic and diminish the quality of life for PLHIV. In order to address the low awareness and counter the stigma that PLHIV face, a national crowdsourcing open call to identify ideas to reduce HIV stigma was launched.

Crowdsourcing is a co-creation approach that utilizes ground-up wisdom to develop an intervention, leveraging on the collective wisdom of communities in diverse settings. Using methods outlined in the crowdsourcing guide by the World Health Organization and Special Programme for Research and Training in Tropical Diseases, we launched a national crowdsourcing open call between December 2024 to January 2025. The open call was launched by the National University of Singapore in collaboration with the National University Hospital, and the National HIV Programme under the National Centre for

Infectious Diseases. In addition, we partnered with 8 community organisations that represented key groups like student organisations, transgender organisations, and LGBTQ+ groups, who helped disseminate marketing materials through their social media networks. Submissions were limited to 500 words, and could be submitted as plain text, audio-only, or video-only files for enhanced accessibility. Subsequently, submissions were judged by three independent judges based on five predetermined criteria: (1) clarity and conciseness, (2) relevance, (3) novelty, (4) feasibility and scalability, and (5) promotion of equity and fairness.

The open call received 15 submissions, all of which were eligible. 66.67%(n=10) were individual and 33.33%(n=5) were group submissions. Submitting participants were mostly male (n=9,60.00%), female (n=5,33.33%), and non-binary (n=1,7.67%). The average age was 26.13 years old. The average score of entries was 6.02±0.67, of which the maximum score was 10.00. The majority of submissions (n=12,80.00%) depended on sharing the lived experiences of PLHIV, albeit in different ways. 33.33%(n=5) took the form of immersive experiences, using narrative-driven mobile games or exhibitions augmented with virtual reality to immerse others in the lives of PLHIV. 33.33%(n=5) were interactive sessions, bringing together people from all walks of lives to interact and learn more about HIV. 13.33%(n=2) were based on social media campaigns, aimed to call out moments of stigma faced by PLHIV.

The crowdsourcing open call has provided health promotion strategies that align with Singapore's national goals to reduce HIV transmission and stigma. It also affirms that communities are valuable sources of ideas and actionable solutions that can foster and spur innovation from the ground-up. The proposed ideas emphasized solutions that could be feasibly implemented and scaled up. Top entries from this open call will move onto the next stage, a designathon to further develop ideas into pilotable interventions.

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'U equals U' and the Perception toward Non-Discriminatory HIV Care Among Healthcare Professionals in Taiwan

CHEN G^{1,2}, Lin K¹, Lee C³, Lee Y⁴, Hung C¹

¹National Taiwan University College Of Medicine, Taipei, Taiwan,

²Min-Sheng General Hospital, Taoyuan, Taiwan,

³Kaohsiung Medical University Hospital, Kaohsiung, Taiwan,

⁴Chung Shan Medical University Hospital, Taichung, Taiwan

Background: Providing nondiscriminatory healthcare services to people with HIV (PWH) helps reduce structural barriers for PWH to access healthcare. However, large-scale investigations into the perceptions and acceptance of PWH among healthcare professionals in Taiwan have rarely been studied.

Methods: In 2024, the Taiwan AIDS Society organized the U Café Tours, involving 23 HIV-designated care hospitals across Taiwan to promote the concept of "undetectable equals untransmittable" (U=U) and nondiscriminatory healthcare services. During these events, an anonymous questionnaire interview was conducted among hospital employees who voluntarily participated to assess their experience, perceptions, and willingness to provide clinical services to PWH. On a scale from 0 to 10, with 10 being the more stressful, the participants were asked to report their own psychological stress when providing clinical services to PWH. The interview also included their understanding and acceptance of the U=U concept.

Results: A total of 5,114 valid questionnaires were collected and analyzed during the events, with responses from 8.6% (n=442) doctors, 37.6% (1,925) nurses, 29.3% (1,497) other healthcare professionals, and 24.4% (1,250/5,114) administrative personnel. While 92.3% (n=4,719) of respondents believed that PWH should receive the same level of healthcare as the general public, 15.8% (806) still had reservations about providing services to viremic PWH, and 19.0% (973) reported applying additional unnecessary precautions when seeing PWH. Regarding the U=U concept, only 15.4% (n=788) of the participants agreed that

there is zero risk of HIV transmission through unprotected sex for virally-suppressed PWH. In terms of psychological stress, respondents who fully embraced the U=U concept reported significantly lower stress levels (median, 1.5; interquartile range [IQR], 0–4) compared to their counterparts (median, 4.0; IQR, 2–6; $p < 0.001$). Moreover, 86.7% (n=4,436) of the participants indicated that understanding the U=U concept would further increase their willingness to provide clinical services to PWH.

Conclusions: Although most healthcare professionals believe that PWH should receive the same level of healthcare, a significant proportion still express concerns about occupational HIV exposure, and acceptance of the U=U concept remains low among the respondents. However, continued education on HIV-related health knowledge and the U=U concept is needed to mitigate the psychological stress and increase the willingness to provide clinical services to PWH.

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Generosity Among Healthcare Professionals in STI Care in China: A Mixed-Methods Analysis of Barriers to Care

Zhou K¹, Ho D², Day S³, Fitzpatrick T^{1,4}, Li K⁵, Hlatshwako T², Luo D^{1,6}, Yin Z¹, Marley G¹, Yang L⁷, Tang W^{3,7}, Belden C⁸, Tucker J^{3,9}, Wang R^{1,9}

¹University of North Carolina Project-China, Guangzhou, China,

²Department of Health Policy & Management, University of North Carolina at Chapel Hill, Chapel Hill, USA, ³Department of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, USA, ⁴Division of Allergy and Infectious Diseases, University of Washington, Seattle, USA, ⁵Division of Infectious Diseases, Department of Medicine, University of California Los Angeles, Los Angeles, USA, ⁶Behavioral, Social, and Health Education Sciences, Emory University, Atlanta, USA, ⁷Dermatology Hospital of Southern Medical University, Guangzhou, China, ⁸Implementation Science Methods Unit, University of North Carolina at Chapel Hill, Chapel Hill, USA, ⁹London School of Hygiene and Tropical Medicine, London, UK

Background: Cynicism is common in many clinical settings, including STI clinics. Generosity in healthcare professionals may help to improve STI services. This mixed-methods study investigates how health professionals in China enact generous behaviours in STI clinics, including facilitators and barriers.

Methods: We organized semi-structured interviews and focus group discussions with STI healthcare providers, including dermatologists, gynecologists, nurses, and laboratory staffs, at five hospitals in Guangdong Province, China. Interview transcripts were first analyzed using a qualitative approach (inductive thematic analysis) to identify definitions, expressions, and facilitators of generosity, and then processed using a quantitative approach (crisp-set qualitative comparative analysis, csQCA), where raw data were coded and dichotomized according to predefined criteria (presence/absence of generosity-related behaviors).

Results: We interviewed 27 healthcare professionals with an average of 16 years of work experience in sexual health. Inductive thematic analysis revealed that participants defined generosity as a moral obligation to offer emotional or material resources without expecting anything in return. This included allocating additional time

to address patient needs, providing emotional support, and reducing treatment costs for vulnerable patients. csQCA suggested that no single factor was absolutely necessary, but recognizing patient vulnerability and observing generous colleagues were important factors. At the same time, our analyses revealed that persistent demands for generosity could exacerbate emotional labor and burnout. 63% (17/27) of participants reported emotional exhaustion associated with maintaining generosity in resource-limited settings (e.g., high patient volume, limited consultation time), thereby underscoring the need for systemic interventions to balance generous care with professional well-being.

Conclusion: Our data have implications for delivering STI services with generosity. We identified many ways that STI health professionals are already generous. Further systems-level interventions are needed to sustain generosity and protect health professionals from burnout.

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WhatWorksForU: The Development of a Pleasure-Integrated HIV Combination Prevention Service Delivery Paradigm Inclusive of Self-Empowerment and Evocative Messaging Created by Communities, for Communities in the Philippines

Rosadiño D^{1,2}, Brines R¹, Domingo R¹, Cruz D^{1,2}, Lomarda L¹, Tangcalagan K^{1,3}, Gray C¹, Tamayo K¹, Cabio J¹, Pagtakhan R¹

¹LoveYourself Inc., Mandaluyong City, Philippines, ²University of the Philippines - Open University, Los Baños, Philippines, ³De La Salle University, Manila, Philippines

According to the latest data, the Philippines is far from its 95-95-95 targets, registering at 64-66-97. Current approaches in delivering HIV services and messaging include sero-sorting, risk-based, and directive conversations involving behavior change. In a good practice statement, WHO recommended that behavioral interventions that aim to change behavior to reduce HIV risk are ineffective. Here, we present a paradigm shift in effectively communicating HIV-related messaging in offering combination prevention in the Philippines.

LoveYourself, a community-based organization in the Philippines, follows the self-as-coach model in training community peers involved in service delivery, which enables them to engage in evocative conversations of self-empowerment to clients. Following this, the organization created a plan to shift all behavior-change messaging and integrate a status-neutral approach. The plan included creating consultations with communities to develop messages in demand generation, and overall service delivery management. In the consultations, the following were considered: demographics and technographics (social media accounts they are active, how they interact, etc.). A crowdsourcing activity was done to create the paradigm.

While doing the consultations, diverse views were seen. It was determined that the integration of pleasure and sex-positivity must be included in order to foster conversations about making choices for themselves, which created #WhatWorksForU. The developed paradigm is included. Multigenerational clients prefer authenticity, relatability, and social awareness in key messages. Different communities have different health priorities, hence, diversity should be considered. The developed campaign, #WhatWorksForU, is a campaign that aims to promote HIV testing and combination prevention among individuals regardless of their HIV status and gender. Through a series of sub-campaigns targeting different relationship dynamics and sexual experiences, the campaign empowers people to take charge of their sexual health.

Involving the communities in creating the key messages for them are crucial. Monitoring of the service using these messages are important for further service improvement.

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A Study on Knowledge, Behavioral Risk Factors Related to STI/HIV, and Communication Channel Usage Among Youth in Colombo, Sri Lanka

Welivitiya L¹, Karavita A²

¹National Std/aids Control Program, Colombo, Sri Lanka, ²STD clinic - Anuradhapura, Anuradhapura, Sri Lanka

Introduction: The youth demographic is vital for national development and societal standards. In Sri Lanka, 12% of HIV diagnoses in 2022 were in individuals aged 15-24, highlighting the need for targeted preventive strategies. The National HIV/STI Strategic Plan emphasizes the importance of diverse communication channels to educate youth on safer sex. Identifying effective, youth-friendly communication channels is crucial for delivering accurate information to a generation with varied media habits.

Objectives: To assess knowledge and behavioral risk factors related to STI/HIV, evaluate current and preferred communication channels, and identify factors influencing their use among youth.

Methodology: A descriptive cross-sectional study was conducted in youth clubs in Colombo district, among 18-29y aged. A representative sample of 385 individuals was selected through systematic random sampling and data collected using a pretested self-administered questionnaire. Analysis done with SPSS software.

Results: The sample comprised 197 females (51.2%) and 183 males (47.5%), with 5 participants (1.3%) not disclosing their gender. Approximately 61.6% were single, 37.9% married, and 0.5% cohabiting. About 80% had completed at least the G.C.E. Ordinary Level examination, and 37% were employed full-time. The average knowledge level regarding STI/HIV was around 70%, with 17% of females showing poor knowledge. The UNGASS indicator for HIV/AIDS knowledge was 33.2%. Notably, individuals aged 27-29 had significantly higher HIV knowledge (47.1%) than those aged 18-20 (24.3%). Nearly half of the sample - 42.8%

reported sexual intercourse. Regarding risk factors, 15.8% indicating multiple partners. Alarming, 72.6% did not use condoms during their last encounter. Males favored social media (87.4%) and internet searches (83.1%) as current channels of communication, while females preferred electronic (52.3%) and printed media (40.1%). The main factor influencing communication channel choice was the availability of updated data (39.2%).

Conclusion: Although the average knowledge level of STIs and HIV among Sri Lankan youth is commendable at 70%, the UNGASS score of 32.2% highlights critical knowledge gaps that need to be addressed. The concerning statistics of low condom usage and prevalence of multiple sexual partners among 15% of the youth underscore the pressing need for targeted HIV prevention efforts. Comprehensive sexual health education programs tailored to sexually active youth and minority groups are essential. These initiatives should utilize effective communication channels to provide accurate and updated information.

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Lessons from Young People on Establishing a Student-Led Service Referral System for HIV and Human Rights Services Inside a University in the Philippines

Bagasol Jr E¹, Samson J¹, Bonbon F¹, Bagon K¹,
Bariuad F¹, Marpuri B¹

¹Family Health International 360, Makati City, Philippines

While the Philippines' education system has already adopted comprehensive sexuality education, its conservative implementation hampers efforts of HIV advocates to effectively promote sex education and deliver services to students (University of the Philippines, 2021). With HIV now escalating into a youth epidemic—32% of new cases are among 15–24-year-olds—this restrictive approach creates a barrier to closing the 'condom gap,' whereas youth are denied timely access to condoms, which are only available at age 18, despite their average sexual debut occurring at age 16 (Department of Health, 2022).

Youth advocates from Wagayway Equality (WE), a community organization, demonstrated outcomes of proactive HIV advocacy inside schools through setting up a student-led referral system for HIV and human rights services.

Supported by Family Health International (FHI) 360, WE partnered with Kolorete, an organization at the Lyceum of the Philippines University, to train 26 college and senior high school students on empowerment-focused sex education. They then co-developed a referral system that links students to HIV screening, PrEP and treatment enrollment, mental health support, and gender-affirming care. With a desk set-up that offers one on one peer counseling, the peer educators are also trained to document cases of stigma and discrimination and assist survivors to support services.

Two months into implementation, the referral system has assisted 55 students to different HIV services, with 80% linked to HIV screening.

Students' interest to volunteer for HIV initiatives outside the university was a notable outcome.

Peer education that emphasizes sexual empowerment proved effective in encouraging students to be open and honest about their experiences and in reaching out to their peers when they needed help. Moreover, strong support from the university administration facilitated the initiative's establishment. With its positive outcomes, the university administration recognized the referral system and supported its institutionalization. Efforts to sensitize university students and staff however must be sustained. Lastly, group discussions with the peer educators revealed opportunities to maximize closed peer networks (focused chats, travel buddies, etc.) to facilitate discreet referrals and access to services. These include mobilizing students as peer screeners and distributors of condoms, PrEP, and self-testing kits.

The outcomes of the student-led service referral system and learnings of the youth leaders have been documented to inspire similar models in other universities, particularly in state-owned institutions.

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Kahit Saan, Safe Ka: A Growing Digital Campaign Promoting Accessibility to HIV Community Centers in the Philippines

Calizo H¹, Brines R¹, Abelardo J¹, Manahan R¹, Maynes J¹, Ruanto J¹, Pagtakhan R¹

¹Loveyourself Inc., Mandaluyong, Philippines

Information dissemination in the Philippines regarding HIV and AIDS primarily emphasizes the importance of HIV testing and the options for preventive methods. However, a recurring concern among audiences is the accessibility of these services, with many individuals inquiring about where they can avail themselves of HIV-related support and testing. Despite efforts to promote awareness, the gap between information dissemination and actual service utilization remains a significant challenge, particularly in provinces and cities with limited access to healthcare facilities and HIV-related programs.

The Global Fund's HIV project in the Philippines, PROTECTS UPSCALE, delegated LoveYourself's Digital Media Officers (DMO) the responsibility of providing digital support to 42 HIV Community Centers across the country. In response, the DMOs developed a targeted campaign aimed at increasing awareness of the availability and locations of free HIV services in different provinces and cities. This initiative, titled "Kahit Saan, Safe Ka" (translated as "Wherever You Are, You're Safe"), was deliberately crafted in the local language to ensure accessibility and relatability for the target audience. By localizing the message, the campaign sought to foster a stronger connection with communities and encourage individuals to seek HIV services without hesitation.

The campaign was implemented over a six-month period, from June 2024 to December 2024. During this time, it effectively expanded its reach through Facebook. Notably, on the Champion Community Center Facebook page alone, the campaign attained a total reach of 108,855, accounting for 24.42% of the page's overall reach in 2024, which stood at 445,678. The widespread attention it garnered highlights the effectiveness of social media as a tool for HIV advocacy and service

promotion. The digital campaign allowed the dissemination of vital information at no additional cost, making it an efficient means of connecting with individuals who may not have direct access to information sources.

The increased visibility of HIV Community Centers led to a rise in the number of individuals seeking HIV testing, particularly among key affected populations. Statistical data from 2024 indicate that the campaign contributed to 29.33% of all HIV tests conducted at community centers across the country. This figure marks a 3.44% increase compared to 2023, underscoring the campaign's role in improving service uptake and accessibility.

Another key factor that contributed to the campaign's success was its cost efficiency. The campaign required no financial investment in promotions, as all engagement and reach were achieved organically. The simplicity of the campaign's message and its strategic use of language and digital platforms allowed it to gain traction.

Moving forward, continuous refinement of digital strategies, coupled with data-driven campaign adjustments, will be crucial in sustaining and further enhancing the impact of HIV awareness and testing initiatives in the Philippines.

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Providers' Perspectives Towards Integration of Hepatitis C Test-and-Treat Strategies into Key Population-Led HIV Clinics in Thailand: A Qualitative Study Using the Theory of Planned Behavior

Wongsa A¹, Janamnuysook R¹, Sinchai K¹, Janyam S², Patpeerapong P³, Saiwaew S⁴, Sittikarn S⁵, Mills S⁶, Phanuphak N¹, Ramautarsing R¹

¹Institute of HIV Research and Innovation (IHRI), Bangkok, Thailand, ²Service Worker in Group Foundation (SWING), Bangkok, Thailand, ³MPLUS Foundation, Chiang Mai, Thailand, ⁴Rainbow Sky Association of Thailand (RSAT), , Thailand, ⁵Caremat Foundation, , Thailand, ⁶FHI360 and USAID EpiC Project, , Thailand

Background: The integration of key population (KP)-led hepatitis C virus (HCV) test and treat in KP-led health clinics aims to address the high prevalence of HCV and barriers to care among key populations in Thailand. Understanding KP-lay providers' perspectives is crucial to design strategies to ensure successful implementation. We assessed the perspectives of these lay providers on delivering HCV test and treat services during the pre-implementation phase.

Methods: We conducted a cross-sectional study among KP-lay providers using survey developed based on the Theory of Planned Behavior (TPB), which included demographics and basic constructs of TPB: intentions, attitudes, perceived behavioral control, and subjective norms regarding the HCV test and treat intervention and its integration in their routine service. Multiple regression was conducted to identify demographic variables influencing KP-lay providers' perspectives on implementation. Prediction level was evaluated utilizing Structural Equation Modeling (SEM).

Results: Between June-December 2024, 101 KP-lay providers from nine KP-led HIV clinics who had a minimum of six-month work experience responded to the survey. The median age (interquartile range, IQR) was 32 (28-36) years, median (IQR) working years in clinic was 4.8 (2.3-6.9).

Mean scores (standard deviation, SD) for intentions, attitudes, perceived behavioral control, and subjective norms were 4.48 (0.57), 3.98 (0.85), 3.91 (0.64), and 3.89 (0.28), respectively.

Experience in providing HIV and HCV care was significantly linked to attitudes ($p=0.029$).

SEM demonstrated excellent model fit ($\chi^2=68.36$, CFI=0.97, RMSEA=0.065). Perceived behavioral control was a strong predictor of service provision intentions ($\beta=0.774$, $p<0.001$). Covariances showed significant relationships between attitudes and subjective norms (0.343, $p=0.001$), attitudes and perceived behavioral control (0.275, $p=0.017$), and subjective norms and perceived behavioral control (0.619, $p<0.001$).

Conclusions: KP-lay providers in KP-led HIV clinics showed a favourable perspective on implementing the HCV test and treat intervention. Direct experience with clients with HCV shaped perceptions. Perceived behavioral control strongly predicted intentions to provide services, with attitudes and subjective norms influencing intentions indirectly through perceived behavioral control. Tailored strategies, such as knowledge-building or confidence-building for KP-lay providers, is needed to ensure high intention and successful implementation of KP-led HCV test and treat intervention, potentially leading to HCV elimination among key populations in Thailand.

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HIV Treatment in Taiwan: Utilizing the LINE@ Platform for Patient Pretreatment Education and Implementing Long-Acting Injectable Antiretroviral Therapy Through Shared Decision-Making (SDM)

LI C¹, Yu C^{1,2}, Lin L¹, Lee Y^{1,2}

¹Chung Shan Medical University Hospital/Division of Infectious Diseases, Taichung, Taiwan, ²Chung Shan Medical University, Taichung, Taiwan

Antiretroviral therapy (ART) is provided free of charge to Taiwanese citizens under the guidance of the Centres for Disease Control (CDC) and is funded by the National Health Insurance (NHI), with the average cost of oral ART at NTD 13,200 per month. In 2021, Taiwan's Food and Drug Administration (TFDA) approved the first long-acting injectable antiretroviral therapy. In 2024, long-acting cabotegravir and rilpivirine (CAB / RPC LA) therapy was listed as second-line ART, costing NTD 37,106 per bimonthly administration. Eligibility criteria for CAB/RPC LA under the CDC guidelines include adults 18 years, an HIV viral load <50 copies/mL within six months, difficulty in adherence to daily oral medications, willingness to receive injections twice a month and additional clinical requirements. Patients must undergo a preapproval process before starting treatment.

This study explores the implementation of the LINE@ platform as a tool for pretreatment education in patient groups, supplementing in-person consultations with physicians and case managers. The LINE@ platform aims to educate patients about the benefits and potential side effects of CAB/RPC LA therapy. Subsequently, shared decision making (SDM) was used to help patients assess the suitability of CAB/RPC LA therapy as a treatment option.

Methods: A Shared Decision-Making Assistance Evaluation Form titled "Am I Suitable for Long-Acting Injectable HIV Treatment?" was designed with the following steps:

1. Introduction: Key educational points included an overview of long-acting injectables and oral ART, follow-up frequency, medication regimen, treatment efficacy, potential side effects, and a comparison of advantages and disadvantages.
2. Value assessment: The patients were asked to identify the most important aspects of treatment for them.
3. Preference Prioritisation : The patients rated the importance of various factors, including treatment efficacy, regimen change, side effects, drug interactions, exposure risks, frequency of follow-up, convenience, and understanding of treatment.
4. Confirmation of the treatment decision: Patients indicated their preferred treatment method: long-acting injectables or oral ART.

The educational materials provided via the LINE@ platform covered detailed information on CAB/RPC LA therapy, including administration methods, potential drug interactions, and an overview of the application process.

Results: From April 1, 2024, to January 20, 2025, 903 HIV patients received care at Chung Shan Medical University Hospital in Taichung, Taiwan. After prescreening led by the physician, 54 patients (96.3% male, 3.7% female; mean age: 37 years; mean CD4 Lymphocyte Count: 671 cells/mm³; undetectable HIV RNA viral load: 100%) met the eligibility criteria of the CDC for CAB/RPC LA therapy. Of these, 44 patients (81.4%) completed the SDM questionnaire and 36 patients (66.7%) started CAB / RPC LA therapy. No patients discontinued treatment due to side effects, treatment failure, or scheduling conflicts, which results in a completion rate of 100% at this time.

Conclusions: This study demonstrates that integrating the LINE@ platform with SDM effectively facilitates the adoption and sustained use of CAB/RPC LA therapy among people living with HIV in Taiwan.

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“I Became More Aware that HIV isn’t a Death Sentence” – Exploring the Parallel Realms of Understanding HIV Perception and Battle in the Blood (BitB) Gaming Experience

Regencia Z^{1,2,3}, Hemingway C⁴, Guevara E³, Baja E^{3,5}

¹Department of Sociology and Behavioral Sciences, College of Liberal Arts, De La Salle University, City of Manila, Philippines, ²Kirby Institute, University of New South Wales, Sydney, Australia, ³Institute of Clinical Epidemiology, National Institutes of Health, University of the Philippines Manila, City of Manila, Philippines, ⁴Department of International Public Health, Liverpool School of Tropical Medicine, Pembroke Palace Liverpool, United Kingdom, ⁵Department of Clinical Epidemiology, College of Medicine, University of the Philippines Manila, City of Manila, Philippines

Background: In the Philippines, HIV cases continue to rise rapidly, particularly among gay, bisexual, and other men who have sex with men (GBMSM) and transgender women (TGW). As researchers, we recognize the need for innovative interventions to address this public health crisis. We explored the role of Battle in the Blood (BitB), a mobile game designed to promote HIV awareness and encourage testing through gamified health education. Our study aimed to understand how users perceive HIV and how BitB influences their knowledge, attitudes, and health-seeking behaviors.

Methods: We conducted a qualitative narrative research study using semi-structured interviews with 25 BitB users (GBMSM and TGW, aged 18-30) recruited from Metro Manila and Davao City. We selected participants based on their engagement with the game and recruited them through social media, peer counselors, and snowball sampling. We transcribed and thematically analyzed the interviews using both inductive and deductive approaches. Our analysis focused on identifying key themes related to HIV perceptions, stigma, and behavior change.

Results: We identified two major themes: (1) persistent stigma and misconceptions about HIV, and (2) BitB’s potential to increase awareness and

encourage early testing. Despite efforts to improve HIV education, many participants shared concerns about the stigma surrounding HIV, which often deters individuals from seeking testing and treatment. Misinformation about transmission risks and the consequences of an HIV diagnosis remained widespread. However, participants recognized BitB as an engaging and informative tool that helped humanize the experiences of people living with HIV (PLHIV). Several users reported that the game challenged their existing beliefs and encouraged open conversations about HIV within their communities. Many shared that BitB reinforced the importance of testing and early detection. At the same time, they suggested improvements, such as incorporating interactive gameplay elements, real-world resources for testing services, and social media integration to enhance engagement and impact.

Conclusion: Our findings suggest that BitB has the potential to serve as a digital health intervention for HIV awareness and stigma reduction among GBMSM and TGW in the Philippines. The game effectively communicates key messages about HIV prevention and treatment while fostering discussions within social circles. However, to maximize its effectiveness, we recommend refining its gameplay mechanics, integrating decision-making features, and expanding its outreach efforts. Our study highlights the importance of user-centered design in developing digital health tools that address the evolving needs of key populations. By continuously innovating and adapting these interventions, we can create more effective strategies for HIV education and prevention.

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Impact of Technology on Non-Government Organisations Working on HIV Services in the Philippines

Estrella A¹

¹Team Dugong Bughaw, Iloilo City, Philippines, ²University of Sussex, Brighton, United Kingdom

The HIV epidemic in the Philippines is escalating, with daily diagnoses reaching 50 in 2023—a 411% increase since 2021. Youth aged 15–30 are disproportionately affected, comprising 31% of reported cases, driven by urbanization, stigma, and inadequate sexual health education. Non-governmental organizations (NGOs) play a critical role in addressing this crisis, providing essential services and education. This study explores how NGOs leverage technology to enhance service delivery and advocacy while overcoming challenges such as the digital divide, resource limitations, and policy constraints.

The study utilized a qualitative design, conducting semi-structured interviews with project managers from six HIV-focused NGOs in the Philippines. Thematic analysis was carried out using NVivo to uncover key trends and insights. Participants offered detailed descriptions of the technological tools utilized, the challenges encountered, and the strategies employed to enhance service delivery.

NGOs have reported substantial benefits from the adoption of digital tools, which include enhanced outreach through social media platforms, streamlined operations via centralized reporting systems such as OHASIS, and improved client engagement through mobile health applications. These digital tools have facilitated data-driven advocacy, resulting in significant policy reforms, such as allowing youth HIV testing without parental consent. However, challenges remain: the digital divide restricts rural access, unpredictable funding jeopardizes sustainability, and bureaucratic obstacles hinder policy implementation. Data disaggregation has indicated that younger, urban populations have reaped the most benefits from digital interventions, while marginalized groups in remote areas remain underserved.

The incorporation of technology into HIV advocacy and service delivery has transformed the operations of NGOs in the Philippines, facilitating enhanced reach and efficiency. To fully realize these advancements, targeted interventions are essential to bridge the digital divide, secure sustainable funding, and streamline policy implementation. This study highlights the transformative potential of digital tools in combating the HIV epidemic and advocates for comprehensive, context-sensitive approaches to ensure equitable access to technology-driven health services.

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Digitizing the Cookbook - A Differentiated Service Delivery Toolkit: The Next Step for Scalable HIV Prevention

De Castro M¹

¹Sustained Health Initiatives of the Philippines, Mandaluyong City, Philippines

Background: The Sustained Health Initiatives of the Philippines, (SHIP) Inc., as a Sub-Recipient of the Global Fund HIV Project in the Philippines, originally developed the Cookbook in Q1 2024 as a guidance tool for 26 clusters implementing HIV outreach programs. Implementing staff used to rely on mass testing events that varied in location, scale, and frequency, often aligning with community events, festivals, or routine site-based testing. Recognizing patterns across these outreach models, the Cookbook was designed to standardize implementation while ensuring scalability and flexibility.

By Q3 2024, it evolved into a comprehensive toolkit, incorporating data on testing yield, preparation timelines, funding requirements, and staffing needs. In Q1 of 2025, its role is expanding into a digital planning and monitoring system, improving data organization, tracking, and visualization for HIV prevention across 17 regions and more than 100 sites.

Methods: The digitization of the Cookbook Toolkit integrates planning and monitoring tools to enhance HIV outreach implementation. Current digital components include:

Online Planning and Monitoring System

- A centralized online planning template, implemented in early 2025, allows for manual data entry by implementers across 26 regional clusters.
- The system consolidates data from multiple regional planning worksheets, cross-referencing planned outreach events against program targets.

Data Consolidation and Visualization Tools

- Submitted planning templates are automatically compiled into a consolidated file through automated cross-referencing scripts, ensuring streamlined data management.
- A data visualization platform provides implementers with insights on outreach models in use, resource allocation, and testing yield trends.

Standardized Monitoring Framework

- The system enables real-time comparison of planned vs. actual outreach implementation, helping teams adjust strategies as needed.
- Captured data supports program-wide monitoring, resource planning, and identification of underutilized outreach models with strong potential for success.

Results: a. The transition from a static reference guide to an interactive planning tool is improving efficiency in outreach coordination and monitoring.

b. Real-time data aggregation and visualization provide clearer insights for regional and national program planning.

c. The system enhances testing yield estimates, cost monitoring, and resource tracking, allowing for more strategic decision-making.

Lessons Learned: a. Digitization improves program efficiency by allowing real-time tracking of outreach plans and outcomes.

b. Standardized templates and automation reduce manual reporting burdens while improving data accuracy.

c. Visualization tools enhance decision-making, making it easier to identify trends, gaps, and areas for improvement.

d. Structured data collection supports evidence-based program adjustments while maintaining adaptability at the site level.

Conclusion: The SHIP Cookbook Toolkit is evolving into a digitalized planning and monitoring system, integrating manual data entry, automated consolidation, and data visualization tools to enhance HIV prevention efforts. This shift enables more structured outreach coordination and monitoring, ensuring programs remain scalable, adaptable, and evidence-driven. Future efforts should focus on further streamlining data processing, refining reporting accuracy, and enhancing digital accessibility for regional implementers.

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Effective HIV Prevention in Chem-Sex Settings: Merging Harm Reduction with PrEP

Chu J¹

¹Taoyuan General Hospital, Taoyuan City, Taiwan

Background: Rates of high substance use during sex (known as chemsex) among PrEP users in Taiwan is linked to new HIV infection. Public PrEP program is aware of this importance, therefore it offers both the drug addiction referrals while they are in recovery, and also accepts HIV-negative cases of drug addiction diagnosed by a psychiatrist to be enrolled in this program. Both ways, they all can be assured that they will not be infected by the HIV virus.

Methods: Harm Reduction Psychotherapy (HRP)*1 is an integrative treatment approach was introduced for substance abusers. The primary concern is the harm caused by abuse and withdrawal, not the substance use itself. Abstinence is only one of the major outcomes of successful harm reduction psychotherapy. Using the Recovery Stage Chart, the case can understand which stage they are in and which stages they still have to go through until full sobriety, and have corresponding measures in different stages, and understand how to adjust their daily life and work routine and mindset in the road to recovery, and can also choose from harm reduction or full sobriety goals to carry out.

Results: Out of 366 enrolled in the PrEP program, there are 19 cases who appear to have the drug addiction at Taoyuan General Hospital. We currently have a total of 8 people in the prep program who have a need for drug addiction treatment and have been arranged in the outpatient clinic to discuss the need for addiction treatment and to choose a path to harm reduction, and 7 people have been referred from addiction clinics at other hospitals to our hospital to participate in the prep program, and at present, none of the 19 cases have shown any signs of infection with the HIV virus.

Conclusions: Letting cases understand that abstinence is not the only option, harm reduction

is also another way to change the current life controlled by drug addiction, to put aside the myth of “total abstinence”, and to work together with cases to explore “minimize harm” treatment options.

*1

Practicing Harm Reduction Psychotherapy. An Alternative Approach to Addictions

Practicing Harm Reduction Psychotherapy. An Alternative Approach to Addictions. Patt Denning and Jeannie Little. 2nd Edition. The Guilford Press, 2012. £30.50. ISBN 978-1-4625-0233-2

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Impact of Approval of Truvada® as PrEP in Japan on PrEP Users: Questionnaire Survey at a Gynecology Clinic in Sapporo, Hokkaido, Japan

Ikeda U¹

¹Miyanomori Ladies' Clinic, Sapporo, Japan

Purpose: PrEP has been prescribed in Japan for several years at private clinics, but there was no approved drug and generic drugs were imported from overseas. In August 2024, TDF/FTC Truvada® was approved for PrEP in Japan. However, it is not covered by medical insurance and the price for a 30-day supply is as high as 75270 yen. In addition, with the approval of Truvada®, it is no longer possible for clinics to import generic TDF/FTC from overseas.

Our clinic, a gynecology clinic in Sapporo, Hokkaido, had been importing and prescribing PrEP for two years. Since many people at our clinic prefer the on-demand oral method and TDF/FTC is recommended for on-demand instead of TAF/FTC, we had been prescribing many generic TDF/FTC, but now we are in a situation where we will no longer be able to prescribe them. Therefore, a survey was conducted to determine how PrEP users intend to continue PrEP in the future.

Methods: PrEP users who were attending our clinic from September 2024 to February 2025 were asked to complete a questionnaire after explaining their situation during the outpatient visit.

Results: Twenty-six users, 24 males and 2 females, responded to the survey. They were asked, "Would you continue with PrEP if we are no longer able to prescribe generics at our hospital in the future?" The number of respondents who could afford the monthly cost of the drug was 1 person who could afford less than 5,000 yen, 8 people who could afford between 5,000 yen and 7,000 yen, 3 people who could afford between 7,000 yen and 9,000 yen, and 8 people who could afford between 9,000 yen and 10,000 yen, and 6 people who could afford more than 10,000 yen. Of the 20 male users currently taking generic TDF/FTC, when asked what they would do if TDF/FTC could no

longer be prescribed but TAF/FTC could be prescribed at the clinic, 4 said they would continue to import TDF/FTC, 5 said they would switch to TAF/FTC and take it on a daily basis 5 respondents chose "use TAF/FTC as on-demand", and 3 respondents chose "discontinue PrEP". Three people seemed undecided and chose multiple answers.

Conclusion: Although we are pleased that Truvada® has been approved as PrEP in Japan, the price of Truvada® is more than 10 times higher than generic drugs, making it more difficult for PrEP users to obtain PrEP. It is hoped that the price of Truvada® will be reviewed to make it easier for PrEP users to continue PrEP in Japan.

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Attributes and Levels Development for a Discrete Choice Experiment on Pre-Exposure Prophylaxis Among Men Who Have Sex with Men in Guangdong Province, China: A Qualitative Study

Tan X¹, Li J¹, Fu X², Li Y², Jiang H¹

¹Guangdong Pharmaceutical University, Guangzhou, China,

²Guangdong Provincial Center for Disease Control and Prevention, Guangzhou, China

Objective: Pre-exposure prophylaxis (PrEP) can effectively reduce the risk of HIV acquisition among men who have sex with men (MSM), but PrEP uptake among MSM in China is still low. The discrete choice experiment (DCE) is a stated preference method that can be used to analyze the PrEP preferences among MSM. In particular, the development of attributes and levels is critical to the design of the DCE, and the validity of preference results largely depends on the appropriateness of the attributes and levels. In our study, we used qualitative methods to identify the key attributes and levels that influence PrEP use among MSM, providing a scientific reference for the DCE of PrEP preferences among MSM in Guangdong Province, China.

Methods: Based on the attribute identification framework proposed by Helter and Boehler, initial attributes and levels were identified through a literature review. Using non-probability sampling, MSM and professionals providing PrEP services in Guangdong Province were recruited for semi-structured interviews from January to February 2024 to elicit their perceptions of the initial attributes and levels. Recordings of the interviews were transcribed and imported into Nvivo 11 for thematic analysis. Attributes and levels were then selected and modified through group discussions, and a pilot testing was conducted to determine the final attributes and levels.

Results: Six initial attributes (effectiveness, dosing, presentation, dispensing venue, side effects, and cost) were identified from the literature review. A

total of 17 MSM and 9 professionals providing PrEP services were interviewed to obtain their views on the initial attributes and levels. The median age of the MSM was 36.0 years (interquartile range, IQR: 31.5-49.0), and most (82.4%) were unmarried. Among professionals, the median age was 35.0 years (IQR: 35.0-38.5), and their median years of work experience was 11.0 years (IQR: 7.0-19.0). In the interviews, we found that respondents seemed less concerned about presentation than the other five initial attributes, and that there was also a correlation between dosing and presentation. After discussion with the research team, we revised the PrEP attributes and levels, and conducted a pilot testing with 19 MSM, which showed that the design of the DCE was appropriate and feasible. Ultimately, our study identified five attributes including: effectiveness: 99%, 90%, 86%; dosing: daily, on-demand, bimonthly, annually; dispensing venues: MSM civil society organizations, Centers for Disease Control and Prevention (CDCs), designated hospitals, online platforms; side effects: none, mild; cost: free of charge, 300 RMB yuan per month, 500 RMB yuan per month, 1000 RMB yuan per month.

Conclusion: Our study identified five attributes of PrEP preferences among MSM, providing valuable information for designing the DCE to understand MSM preferences for PrEP in Guangdong Province.



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Beyond Trust: Unraveling Barriers to Condom Use and Safer Sex Practices Among Men Who Have Sex with Men in Hong Kong

Choi K^{1,2}, Choi E¹, Ng J^{1,2}, Chow E^{3,4,5}

¹School of Nursing, The University of Hong Kong, Hong Kong, Hong Kong, ²Sticky Rice Love, Hong Kong, Hong Kong, ³Melbourne Sexual Health Centre, Alfred Health, Melbourne, Australia, ⁴School of Translational Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia, ⁵Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, The University of Melbourne, Melbourne, Australia

Background: HIV/AIDS remains a critical public health challenge in Hong Kong, with male-to-male sexual contact being the primary transmission route. Recent data show a rise in infections among men who have sex with men (MSM), driven by risky behaviors like condomless anal sex. Compounding this issue is the low awareness and uptake of pre-exposure prophylaxis (PrEP), which is not part of government-funded HIV prevention strategies. Only one effective medication is approved in Hong Kong and is available at limited private clinics. The cost ranges from USD\$1,030 to \$1,290 monthly. This study explores barriers to condom use and motivations behind condomless sex among MSM, aiming to inform targeted interventions to promote safer sexual practices.

Materials and Methods: This qualitative study employed purposive sampling to recruit participants. Inclusion criteria required participants to be cisgender males, aged 18 or older, HIV-negative, sexually active within the past year, and fluent in Chinese. Semi-structured interviews were conducted in Hong Kong in 2024 to explore attitudes, motivations, and experiences related to condomless sex, risk perception, and protection strategies against the transmission of HIV and STIs. Data were transcribed verbatim and analysed thematically to identify key themes.

Results: Thirty participants were included, with 83.3% (N=25) reporting sexual contact with a male partner in the past month and 63.3% (N=19) engaging in condomless anal sex in the past year.

Only 3 participants were currently using PrEP. Thematic analysis revealed four key themes:

1. **Trust and Relationship Dynamics:** Participants frequently cited trust in partners as a primary reason for engaging in condomless sex, particularly with regular or long-term partners. Emotional connection and partner enjoyment often outweighed protection concerns.
2. **Risk Underestimation:** Many participants underestimated the risks of certain sexual practices, particularly oral sex, where condom use was rare. They perceived the risk of contracting HIV as low and overlooked other STIs. Additionally, some believed condomless sex was safe if partners appeared healthy or had no visible symptoms.
3. **Proactive Risk Assessment:** A subset of participants reported conducting informal risk assessments on dating apps, inquiring about partners' sexual histories and testing frequencies. However, reliance on self-reported information introduced potential inaccuracies.
4. **Limited PrEP Awareness:** Most participants had limited familiarity with PrEP and were uncertain about its side effects and their suitability for use. High costs and the belief that condoms provide sufficient protection decreased their motivation to use PrEP during condomless sex.

Conclusions: This study highlights significant barriers to consistent condom use among MSM in Hong Kong, including trust in partners, risk underestimation, and reliance on informal risk assessments. The prioritisation of emotional connection and partner enjoyment often led to omitting protective measures, while low awareness of PrEP further limited prevention options. Targeted interventions are needed to improve risk perception towards HIV and STIs, promote open discussions about sexual health, and increase awareness of PrEP as a complementary prevention tool. Educational campaigns should emphasise the importance of consistent protection and provide accurate information about HIV/STI transmission risks, fostering safer sexual practices within the MSM community.

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Sexualized Drug Use Among MSM in China: A Qualitative Study on Use Patterns, Risks, and Interpersonal Harm Reduction Strategies

Luo D^{1,5}, Fu Q^{3,5}, Fei Y², Tan R⁴, Smith M²

¹Emory University, Atlanta, United States, ²University of Minnesota Twin Cities, , , ³SESH Global, , , ⁴The National University of Singapore, , , ⁵Zhitong Guangzhou LGBT Center, ,

Introduction: Sexualized drug use (SDU) referred to the use of recreational drugs to facilitate sexual encounters. An increasing number of reports in recent years highlighted the elevated risk of HIV among men who have sex with men (MSM) who used drugs before or during sex. However, the usage patterns and decision-making processes regarding SDU in MSM remain poorly understood, particularly in contexts such as China, where research on SDU is largely descriptive. This study conducted in-depth qualitative interviews to better understand the knowledge and practices associated with SDU among MSM.

Method: MSM who are over 18 years old, live in Guangdong province, China and reported at least one SDU episode in the past year are recruited using purposeful sampling method. the qualitative interviews were conducted either in person or online between February and May 2024. Data were transcribed and analyzed using Dedoose, employing reflexive thematic analysis. Three trained coders with expertise in qualitative research conducted the coding process, with regular meetings held with senior authors who specialize in MSM and SDU research.

Result: We interviewed 20 MSM residing in Guangdong province, with a mean age of 32.7 years (range: 23–53). The majority (n=15) primarily used poppers, while the remaining participants reported using other substances such as methamphetamine. Several key themes emerged: Intention Disinhibition—participants reported using drugs to reduce discomfort and inhibition, enhancing sexual enjoyment, particularly with unfamiliar or less sexually attractive partners; The Feel of Shame—many participants expressed

feelings of guilt and regret after SDU, citing concerns about its harmful effects on health and attributing their drug use to a perceived lack of self-discipline; Impact on Safe Sex Practices—while a small number of participants maintained consistent safe sex practices, the majority indicated that drug use lowered their inhibitions, leading them to engage in behaviors they would typically avoid, such as agreeing to condomless sex when requested by a partner. Additionally, participants described informal, harm reduction strategies based on interpersonal interactions, including discussions on safer drug use and safe sex practices within their networks.

Discussion: To our knowledge, this is the first qualitative investigation exploring SDU among MSM in China. The findings highlight the role of mental health concerns and internalized stigma in shaping drug use behaviors and safe sex practices, which may hinder effective harm reduction strategies. The results underscore the urgent need for accurate, high-quality information on safer drug use and HIV prevention strategies, such as PrEP, for individuals engaging in SDU. Furthermore, the presence of existing community-driven harm reduction strategies suggests that future interventions should leverage these interpersonal networks to develop culturally appropriate and effective harm reduction approaches.

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Religiosity as a Coping Mechanism and its Association with Perceived Stress Among People Living with HIV in a Community-Led Treatment Hub in Metro Manila, Philippines

Baja E^{1,2}, Regencia Z³

¹*Institute of Clinical Epidemiology, National Institutes of Health, University of the Philippines Manila, Manila, Philippines,*

²*Department of Clinical Epidemiology, College of Medicine, University of the Philippines Manila, Manila, Philippines,*

³*Department of Sociology and Behavioral Sciences, College of Liberal Arts, De La Salle University, Manila, Philippines*

Background: Research on the relationship between religiosity and perceived stress in people living with HIV (PLHIV) shows complex mixed results. Positive religious coping strategies are associated with lower stress and better psychological well-being, such as seeking spiritual support and finding meaning through faith. In contrast, negative religious coping, which includes feelings of spiritual discontent or viewing illness as divine punishment, is linked to higher perceived stress and increased depressive symptoms. Limited epidemiological studies have explored the role of religiosity as a coping mechanism for perceived stress among Filipino PLHIV. This cross-sectional study examines the correlation between religiosity and perceived stress levels (PSLs) at a community-led treatment hub in Metro Manila, Philippines.

Methods: PLHIV who began treatment in 2019 at a community-led treatment hub in Metro Manila, Philippines, were identified through clinic records and invited via email to complete an online self-administered survey. A total of 220 PLHIV responded to the questionnaire, which collected information on sociodemographic and clinical factors. Additionally, the PSLs and the role of religiosity as a coping strategy for stress were assessed using two validated questionnaires: the Perceived Stress Scale (PSS) and the Filipino Coping Strategies Scale, respectively. The associations between each evaluated covariate and perceived stress levels were analyzed using bivariable and

multivariable generalized linear models (GLMs) with a Poisson distribution, log link function, and robust variance. The analysis was adjusted for a priori confounding factors and utilized a standard method for common outcomes. Furthermore, effect size estimates were reported as crude (cPR) and adjusted (aPR) prevalence ratios, including 95% confidence intervals (95% CI), to evaluate the association between religiosity and high perceived stress levels.

Results: Among the eligible participants, 220 males answered the online survey. They had a mean age of 29.2 years ($\pm$ 5.4 standard deviation), with 23% belonging to the young adults < 25 age bracket, 55.9% being non-smokers and non-vapers, and 13.6% having high PSL. A higher religiosity score is associated with a reduced risk of high PSLs [2nd quartile (aPR: 0.33, 95% CI: 0.14 to 0.76); 3rd quartile (aPR: 0.09, 95% CI: 0.03 to 0.28); 4th quartile (aPR: 0.09, 95% CI: 0.04 to 0.22) than the lowest quartile religiosity score (1st quartile).

Conclusions: Given the profound religious and spiritual landscape of the Philippines, marked by the significant presence of Catholicism, Christianity, and Islam in daily life, our research suggests that religiosity may act as an effective coping mechanism for Filipino PLHIV, possibly reducing their vulnerability to heightened levels of perceived stress. However, it is essential to conduct further studies on the negative impact of religious stigma, feelings of guilt, and societal judgment on the perceived stress that Filipino PLHIV may experience. Additionally, exploring the bidirectional relationship between perceived stress and religiosity warrants attention to deepen our understanding of this complex interaction among Filipino PLHIV.

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Behaviors Associated with Depressive Symptoms Among High Risk Population

Leonor E¹, Macalalag A¹, Tinguban K^{1,2}

¹Team Dugong Bughaw, Iloilo, Philippines, ²Department of Health, Iloilo, philippines

Introduction: Vulnerable populations who are at risk of contracting HIV may also be more susceptible to mental illness. The study was conducted to assess the behaviors associated with depressive symptoms of high-risk population of Iloilo Philippines.

Methods: PHQ 9- Depressive Symptom scale was used to assess the severity of depression symptoms over the last 2 weeks of the high-risk participants. Scoring included: scores of 5-9 (mild); 10-14 (moderate); 15-19 (moderately severe); and 20-27 (severe). A total of 122 participants composed of 86 (71%) female sex workers, 15 (12%) LGBT, 7 (6%) male sex workers, and 14 (12%) pregnant women underwent HIV testing regularly and test compliance (for pregnant) Majority of the participants were single, residents of the city, at high school level and belonged to low-income families. Almost half of the participants visited the health clinic for HIV/STI testing weekly (52%). There was one substance user participant; 4 (3%) PrEP users and 13 (11%) participants with sexually transmitted diseases. To assess the participants' behaviors associated with depressive symptoms they experienced, Chi square was executed at .05 alpha level of significance. The data were processed through the use of Statistical Package for Social Sciences (SPSS) software, version 27.

Results: Generally, half (51%) of the high-risk participants had mild depressive symptoms over the last 2 weeks. For their sexual orientation, male (43%) and female (56%) sex workers and pregnant women (57%) showed mild depressive symptoms while moderate for LGBT (53%) group. More than half of high-risk participants (64%) who had unprotected sex or condomless for the past 6 months had mild depressive symptoms and 34% of them took safe sex through condom use. Half of participants with one male sex partner (50%) had moderate while those who had sex with more than

one male (55%) had mild depressive symptoms. Two-thirds of PrEP users (75%) had moderate depressive symptoms while mild for those non-PrEP users (53%). Participants recently diagnosed with sexually transmitted infection (54%) had moderate depressive symptoms while mild (57%) for those who had not. Alcoholic (59%) and non-alcoholic (51%) participants had mild depressive symptoms. Those participants who submitted themselves for HIV testing at any frequency displayed mild depressive symptoms. There were significant associations between number and gender of sexual partner ($p=.003$), and participants with STI ($p<.001$).

Conclusions: PHQ 9- Depressive Symptom scale is used to screen, diagnose, monitor and measure depression experienced by high-risk population. LGBT group, sex workers with one male sex partner, PrEP user, and participants with STI would be considered for counselling and / or pharmacotherapy for their moderate depressive symptoms. There are random few participants from different categories that need immediate initiation of pharmacotherapy and psychotherapy considering mental health or collaborative care referral.

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Profiles, Practices, and Perceived HIV Risk Among Female Sex Workers: A Cross Sectional Study

Leonor E¹, Macalalag A¹, Tinguban K^{1,2}

¹Team Dugong Bughaw, Iloilo, Philippines, ²Department of Health, Iloilo, philippines

Introduction: In the past decade, the Philippines has gained notoriety as the country with the fastest-growing human immunodeficiency virus (HIV) epidemic in the Western Pacific region. Female sex workers in the Asia and Pacific region are 29 times more likely to be living with HIV than other adult women of reproductive age. The HIV prevalence rate among sex workers in the Philippines is currently 0.6%. Thus, the study aimed to assess the association between practices and perceived HIV risk among female sex workers.

Methods: An adopted 8-item Perceived Risk of HIV Scale (PRHS) with cronbach alpha of .78 was administered to 85 female sex workers underwent HIV testing in one of the health clinics in Iloilo City, offering HIV testing for high-risk key population residents under the supervision of Department of Health, Iloilo City in the month of February, 2025. They had ages between 16 -49 years old with a mean age of 29.7 years old. Majority of the participants were employed (90%) at clubs and bars and residents of Iloilo City (81%). More than half of them were single (54%), at high school level or graduate (64%) with estimated family income of Php 5,000-10,000 (63%). They were regular clients for HIV testing of the health clinic. More than half of them visited the clinic weekly (62%) for HIV/ STI testing to obtain clearance for fit to work. Majority of the sex workers had more than one male sex partner (84.5%) and had unprotected sex or condomless sex (74%) for the past 6 months and alcoholic drinkers (63%). Few of them had recently diagnosed with sexually transmitted disease (7%). They were not HIV medicines (PrEP, PEP, etc) users.

Results: Generally, using Perceived Risk of HIV scale (PRHS), majority of the respondents had very likely gut feeling about how likely they were to get infected with HIV (62%); They agreed that they

were sure for not getting infected with HIV (82%); They agreed a feeling of vulnerability to HIV infection (86%) and they agreed, there is a chance, no matter how small, they could get HIV (87%); They think their chances of getting infected with HIV are moderate (85%); Getting HIV is something they have some of time thought about (89%); They worry about getting infected with HIV some of the time (50%); and Picturing self-getting HIV is something they find easy to do (54%). Chi square test for association between sex partners and 8 items perceived HIV risks of female sex workers indicated that there were significant associations with their p values =<.001, which are less than .05 alpha.

Conclusions: An association is found between the greater degree to be infected and the perceived HIV risk among female sex workers. The perceived risk is directly proportional to the risky practices to acquire HIV infection.

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Perspectives on Analytical Treatment Interruptions and Prospects of an HIV Cure Healthcare Providers in Singapore

Choy C^{1,2}, Hao Y³, Toh M³, Archuleta S⁴, Teh Y⁵, Sng E⁶, Kumar P², Lee P^{1,2}, Wong C^{1,2,7}, Tan Z², Ferdous Z², Le T⁴, Chia T⁴, Hamid L⁵, Lee S⁵, Lee A⁶

¹Tan Tock Seng Hospital, Singapore, Singapore, ²National Centre For Infectious Diseases, Department of Infectious Diseases, Singapore, Singapore, ³National Centre for Infectious Diseases, National Public Health and Epidemiology Unit, Singapore, Singapore, ⁴National University Hospital, Singapore, Singapore, ⁵Singapore General Hospital, Singapore, Singapore, ⁶Changi General Hospital, Singapore, Singapore, ⁷National University of Singapore, Yong Loo Lin School of Medicine, Singapore, Singapore

Background: Singapore has not yet conducted any HIV cure trials, and studies involving analytical treatment interruption (ATI) may face skepticism within the healthcare community. This study aims to understand healthcare providers' (HCP) perspectives on their clients' participation in functional cure research involving ATI.

Methods: HCP employed at the 4 HIV care facilities in Singapore were recruited through surveys via email. The survey collected demographic data and assessed participants' views on ATI and HIV cure, including ATI acceptability and their tolerance for client's CD4 decline and viral load detection during ATI. Descriptive analysis, univariate analysis, and multivariable logistic models were performed to identify barriers and motivational factors influencing participation in cure studies.

Results: Of the 100 participants, 80% expressed support for an HIV cure trial, and 80% indicated they would recommend a functional HIV cure trial to their clients. The majority of participants were nurses (37%) and clinicians (32%). Notably, 58% were unfamiliar with the concept of ATI. No significant differences in age, gender, sexuality, profession, or duration of practice were found between those likely to support a cure trial and those who were not. Factors associated with greater support for recommending participation in a cure trial included higher tolerance for HIV viral load increases ($p=0.044$), stronger interest in cure

research ($p=0.009$), and greater acceptability of a functional HIV cure ($p=0.014$). HCPs expressed concerns about the risks of opportunistic infections (88%), ART resistance (86%), and potential negative impacts on clients' overall health (86%) during an ATI study.

Conclusions: The majority of HCPs are willing to support their clients' participation in cure studies. Those with higher tolerance for viral load increases, greater interest in cure research, and acceptability of a functional cure are more likely to endorse an HIV cure study involving ATI. Ongoing engagement and education of HCPs involved in the care of people living with HIV are crucial to building confidence and strengthening support for ATI studies.

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Prevalence of Hepatitis C Virus Infections Among HIV Pre-exposure Prophylaxis (PrEP) Using at Anonymous Clinic, Thai Red Cross AIDS and Infectious Diseases Centre

Srila-or I¹, Barisri S¹, Wongkanya R¹, Pattanachaiwit S¹, Phanjaroen K¹, Raprasert P¹, Eiamyoung W¹, Leabchan T¹, Tantawichien T¹, Putcharoen O^{1,2,3}

¹Thai Red Cross Aids And Infectious Diseases Centre, Bangkok, Thailand, ²Thai Red Cross Emerging Infectious Diseases Clinical Center, King Chulalongkorn Memorial Hospital, Bangkok, Thailand, ³Division of Infectious Diseases, Department of Medicine, Faculty of Medicine, Chulalongkorn University, , Thailand

Background: Hepatitis C is Sexually Transmitted disease that cause of liver cancer which still show up burden world wild especially among high risk group. HIV Pre-exposure prophylaxis (PrEP) is highly potential for prevention of HIV transmission among These group, however PrEP is lack of protection hepatitis C infection, We explore HCV prevalence among PrEP users at Anonymous Clinic, Thai Red Cross AIDS and Infectious Diseases Centre Bangkok, Thailand

Methods: The Clients who visited at Anonymous Clinic, Thai Red Cross AIDS and Infectious Diseases Centre for PrEP receiving between January 2020 to December 2024. Among these, the participants registered for HIV Ag/Ab and HCV screening before PrEP service. All PrEP users were enrolled and classified by 6 groups as heterosexual men (MH), heterosexual women (HW), Men who have Sex with Men (MSM), people who use intravenous drugs use (PWID), people who use drugs use (PWUD) and transgender women (TGW). Anti-HIV Ag/Ab combo assay and HCV testing were performed by Chemiluminescent Microparticle Immunoassays for screening.

Results: During the 5-year periods study, A total of 32,053 clients who received PrEP, median age was 33 years (IQR: 28-39 years). The number shown 16.60% (5,309/32,053) had results anti-HCV screening results. Prevalence of HCV infection among PrEP Users were 1.60% (85/5309). There

were classified MSM 1.33% , MH were 0.17%, HW was 0.04%. Meanwhile PWID PWUD and TGW, prevalence was found 0.02%.HCV infection prevalence was higher in HIV-negative MSM.

Conclusions: Hepatis C infection among PrEP receivers still appears particularly MSM, therefore HCV screening need to establish especially among high risk group. Moreover, HIV and others STIs should be offered to high risk group or key populations for initiate PrEP program.

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Short-Term Mobility and High-Risk Behaviors Among Men Who Have Sex with Men in Guangdong, China

Li J¹, Jiang X¹, Liu J², Xie S², Zhang B¹, Fu T¹, Li Z¹, Lu Y³, Lu J³, Yang F², Fu X², Li J^{1,4,5}

¹School of Public Health, Sun Yat-sen University, Guangzhou, China, ²Guangdong Provincial Center for Disease Control and Prevention, Guangzhou, China, ³Lingnan Partners Community Support Center, Guangzhou, China, ⁴Sun Yat-sen Global Health Institute, Sun Yat-sen University, Guangzhou, China, ⁵Guangzhou Joint Research Center for Disease Surveillance, Early Warning, and Risk Assessment, Guangzhou, China

Objective: This study examined the regional differences in short-term mobility patterns among men who have sex with men (MSM) in Guangdong Province, and explored their associations with high-risk behaviors.

Methods: An online survey was conducted from June to August 2023, collecting socio-demographic information, details on intra-provincial mobility and sexual behaviors. Participants were classified into Pearl River Delta (PRD) and Non-Pearl River Delta (Non-PRD). Chi-square tests and t-tests were utilized to analyze the differences in socio-demographic characteristics between mobile and non-mobile MSM. Logistic regression was used to explore the association between mobility and high-risk behaviors.

Results: Out of 1,808 surveyed MSM, 60% had moved within the province in the past six months, primarily for tourism, business/work, and visiting relatives and friends. Significant differences in age, education level, and income were observed between mobile and non-mobile MSM in both areas ($p < 0.05$). The adjusted odds ratios (aORs) for mobile MSM engaging in multiple partners, commercial sex, group sex, and sexualized drug use, relative to non-mobile MSM, ranged from 1.44 - 2.90 in PRD and from 2.67 - 9.92 in Non-PRD. The associations between having casual partner and mobility, as well as between inconsistent condom use and mobility, were exclusively identified in Non-PRD.

Conclusion: MSM mobility in Guangdong Province is substantial, with similar patterns in both regions.

Mobile MSM exhibit higher rates of high-risk behaviors, with notable regional disparities. Addressing the impact of short-term mobility on high-risk behaviors among MSM is crucial, considering regional variations.

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Examining the Effects of PrEP Use on Sexual Behaviors and Sexually Transmitted Infections Among Chinese Men Who Have Sex with Men: A Cross-Sectional Study

Zhang L¹

¹Melbourne Sexual Health Centre, Alfred Health, Australia, Carlton, Australia

Men who have sex with men (MSM) is a high-risk population for HIV and sexually transmitted infections (STIs). Pre-exposure prophylaxis (PrEP) is effective in HIV prevention. This study aims to examine the differences in sexual behaviors, STI prevalence and HIV/STI testing across subgroups of MSM with various PrEP use. Data were collected via a cross-sectional survey in an MSM community in Xi'an, Shaanxi, from 2022.01 to 2022.09.

Participants were categorized as 'PrEP-naïve and unwilling to use', 'PrEP-naïve but willing to use', and 'current or former PrEP users'. Shannon index was used to assess sexual act diversity and multivariate logistic regression analyzed factors associated with PrEP use. Of the 1,131 MSM participants, 23.52% were PrEP-naïve and unwilling, 64.98% were PrEP-naïve but willing, and 11.49% were current or former PrEP users. The PrEP-naïve but willing group had the highest recent STI testing rates at 73.06% and showed greater sexual act diversity (Shannon index 1.61).

This group also had the highest syphilis rates (7.49% vs. 6.47% and 2.54%, $p < 0.01$). Younger age (18-30: OR = 0.39 (0.18-0.85); 31-40: OR = 0.43 (0.20-0.96)) and lower education (high school/vocational: OR = 0.15 (0.04-0.58); associate degree: OR = 0.21 (0.06-0.71)) were factors that negatively influenced PrEP use. Current or former PrEP users had the highest oropharyngeal gonorrhea (14.39% vs. 9.68% and 5.80%, $p < 0.01$) and overall gonorrhea rates (20.86% vs. 17.17% and 8.37%, $p < 0.001$). 'PrEP-naïve but willing' participants consistently demonstrated high-risk sexual behavior, increased STI testing, and more diverse sexual acts, whereas PrEP users had the highest STI prevalence.

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Defining a Person-Centered Harm Reduction for Chemsex Among HIV Key Populations

Luo D¹, Witzel T², Strong C³, Ku S⁴, Bourne A⁵, Smith M⁶, Tan R⁷

¹Emory University, Atlanta, United States, ²University College London, , ³National Cheng Kung University, , ⁴Taipei City Hospital Renai, , ⁵La Trobe University, , ⁶University of Minnesota Twin Cities, , ⁷The National University of Singapore,

Introduction: Chemsex, the use of drugs before or during sex among men who have sex with men (MSM), is a growing public health concern, particularly in relation to HIV risk. While harm reduction has been recognized as an effective strategy, most interventions have been implemented in global North contexts, with limited attention to diverse social, cultural, and policy environments. This study examines chemsex through a person-centered harm reduction framework, exploring the individual, event, community, and policy-level factors shaping chemsex experiences.

Methods: A comprehensive review of existing literature on chemsex and harm reduction interventions among MSM was conducted. This review aims to examine the experiences of chemsex users across four levels: personal and chemsex-related journeys, needs at the level of chemsex events, community-level needs and values, and policy-level considerations. Through this framework, we seek to answer the question: what constitutes a person-centered harm reduction strategy for chemsex users?

Discussion: Findings suggest that motivations for chemsex are complex, involving psychological, social, and structural factors. At the personal level, chemsex use is influenced by internalized stigma, identity struggles, and coping mechanisms. At the event level, harm reduction strategies vary across settings, with interventions addressing pre-chemsex preparation, in-session risk management, and post-chemsex care. At the community level, chemsex behaviors are shaped by cultural norms, peer influence, and existing harm reduction networks. Finally, at the policy level, challenges such as punitive drug laws, healthcare barriers,

and surveillance issues hinder effective harm reduction efforts.

Conclusion: Current interventions often fail to integrate holistic approaches that address personal and social dynamics. Effective harm reduction requires multi-level interventions, incorporating trauma-informed care, mental health support, peer-led community initiatives, and policy advocacy. The review emphasizes the need to shift from a pathology-based perspective to a harm reduction model that recognizes pleasure, agency, and community resilience in chemsex practices. Person-centered harm reduction must acknowledge the diverse experiences of chemsex users while advocating for policies that prioritize health and human rights. Future research should incorporate behavioral theories and develop culturally tailored interventions, particularly in non-Western contexts. Research and intervention design can be greatly enhanced by connecting more intentionally with health behavior theories. Addressing measurement gaps and fostering collaboration between researchers, policymakers, and community organizations will be critical for advancing harm reduction strategies.

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Substance Use and Its Association with HIV Testing Among MSM in Three High-Prevalence Cities in China: A Quantitative Analysis

Luo D^{1,2}, Sun S³, Yang C⁴, Operario D¹

¹Emory University, Atlanta, United States, ²Zhitong Guangzhou LGBT Center, Guangzhou, China, ³Brown University School of Public Health, , ⁴Rutgers School of Public Health, ,

Introduction: Men who have sex with men (MSM) in China face a disproportionately high risk of HIV infection, with substance use identified as a significant factor influencing HIV-related behaviors. While previous studies have explored the association between substance use and HIV transmission, limited research has examined its relationship with HIV testing behaviors. This study aims to assess the prevalence of substance use among MSM in three high-prevalence cities in China and its association with HIV testing behavior.

Methods: A cross-sectional survey was conducted among 1,800 MSM recruited from Chengdu, Suzhou, and Wuhan between December 2021 and May 2022. Participants were recruited through online and offline outreach efforts, including community-based organizations and targeted social media campaigns. Data were collected on sociodemographic characteristics, HIV testing history, and substance use behaviors. Substance use was assessed based on self-reported use of five types of substances (alcohol, poppers, capsules for receptive anal sex, amphetamines, and other illicit drugs). Logistic regression models were used to estimate odds ratios (ORs) for the association between substance use and recent HIV testing, adjusting for age, income, education, and registered residence (Hukou).

Results: Among participants, the average age was 31.12 years (SD = 9.27), and 47.67% held a bachelor's degree or higher. Alcohol was the most commonly used substance (68.44%), followed by poppers (43.33%). Use of amphetamines and other illicit drugs was reported by fewer than 2% of participants. Logistic regression analysis showed that MSM who reported any drug use (excluding

alcohol) had 1.34 times the odds of having tested for HIV in the past six months (95% CI: 1.081–1.683, $p < 0.01$). Poppers use was also significantly associated with HIV testing (adjusted OR = 1.308, 95% CI: 1.048–1.634, $p < 0.01$).

Discussion: Our study provides granular data on the substance use patterns of 1800 MSM, revealing a positive correlation between drug use, rush poppers usage, and HIV testing behavior. Poppers remain the most widely used drug among Chinese MSM, a finding consistent with previous research spanning the past decade. Our data analysis revealed a positive association between drug use, specifically rush popper usage, and HIV testing behavior. This suggests that long-standing HIV testing prevention messaging has effectively penetrated diverse subpopulations and settings within MSM community, with individuals perceived as high-risk, such as those who use drugs or poppers before or during sex, undergoing HIV testing more frequently. This aligns with emerging research indicating that SDU users have established strategies to navigate SDU experiences and mitigate risks. These existing practices represent potential resources that could be leveraged to enhance harm reduction efforts and promote health among this population. Future research should explore behavioral motivations for testing and assess the impact of targeted interventions on testing behaviors in diverse MSM populations.

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HPV Persistence and Its Influencing Factors Among the General Female Population Worldwide: A Systematic Review and Meta-Analysis

Li J¹

¹West China School of Public Health and West China Fourth Hospital, Sichuan University, Chengdu, 中国

Background: Cervical cancer, a preventable malignancy, is strongly associated with persistent high-risk HPV (HR-HPV) infection. While most HPV infections are transient, persistent HR-HPV infection significantly increases cervical cancer risk. Numerous cofactors influence HPV persistence, but findings remain inconsistent, limiting understanding among the general population. This study aims to systematically examine the determinants of cervical HPV persistence in the general female population.

Methods: A systematic search of four English databases (Web of Science, PubMed, Embase, and Cochrane Library) and four Chinese databases (CNKI, Wanfang, VIP, and CBM) identified studies between January 2014 and March 2024 on HPV persistence and influencing factors. Eligible studies defined persistence as positive result in two consecutive separate cervical samples, detected ≥ 6 months apart. Data synthesis involved meta-analysis of the overall HPV persistence, odds ratios (ORs) for dichotomous variables and weighted mean differences (WMDs) for continuous variables. Heterogeneity was assessed using Cochran's Q test and I^2 statistic, with sensitivity and subgroup analyses conducted. Study quality was evaluated using AHRQ criteria, and analyses were performed in Stata/SE 15.0.

Results: A total of 31 studies involving 22,134 women with baseline HPV infection were included. The overall HPV persistence rate was 39% (95% CI, 32%-47%). Subgroup analysis revealed regional differences, with Asia showing the highest persistence (42%). Significant associations with HPV persistence were found for age (WMD = 1.39, 95% CI, 0.28-2.50), menopausal status (OR = 1.80, 95% CI, 1.24-2.61), and education level (OR = 1.31,

95% CI, 1.09-1.62). Specifically, older age and postmenopausal status were linked to higher persistence rates. However, no significant associations were found between HPV persistence and factors such as age at menarche, age at sexual debut, number of pregnancies or deliveries, number of sexual partners, smoking, alcohol consumption, oral contraceptive use, or condom use. Quality assessment indicated that all included studies were of high quality, with no publication bias detected.

Conclusion: HPV persistence is notably high among general female population worldwide, particularly in Asia. Women aged 50 and older, especially postmenopausal women, are at increased risk. Higher levels of education exhibit a protective effect against HPV persistence, highlighting the importance of targeted health education for HPV prevention and cervical cancer control.

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Changes in Reported HIV and AIDS Cases in 31 Provinces in China at the Beginning of COVID-19

Wu X¹, Wang Z¹, Li B¹, Zhang W², Chen Y², Wu G¹, Yang J¹, Zou H^{1,3,4}

¹Fudan University, Shanghai, China, ²Sun Yat-sen University, Shenzhen, China, ³Southwest Medical University, Luzhou, China, ⁴University of New South Wales, Sydney, Australia

Background: China implemented extensive non-pharmaceutical interventions (NPIs) to contain COVID-19. We aimed to evaluate the impact of COVID-19 pandemic on reported HIV and AIDS cases at provincial levels across China. Interruptions observed during the initial stages of the pandemic—particularly in the first month and year—needs thorough review to ensure that similar disruptions are avoided in the future.

Material and Methods: National and provincial data on monthly reported HIV and AIDS cases from January 2017 to December 2020 were collected from the official website of the China Health and Wellness Commission. We employed interrupted time series analysis to assess whether COVID-19 related NPIs had an impact on reported HIV and AIDS cases in 31 provinces in China. We estimated the number of underreported numbers of HIV and AIDS cases in the first month of the COVID-19 pandemic according to the predicted values of the counterfactual model.

Results: A total of 393357 HIV cases and 254735 AIDS cases were recorded in China from January 2017 to December 2020. Nationally, the number of reported HIV cases decreased by 25.1% in the first month of the NPIs period (January 2020) (incidence rate ratio [IRR] 0.749; 95% confidence interval [CI] 0.664-0.845), while the number of reported AIDS cases decreased by 36.5% (0.635, 0.543-0.741). An estimated 2208 HIV cases (95% CI 1209-3335) and 1525 (927-2233) AIDS cases were underreported in the first month of the NPIs in China. The highest numbers of underreported HIV cases in the first month of NPIs were estimated in Sichuan (577, 239-978), Guangdong (185, 170-200), and Henan (170, 77-286).

Conclusions: There was substantial underdiagnosis and underreporting of HIV and AIDS cases during the first month of COVID-19 in China and certain provinces. Health authorities should clearly recognize this, learn from past experiences, and be prepared to address potential future challenges.

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Modelling the Impact of PrEP Scale up Among MSM in the Philippines

Pimentel J¹, Manatad G, Palaypayon N

¹Department of Health, Manila, Philippines

HIV is still a significant public health concern in the Philippines. The average number of newly diagnosed HIV cases per day has tripled over the past 10 years – from 16 cases in 2014 to 48 cases in 2024. There were an estimated 215,400 PLHIV by the end of 2024, 77% of which are males having sex with males (MSM).

The Philippines uses the AIDS Epidemic Model (AEM) which simulates the transmission of HIV among key populations to estimate the number of new and current infections and deaths among adults 15 years old and above. The Philippine AEM is a combination of 7 subnational models (National Capital Region [NCR], Category A [high burden municipalities/cities], Category B [middle burden], Category C [low burden], Cebu Province, Cebu City, Angeles City) that reflect the diversity of HIV epidemic in the country. In 2021, the Department of Health released the Interim Guidelines on pre-exposure prophylaxis (PrEP) to be included in the package of HIV prevention services in the Philippines. As of 2023, PrEP coverage in the subnational models range from 0 (Category C) to 1.6% (NCR). UNAIDS published a set of programmatic targets for 2025, including 50% PrEP coverage for very high risk MSM populations (estimated to have incidence of >3%) and 15% PrEP coverage for high risk MSM populations (estimated to have incidence of 0.3-3%). NCR, Category A, Angeles City, and Cebu City were classified to have very high risk MSM populations, while the remaining subnational models were identified to have high risk MSM populations. We modeled the potential impact of 2 PrEP scale up scenarios among MSM: achieving the UNAIDS PrEP targets by 2025 versus 2028.

Cumulatively, if the UNAIDS PrEP targets were achieved by 2025, 64,300 infections can be averted among MSM by 2030. However, if the UNAIDS PrEP targets were achieved by 2028, 37,900 infections can be averted.

AEM projections showed that PrEP could reduce 15-25% of new infections by 2030, depending on when the PrEP targets would be achieved. This emphasizes the importance of accelerating the scale up of PrEP and other HIV interventions to end AIDS by 2030.

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High HIV and STI Prevalence and the Concerning HIV Prevention Status Among Young Key Population of Men Who Have Sex with Men in Indonesia, Data from a Cross-Sectional Study in Bali, Indonesia, 2023-2025

Wardhani B¹, Couteau J², Aditya R², Khumaini A², Dewi M², Adinata H², Wirawan G^{1,3}, Prasetya M², Januraga P¹

¹Center for Public Health Innovation (CPHI) Udayana University, Denpasar,, Indonesia, ²Bali Medika Clinic, Badung,, Indonesia, ³Kirby Institute, UNSW, Sydney,, Australia

Introduction: Indonesia's HIV epidemic remains disproportionately affecting key populations. Although HIV and STI prevalence is high among men who have sex with men (MSM), there is limited data among young MSM.

Methods: We conducted a cross-sectional study using a behavioral survey and lab test data among young MSM aged 18-24 years attended a sexual health clinic in Bali, Indonesia for HIV-STI testing in 2023-2025, with the informed consent of all participants. This study aimed to determine HIV and STI prevalence and the prevention status among the participants. We conducted descriptive analysis using Stata-18.0.

Results: The study included 122 participants, mostly aged 21-24 (67.2%), with an average age of 21.4 years (SD 1.9). Of these, 94 (77.0%) identified as MSM/gay, 76 (62.3%) had completed secondary education, 42 (34.4%) were currently students, and 32 (26.2%) reported no income. About 51 participants (41.8%) test motivation was to know their HIV status. As per the lab test result, 16 (13.1%) were tested HIV positive, and 23.8% (n=29) were syphilis positive. Interestingly, though more than 110 (>91%) acknowledged their risks and susceptibility to HIV transmission, only 32 (26.2%) were aware of the 'undetectable equals untransmittable' (U=U) concept. Among the participants, 77 (63.1%) had heard of PrEP, among them, 12 (15.6%) had used it, and only 6 (7.8%)

were currently on it, although about 70 (90.9%) believed its effectiveness. Among 40 respondents who were willing to answer, 11 (27.5%) had their first anal sex before age 18, and 12.5% (n=5) reported sexual abuse. Among all participants, in the last six months, 83.6% (n=102) had either anal and/or vaginal intercourse, and 14.8% (n=18) were involved in sex-work, with 22.2% among them (n=4) relying on it for income. Notably, 43.1% (n=44) ever engaged in any condomless intercourse (CLI). Furthermore, among sexually active participants, we find an alarming 40.2% (n=41) who were not using any HIV prevention methods, from either condom or PrEP. Mental health findings showed 9.0% (n=11) experienced moderate-to-severe-depression (PHQ9), and 19.7% (n=24) faced moderate-to-severe-anxiety (GAD7). More concerning, 51.6% (n=63) had higher self-perceived stigma, and 54.9% (n=67) encountered higher internalized homophobia. Unsurprisingly we found that regarding social engagement, 16.4% did not have MSM/transwomen friends, and 27.0% never spent time with them, while 42.6% disclosed their sexual orientation or gender to no one, and 84.4% had not informed their parents/family. Additionally, only 9.0% indicated their parents/family were aware of their HIV test today.

Conclusions: The high prevalence of HIV and syphilis, along with the concerning percentage of used HIV prevention methods found in this study, underscores the urgent need for enhanced sexual health education and prevention strategies. This is especially crucial given the limited use of PrEP among the participants. The data also indicate mental health challenges. Additionally, the high levels of self-perceived stigma and internalized homophobia call for targeted interventions to improve social support and acceptance for this young key population. These findings highlight the importance of comprehensive healthcare approaches that address not only the biomedical but also the psychological and social needs of this vulnerable group.

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Frailty and Quality of Life in HIV/AIDS Patients Undergoing Maintenance Hemodialysis: A Cross-Sectional Study

He G², Liu J

¹The Third People's Hospital Of Kunming, Kunming, China, ²Dali University, Dali, China

Objective: To investigate the status of frailty and quality of life in HIV/AIDS patients undergoing maintenance hemodialysis (MHD), compare them with non-HIV hemodialysis patients and non-dialysis HIV-infected individuals, and analyze the associated influencing factors.

Methods: A cross-sectional study was conducted from August to December 2024 at the Third People's Hospital of Kunming. Participants were divided into three groups: the HIV hemodialysis group (HIV-HD group, n=51), the non-HIV hemodialysis group (HD group, n=50), and the HIV-infected non-dialysis group (HIV group, n=102). Data were collected through structured questionnaires administered to maintenance hemodialysis (MHD) patients and HIV-infected individuals receiving treatment during the study period. Assess patients' frailty and quality of life status using the Tilburg Frailty Indicator (TFI) and the Short Form 36 Health Survey (SF-36), and analyze related influencing factors.

Results: A total of 203 patients were included in the study. The incidence of frailty in the HIV-HD group, HD group, and HIV group was 92.2%, 78.0%, and 46.1% respectively. The HIV-HD group demonstrated significantly higher frailty incidence compared to both the HD group and HIV group ($P < 0.05$). The SF-36 scores were 48.70 ± 16.40 , 46.92 ± 17.09 , and 72.92 ± 18.20 for the HIV-HD group, HD group, and HIV group respectively, with the HIV group showing significantly higher SF-36 scores than both the HIV-HD and HD groups (all $p < 0.05$). The univariate analysis results showed that in the HIV hemodialysis group, phosphorus and serum iron were influencing factors for frailty, while body mass index (BMI), smoking, phosphorus, serum iron, urea, ALT, total cholesterol, triglycerides, and CD4 levels were factors affecting quality of life (all $p < 0.05$).

Conclusion: Both HIV/AIDS patients undergoing hemodialysis and general hemodialysis patients exhibit a high incidence of frailty and poor quality of life scores. However, maintenance hemodialysis patients with HIV/AIDS demonstrate a higher incidence of frailty compared to their non-HIV counterparts, highlighting the necessity for targeted intervention strategies to improve patients' quality of life.

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Patterns of Multimorbidity of Chronic Health Conditions, Mental Health and Co-Infections and Its Associations with Health-Related Behaviors Among LGBT Individuals in Southwest China

Liu Y¹, Zhao P, Wu D

¹Nanjing Medical University, Nanjing, China

Background: Lesbian, gay, bisexual, and transgender (LGBT) population experience significant disparities in multimorbidity of mental health conditions, chronic health conditions and co-infections. Understanding multimorbidity patterns is crucial for targeted interventions and related health service provisions. This study, based on the TREASURE cohort, explores multimorbidity prevalence and its associations with health-related behaviors among LGBT individuals in China.

Material and Methods: This cross-sectional study utilized baseline data from the TREASURE study (November 2023–December 2024) in Southwest China. Participants were ≥16 years and self-identified as LGBT. Mental health conditions were assessed using PHQ-9 (depressive symptoms), SBQ-R (self-injury/suicidal behaviors), and PCL-5 (PTSD symptoms). Self-reported physician-diagnosed chronic conditions included cardiovascular diseases (CVD), cancers, type 2 diabetes (T2D), immune disorders, sleep disorders, and neurological disorders. Co-infections included HIV/AIDS and other STIs. Behavioral factors included smoking, alcohol consumption, and substance use. Multimorbidity was defined as the coexistence of ≥2 conditions. Multivariate logistic regression assessed associations between multimorbidity and health-related behaviors adjusting for demographic characteristics, sexual orientations and social economic status.

Results: The study included 8,039 participants with a mean age of 28.1 years (SD = 8.0), of whom 81.8% were male. Among male participants, the majority (84.3%) identified as gay, while 12.1% identified as bisexual. Similarly, among female

participants, 88.1% identified as lesbian and 8.5% as bisexual. Multimorbidity was prevalent, affecting 70.0% of the study population. The most common multimorbidity patterns involved multiple mental health conditions, including depression combined with PTSD (18.1%), depression with PTSD and suicide risk (16.6%), and depression with suicide risk (10.6%). Additionally, the co-existence of sleep disorders and mental health conditions (13.1%), cardiometabolic diseases and mental health conditions (6.0%), HIV/AIDS and mental health conditions (5.2%), and co-infections with mental health conditions (4.2%) were frequently observed. Smoking (OR = 1.33, 95% CI 1.29-1.37, $p < 0.001$), alcohol consumption (OR = 1.42, 95% CI 1.36-1.48, $p < 0.001$), and substance use including drugs, sexual enhancers, stimulants and hallucinogens (OR = 6.95, 95% CI 5.85-8.26, $p < 0.001$) significantly increased the risk of multimorbidity.

Conclusions: This study revealed a high prevalence of multimorbidity among LGBT individuals in Southwest China, particularly co-occurring mental health conditions, and its significant association with health-related behaviors. These results emphasize the critical need for integrated and tailored healthcare interventions to address the complex multimorbidity patterns and associated behavioral risks faced by the LGBT population in China. While limited by the cross-sectional nature of this study, future analyses of the TREASURE cohort will provide longitudinal insights into the relationship between multimorbidity and potential behavioral risk factors, enhancing our understanding and informing targeted interventions to mitigate this health disparities.

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Preventing Relapse During Holidays: Strategies for Maintaining Adherence to Medical Treatment—A Case Study of the Chaolu Farm Therapeutic Community in Taiwan

Hsu S, Lin Y, Chang L, Yilu S, Ku J, Chiu C, Lin X

¹Taiwan Lourdes Association, Taipei City, Taiwan

Background: For individuals with HIV and substance use disorders, recovery stability is essential for maintaining U=U status. Practical experience suggests three indicators can be used to assess the stability of recovery: sleep quality, dietary habits, and structured stress management activities. Chaolu Farm Therapeutic Community in Taiwan serves this population through externally controlled environment to implement multi-disciplinary harm reduction and rehabilitation interventions. During extended holiday breaks like Lunar New Year, residents face significant relapse triggers when leaving this structured environment, often resulting in unexpected substance use despite careful prevention plans.

Objective: Following harm reduction principles, the therapeutic community works to prevent chaotic substance use patterns. The community develops personalized harm reduction plans and multi-level support networks before long holidays. The 2025 Lunar New Year implementation of an enhanced protection strategy aimed to break the persistent "holiday relapse cycles" that had previously challenged recovery progress.

Intervention Strategies: The holiday harm reduction strategy is structured into three phases:

1. **Pre-Holiday (Preventive Mechanisms):**
 - Group discussions facilitate risk assessment and strategy development.
 - One-on-one sessions with social workers help individuals create a personalized harm reduction holiday plan.
2. **During the Holiday (Support and Supervision Mechanisms):**

- **Scheduled Check-ins:** Residents must report their daily status to the community.
- **Peer Support Rotation:** A system of mutual support among peers provides accountability.
- **Daily Online Evening Sharing:** Virtual gatherings encourage self-monitoring and reinforce recovery goals.
- **Recovery Empowerment Circles (Online & Offline Support):** Combining digital and in-person resources ensures real-time crisis intervention. Additionally, a "return early" option allows individuals to voluntarily shorten their holiday if needed.

3. **Post-Holiday (Review and Reflection Mechanisms):**

- Group discussions and one-on-one counseling sessions facilitate reflection on holiday experiences.
 - Individuals analyze environmental triggers, personal conditions, and usage patterns to strengthen future prevention strategies.
- By combining comprehensive and embedded harm reduction measures, this strategy aims to enhance participants' ability to navigate high-risk situations, minimize substance use harm, and ensure continued progress in long-term recovery.

Results: The structured, three-phase harm reduction strategy achieved significant success:

- **Reduction in Relapse Rates:** Urine test positivity rates dropped from 80% in previous years to 27% in 2025, a reduction of over 50%.
 - **Enhanced Emotional and Social Support:** 90% of participants reported receiving sufficient emotional support. 75% expressed that immediate access to support resources played a crucial role in navigating holiday challenges.
- These findings confirm that multi-level protection strategies effectively reduce substance use during long holidays and provide empirical evidence for harm reduction and adherence to U=U medical guidelines.

Discussion: Future community efforts will focus on three key areas:

1. **Enhancing Peer Support Mechanisms:** Developing ethical guidelines and boundary-setting training to minimize potential negative influences while improving overall support quality.
2. **Strengthening Crisis Response:** Improving risk identification and emergency protocols for better management of mental health symptoms during holiday periods.
3. **Sustaining Long-Term Recovery:** Exploring how structured external support can gradually transition into effective self-managed recovery beyond the community setting.

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Inclusion through Integration: Understanding the Barriers and Facilitators of HIV Testing Uptake Among Filipino Women

Jeremias H¹

¹Corvinus University Of Budapest, Budapest, Hungary

Background: In recent years, HIV infections among Filipino women have skyrocketed, but their visibility in HIV programs in the Philippines is limited, if not non-existent. This study aimed to understand the SRH knowledge and practices of Filipino women and determine the factors affecting their HIV testing uptake to formulate recommendations for an integrated HIV/STI and SRH program.

Methods: A multivariate binary logistic regression analysis was conducted using the 2022 Philippine National Demographic and Health Survey (NDHS) data. Meanwhile, themes were extracted from semi-structured key informant interviews with government and civil society organizations involved in HIV and SRH programming.

Results: Higher education (aOR = 4.667) and one to two children (aOR = 2.922) are among the strongest predictors of HIV testing uptake. Other determinants include age at first sex, current marital status, household wealth index, region, and domicile. Women with a higher HIV knowledge score (aOR = 1.232) are more likely to get tested. Having more than one sex partner (aOR = 2.159), current contraceptive use (aOR = 1.621), condom use during last sex (aOR = 1.531), able to negotiate condom use (aOR = 1.378), use of HIV self-test kit (aOR = 5.020), and positive perception towards CLHIV (aOR = 1.881) show increased odds of HIV testing uptake. Hosmer-Lemeshow's goodness of fit test shows socio-demographic characteristics ($p=0.145$), HIV knowledge score ($p=0.061$), and SRH practices and experiences ($p=0.797$) all predict the likelihood of a Filipino woman's HIV testing uptake.

Conclusions: Evidence from this study shows that integrating HIV/STI with SRH services may

encourage more women to get tested for HIV, especially women who are currently using contraception. Integration of services must consider socio-demographics and SRH knowledge and behavior, as well as the SRH practices and experiences of Filipino women.

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Overseas-Born Trans and Gender Diverse People's Experiences with Australian Sexual Health Services: A Qualitative Study

Sudarto B¹, Chow E^{1,2,3}, Phillips T^{1,2}, Ong J^{1,2,4}

¹School of Translational Medicine, Monash University, Melbourne, Australia, ²Melbourne Sexual Health Centre, Alfred Health, Melbourne, Australia, ³Melbourne School of Population and Global Health, University of Melbourne, Melbourne, Australia, ⁴London School of Hygiene and Tropical Medicine, London, United Kingdom

Background: Overseas-born trans and gender diverse people is an often-overlooked population in Australia's HIV and other sexually transmitted infection (STI) prevention strategy, treatment, and care. They faced an intersecting unique challenges, including limited gender-affirming resources, fear of multiple forms of discrimination by health professionals, limited income and concern of costs. These could result in delaying access to HIV and other STI test, treatment, and care. This study aimed to investigate their experiences with sexual health services in Australia.

Materials and Methods: An in-depth, semi-structured qualitative interview was conducted between July 2024 and November 2024. We were guided by the social-ecological model and conducted a reflexive thematic analysis to interpret the data.

Results: 11 participants were involved in the study, with the majority (n=8) were in the 30s age group. Participants were born in Southeast Asia, South Asia, South America, and Western Europe. All participants reported mixed experiences with sexual health services. Some participants shared positive experiences, such as being addressed by their pronouns, and practitioners referring to their body using words that they were comfortable with (e.g., 'front hole', 'bonus hole'). Others, however, had negative experiences, such as practitioners making assumptions about their sexual identity and the gender/s of their sexual partners, referring to their body using medical terms, and not providing adequate sexual health information specific to their gender identity. Nearly all

participants recommended a standardised gender-affirming care training for all sexual health professionals to ensure safety and accessibility.

Conclusion: Education about the specific circumstances and health needs of overseas-born trans and gender diverse people is needed to ensure gender-affirming and anti-discriminatory sexual health services in Australia. We recommend a strong commitment from the relevant regulatory bodies, such as the Australian Health Practitioner Regulation Agency, to make such a training compulsory based on the human rights principle of health for all.

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Understanding Barriers and Potential Solutions to PrEP Uptake and Persistence Among Adolescent and Young Men Who Have Sex with Men in Vietnam: A Qualitative Study

Nguyen M¹, Mast I², Rutstein S³, Hoffman I³, Tran H³, Le G¹, Go V³

¹Hanoi Medical University, Hanoi, Viet Nam, ²Hamilton College, Clinton, United States, ³University of North Carolina at Chapel Hill, Chapel Hill, United States

Background: Adolescent and young men who have sex with men (AYMSM) in Vietnam are disproportionately impacted by HIV. Although AYMSM are less likely to initiate and continue pre-exposure prophylaxis (PrEP) than older men, little is known about the specific barriers and facilitators to PrEP use among these youths. We conducted a qualitative study to explore barriers to PrEP uptake and persistence among AYMSM in Vietnam and their perceived solutions to overcome these challenges.

Methods: From December 2022 to April 2023, 20 AYMSM 15-19 years old not living with HIV in Hanoi and Ho Chi Minh city, Vietnam were recruited through peer outreach. We purposively invited AYMSM with diverse PrEP awareness and use history. We conducted in-depth interviews examining barriers to initiating or continuing PrEP and their suggested solutions. A Socio-Ecological Model was used to analyze data, following a combination of deductive and inductive analytic approaches.

Results: The mean age was 18 years. Five participants never used PrEP before, seven were currently using PrEP and eight had stopped using PrEP. Barriers to PrEP initiation and persistence included factors at individual (low risk perception, lack of PrEP awareness, lack of time and resources to go to clinics, side effects), interpersonal (stigma from family and friends, fear of disclosure), community (social stigma, lack of social support), and structural (difficulties changing clinics, challenges of making appointments, and costs) levels. Several barriers more specific to youths

were identified by participants, such as living with parents and fear of them finding out, busy school schedule, and low levels of PrEP awareness due to lack of access to PrEP information and sex education. Participants suggested solutions at different levels to overcome these challenges, including hiding medications, social media campaigns to reduce stigma, and school-based sex education that includes PrEP information.

Conclusions: Barriers to PrEP use among AYMSM in Vietnam exist at multiple levels, and these youths face specific barriers that might not apply to older men. Interventions tailored to AYMSM and responsive to their unique needs are warranted to facilitate PrEP use and prevent HIV acquisition among this population.

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Flexible Dosing for More Sex Partners: HIV PrEP Dosing and Impact on Sexual Behaviour Among MSM College Students in Guangzhou, 2021-2023

SUN W¹, LI Q¹, LI C², TANG W³, LI L¹

¹Infectious Disease Center, Guangzhou Eighth People's Hospital, Guangzhou, China, ²Tokyo College, the University of Tokyo, Tokyo, Japan, ³School of Medicine, University of North Carolina at Chapel Hill, USA

Background: Little is known about MSM college students' experiences with pre-exposure prophylaxis (PrEP) in China.

Methods: From 2021 to 2023, we interviewed 15 MSM college students in Guangzhou, recruited from a TDF/FTC PrEP demonstration trial. The inclusion criteria were as follows: having initiated PrEP but not completed the one-year PrEP follow-up process; being between 18 and 25 years old (born between 1998 and 2004); currently being enrolled in college; and self-reporting engaging in male-to-male sexual behavior. Before each interview, participants were required to sign a paper-based informed consent form. The one-to-one interviews were conducted and fully audio-recorded for about an hour. What questions asked include "Are you using the daily dosing method or the on-demand dosing method, and why?" "Have you had a dosing switch?" "Have you ever missed a dose? If so, what measures did you take to compensate for it?" "What changes have occurred in your sexual behavior before and after taking the medication?" "Any changes in the number of your sexual partners?" "What are your current concerns about taking PrEP?" Once the interview data had been collected and transcribed, qualitative research software was employed to perform inductive coding to generate the research themes. Each code within the code book had full key components of label, definition, and description. This study obtained ethical approval from the hospital's research ethics committee.

Results: Participants had an average age of 23.2±3.4 years old, with 12 being undergraduates and three being postgraduates. Nine used the on-demand dosing, while six used once-daily oral

dosing. Nine reported switching PrEP dosing methods during the trial. Common reasons for initiating PrEP include the desire for more sexual pleasure in condomless sex and HIV prevention. Regarding dosing preferences, participants' preference for on-demand dosing is usually due to its perceived convenience, cost-effectiveness, as well as suitability for infrequent sex encounters. In contrast, participants also shared their concerns about on-demand dosing such as the challenging timing of taking the pills (i.e. the "2+1+1" method) and potential side effects. For people favored daily dosing, they emphasized its higher perceived efficacy in HIV prevention, having more frequent sexual encounters, and the structured schedule of pill-taking. Nonetheless, they also expressed concerns about difficulty in adherence, "medication waste" (taking a pill every day is a waste of the drug), forget the time to take the drug (difficulty in adherence). Specifically, participants shared uncertainties about making up for missed doses or whether other medications could be used as a substitute. For reasons for the dosing switch, participants attributed their decisions to changes in perceived risks, such as fluctuations in the number of sexual partners or sexual activity. For make-up after missing a dose, more participants did not take the make-up dosing because the make-up dosing method was unknown.

Conclusions: PrEP can provide MSM individuals with more autonomy in choosing sex partners and sexual pleasure. However, their concerns about drug safety and medication adherence also call for an urgent need for tailored health intervention that helps college students understand and use PrEP appropriately.

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Ethnocultural Discrimination and HIV Testing: A Survey of Men Who Have Sex with Men in China

Pan S¹

¹University of Texas at San Antonio, San Antonio, United States

Background: International research suggests that individuals who experience ethnocultural discrimination may be likely to test for HIV. However, similar research from China remains limited. In response, the current study sought to examine potential associations between: (A) perceived ethnic and religious discrimination and (B) HIV testing patterns among men who have sex with men (MSM) living in China.

Methods: Data were collected from July 2013 to April 2014 by anonymous, self-administered, structured questionnaires at MSM-oriented HIV testing clinics in Beijing and Tianjin, China. Participants were also recruited via peer referral, gay websites, and community-based organizations. HIV testing history was defined as ever having received an HIV test. Perceived experience of ethnic and religious discrimination was determined by two items asking if participants had ever experienced ethnic or religious bias or discrimination, respectively. Binary Logistic regression was used to assess measures of association. Control variables included: age, migrant status, city, rural/urban status, and educational attainment.

Results: Among 400 study participants, prevalence of perceived ethnic discrimination was 5% overall and was significantly greater among ethnic minorities of North China (36%) and Muslim traditions (16%) compared to the ethnic Han majority (3%). Prevalence of religious discrimination was 6% overall, and was significantly higher among Christians and Muslims (19%) compared to Buddhists (5%). HIV testing history was not significantly associated with experience of ethnic discrimination (aOR: 3.65, 95% CI: 1.04–12.55) perceived religious discrimination (aOR: 4.09, 95% CI: 1.25–13.41).

Interpretation: Among MSM in Northern China, experiences of ethnic and religious discrimination seem relatively common among specific groups of ethnic and religious minorities, respectively. However, the current study did not detect evidence that such perceived discrimination experiences are significantly impacting HIV testing among MSM in North China.

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Exploratory Study of Metabolic Syndrome in Long-Term HIV-Positive Patients on Antiretroviral Therapy

Sun N¹¹Taoyuan General Hospital, Tao Yuan City, Taiwan

Background and Motivation: Taoyuan Hospital serves over 3,000 HIV-positive individuals annually. According to the World Health Organization, metabolic syndrome is a preventable and treatable condition. Without early detection and treatment, individuals with HIV are at a six times higher risk of developing diabetes, four times higher risk of hypertension, three times higher risk of hyperlipidemia, and twice the risk of heart disease and stroke compared to the general population. Given Taoyuan Hospital's over 20 years of experience in providing antiretroviral therapy to HIV-positive individuals since 2002, this study aims to understand the prevalence of metabolic syndrome among this population and to develop effective intervention strategies to promote healthier lifestyles.

Objectives: Highly active antiretroviral therapy (HAART) may increase the risk of metabolic syndrome in people living with HIV. The development of metabolic syndrome poses a significant threat to the long-term health of individuals on HAART. In collaboration with the Department of Nursing at National Taiwan University College of Medicine, this study aims to investigate the prevalence and associated factors of metabolic syndrome among HIV-positive individuals receiving HAART at Taoyuan Hospital.

Methods: This cross-sectional study employed purposive sampling and snowball sampling to recruit participants from the hospital's HIV patient community. Data on demographics, questionnaires, and physiological parameters such as waist circumference, blood pressure, grip strength, blood glucose and lipid levels, and body composition were collected during on-site visits. The five criteria for metabolic syndrome defined by the Taiwan National Health Research Institutes were used to assess the prevalence of metabolic syndrome among the participants.

Results: A total of 235 participants were recruited, with a mean age of 42.1 (± 10.1) years and a mean duration of antiretroviral therapy of 11.4 (± 6.7) years. The abnormal proportions of metabolic syndrome criteria were as follows: abdominal obesity 32.3% (76 individuals), high blood pressure 43.4% (102 individuals), elevated fasting blood glucose 12.4% (29 individuals), and high total cholesterol 33.0% (77 individuals). A total of 23.0% (54 individuals) met the diagnostic criteria for metabolic syndrome (at least three abnormalities), and 63.9% (150 individuals) were at risk of metabolic syndrome (one or two abnormalities). Other metabolic-related indicators also showed that 55.4% (130 individuals) were overweight or obese, 29.1% (68 individuals) had high body fat, and 59.8% (140 individuals) had high visceral fat. Additionally, 38.6% (90 individuals) had low hematocrit and 42.9% (100 individuals) had low hemoglobin. According to the European Working Group on Sarcopenia in Older People (EWGSOP) criteria, 4.7% (11 individuals) were at risk of sarcopenia.

Conclusion: This study of 235 HIV-positive individuals at Taoyuan Hospital revealed a strong positive correlation between HAART, long-term use of nucleoside reverse transcriptase inhibitors, and metabolic syndrome. Therefore, after a detailed assessment of patients' lifestyles and dietary habits, it is recommended to implement annual interventions focusing on healthy eating, regular exercise, and smoking cessation to address chronic disease risk factors. This approach will enable HIV-positive individuals to live healthier lives.

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ProtectNow Linktree: Leveraging Click Data to Optimize HIV/STI Resource Distribution in High-Risk Malaysian Communities

Ikhtiaruddin W, Yusoff Y

¹Malaysian AIDS Council, Sentul, Malaysia

The distribution of HIV/STI services in Malaysia has historically been guided by static allocation models rather than real-time demand data, resulting in suboptimal resource utilization. This study explores the use of ProtectNow Linktree, a digital one-stop center, as a novel service mapping tool to optimize the allocation of HIV/STI services for key populations.

ProtectNow Linktree is an accessible digital platform that consolidates essential HIV/STI-related services, including testing and prevention, leveraging click-based analytics as a proxy for service demand. This study employs a data-driven methodology to analyze clickstream data from the ProtectNow Linktree platform, correlating user engagement with service uptake.

Findings indicate a strong correlation between digital engagement and actual service utilization; for instance, Klang Valley recorded the highest number of clicks for PrEP services (6.76 k clicks) and reported 3,553 PrEP users which is more than half of total PrEP user in Malaysia. This trend aligns with key population size estimates MOH, 2018), which identify Klang Valley as a high-density area for MSM, female sex workers, and transgender sex workers. Additionally, sub-district analysis identified Ampang and Shah Alam as high-demand areas for HIV testing services, with 735 and 616 clicks, respectively.

These findings underscore the potential of digital service mapping in enhancing HIV/STI service delivery. By integrating real-time analytics, this approach enables targeted interventions, improves resource allocation efficiency, and strengthens data-driven public health strategies for key populations in Malaysia.

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High Completion Rate and Low Side Effects of the National Short-Course Tuberculosis Preventive Treatment Implementation among People Living with HIV in Thailand, 2023-2024

Noknoy S¹, Lolekha R², Santichinakul L¹, Avihingsanon A³, Thaisiam P⁴, Watcharasuwanseree S⁵, Palakawong Na Ayuthaya T⁶, Jirajariyavej S⁷, Kusuwan S⁸, Punsuwan N¹, Northbrook S², Haetanurak N¹

¹Division of AIDS and STIs, Department of Disease Control, Ministry of Public Health, Nonthaburi, Thailand, ²Division of Global HIV and Tuberculosis, U.S. Centers for Disease Control and Prevention, Nonthaburi, Thailand, ³The HIV Netherlands Australia Thailand Research Collaboration, Thai Red Cross AIDS Research Center, Bangkok, Thailand, ⁴Nakornsrihammarat Hospital, Nakornsrihammarat, Thailand, ⁵Udonthani Hospital, Udonthani, Thailand, ⁶Public Health Center 28, Health Department, Bangkok Metropolitan Administration, Bangkok, Thailand, ⁷Taksin Hospital, Medical Service Department, Bangkok Metropolitan Administration, Bangkok, Thailand, ⁸Chiangrai Prachanukroh Hospital, Chiangrai, Thailand

Background: Thailand faces a significant burden of tuberculosis (TB) and HIV, with <1% of newly diagnosed people living with HIV (PLHIV) receiving Tuberculosis Preventive Treatment (TPT). The 2023 national guidelines recommend short-course TPT (3HP (Isoniazid/rifapentine) or 1HP) for newly diagnosed PLHIV, those on antiretroviral therapy (ART) with a CD4 count <200 cells/mm³, patients lost to follow-up with a viral load >1,000 copies/mL, individuals with positive IGRAs, and those recently exposed to pulmonary TB. In FY23, the Thai Ministry of Public Health distributed TPT job aids and trained healthcare providers to increase TPT uptake nationally.

Methods: We analyzed the national TPT uptake (number of PLHIV initiating TPT), completion rates (number of PLHIV completing TPT divided by number of PLHIV who initiated TPT in the same time period), and side effects (abdominal pain, nausea, vomiting, numbness, flu-like symptoms, fever >39°C, rash, other) using the national HIV/TPT dataset from October 2022 to September 2024. We used the annual average of 25,000

newly diagnosed PLHIV reported in the National AIDS Program as a denominator to calculate TPT coverage among newly diagnosed PLHIV.

Results: A total of 4,147 PLHIV received TPT (1,655 in FY23 and 2,492 in FY24) across 195 hospitals in 59 out of 77 provinces. Of these, 70% were male, 94% were Thai, and the median age was 39 (IQR 29–48) years. The most common TPT regimen was 3HP (77%). Overall, completion rate was 85% in FY23, with a higher completion rate reported for 1HP than 3HP (93% and 85%, respectively). TPT was initiated in 1,805 newly diagnosed PLHIV (682/25,000 [2.7% coverage] in FY23 and 1,123/25,000 [4.5% coverage] in FY24), 930 PLHIV interrupting treatment, 380 PLHIV with CD4 count <200 cells/mm³, and 343 PLHIV with positive IGRAs or TST tests. Reported side effects were <1%, mainly flu-like symptoms and gastrointestinal issues.

Conclusions: Although our findings revealed few side effects and high completion rates for short-course TPT, coverage among newly diagnosed PLHIV remained low against the global target of 90%. Additional efforts to communicate the benefits of short-course TPT, address gaps in initiation, and ensure adherence may increase uptake among PLHIV and reduce TB incidence.

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Baseline Hemoglobin is a Biomarker in Predicting Incident Tuberculosis Among People with HIV: A Longitudinal Cohort Study

Zhang H¹, He Y¹, Xiao W¹, Ning Y¹, Lu M¹, Huang Y¹, Lin W¹, Chen S¹, Liu C¹, Li L¹, Tang X¹, Dai Y¹

¹Guangzhou Eighth People's Hospital, Guangzhou, China

Background: Studies have reported that anemia is a common comorbidity in tuberculosis (TB) and people with HIV (PWH), and has been a risk factor for TB development among PWH, an indicator of treatment failure and mortality. However, no studies specifically assess the predictive accuracy of hemoglobin (Hb) level for incident TB among PWH after ART initiation.

Material and methods: Baseline and time-updated data were analyzed from a large longitudinal cohort of PWH in China, the Observation Study on Patients with HIV/AIDS program (OSPWH) (Clinicaltrials.gov NCT04667026). All participants were tested for Mycobacterium tuberculosis infection, underwent chest radiography, and had blood and serum results at baseline, and were actively surveilled for incident TB over a three-year period. The TB cases confirmed at baseline were excluded. Poisson analyses, Kaplan-Meier curves, receiver's operation curve (ROC) analyses, and logistic regression were used to delineate the association and predictive accuracy of hemoglobin levels for incident TB.

Results: Between September 2005 and November 2021, 20599 adult participants were enrolled, of which 12474 PWH were included in the predictive accuracy analysis. During a follow-up of three years, 220 (1.76%) cases of incident TB occurred during ART. Age (≥ 65 years), Hb, CD4 counts, CD8 counts and CD4/CD8 ratio were identified as independent predictors of incident TB. Although these parameters recovered substantially in response to ART, they diverged from incident TB and non-TB PWH. Incident TB occurrence increased according to the severity of anemia. Time-dependent ROC analyses revealed that baseline Hb performed well in predicting incident

TB over three years. In the first year of follow-up when nearly 80% incident TB occurred, with optimal thresholds of 132.5 g/L in male and 105 g/L in female group, the performance of Hb for incident TB prediction was obtained: an AUC of 0.81 (95% CI 0.78-0.84) in male and 0.74 (95% CI 0.63-0.86) in female group. To enhance the applicability in future TB prediction and control, Hb thresholds of 105 g/L in male and 90 g/L in female group achieved high specificity of approximately 90%. However, incorporating CD4 counts, CD8 counts, and CD4/CD8 ratio did not improve the efficacy of Hb. Interferon- γ released assay (IGRA)-positive PWH with moderate and severe anemia at baseline were four times more susceptible to TB progression compared to those without anemia. Contrarily, CD4 counts, CD8 counts, the CD4/8 ratio were not associated with increased risk of TB development, irrespective of IGRA results.

Conclusions: Our findings elucidate that Hb is a biomarker of incident TB, and could effectively predict incident TB in PWH during ART, with the best threshold of 132.5 and 105 g/L in male and female groups, respectively. Given that, PWH with Hb lower than corresponding thresholds should be carefully monitored and screened for TB. Monitoring Hb concentration may serve as a simple and feasible strategy to support TB case finding and preventive therapy among PWH.

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Double-Dose Dolutegravir and Lamivudine Versus Efavirenz-Based Antiretroviral Therapy for Patients Coinfected with HIV and Tuberculosis: A Multicenter, Open-Label, Randomized Trial

Le X, Shen Y

¹Shanghai Public Health Clinical Center, Shanghai, China, ²Chest Hospital of Guangxi Zhuang Autonomous Region, Liuzhou, China, ³Chongqing Public Health Medical Center, Chongqing, China, ⁴Henan Provincial Hospital of Infectious Diseases, Zhengzhou, China, ⁵Nantong Third People's Hospital, Nantong, China, ⁶the Third People's Hospital of Kunming, Kunming, China, ⁷the Fourth People's Hospital of Nanning, Nanning, China, ⁸Guiyang Public Health Clinical Center, Guiyang, China, ⁹Jiangxi Chest Hospital, Nanchang, China

Objectives: This study evaluated the efficacy and safety of a dual therapy regimen comprising double-dose dolutegravir plus lamivudine in treating HIV-infected patients with tuberculosis.

Methods: This was a randomized, open label, parallel-controlled trial conducted at sixteen centers in China (ChiCTR2300075493). It included HIV-infected adults who were antiretroviral therapy-naïve and had initiated rifampicin-based anti-tuberculosis therapy ≤ 2 weeks prior. Participants were randomized (1:1) to receive either dolutegravir (50 mg twice daily) plus lamivudine (2DR arm) or efavirenz (600 mg daily) with tenofovir and lamivudine (3DR arm), beginning at 2-4 weeks after anti-tuberculosis treatment. The primary outcome was virological suppression (HIV-1 RNA < 50 copies/mL) at week 24 in the modified intention-to-treat exposed group.

Results: Between July 2023 and July 2024, 32 participants were randomly assigned to either the 2DR (N=21) or 3DR (N=11) arm. In the 2DR group: 38.1% (8/21) had baseline HIV RNA $> 500,000$ copies/mL. Mean baseline HIV-1 RNA: 5.49 ± 0.66 log₁₀ copies/mL. Median CD4⁺ count: 48 cells/ μ L (IQR 28.2-107.1). For the 3DR group: 9.1% (1/11) had HIV RNA $> 500,000$ copies/mL. Mean baseline HIV RNA: 5.36 ± 0.62 log₁₀ copies/mL. Median CD4⁺ count: 78.8 cells/ μ L (IQR 37-294). At week

24, virological suppression rates were 76.2% (16/21) in the 2DR group and 90.9% (10/11) in the 3DR group (For more details, see Figure 1). There was no statistically significant difference in viral suppression ($P = 0.637$). No virological failures occurred. Three IRIS events were reported: two in the 2DR group and one in the 3DR group, with no discontinuations due to IRIS.

Conclusions: Double-dose dolutegravir with lamivudine was equally effective for HIV-infected adults on rifampicin-based anti-tuberculosis treatment compared to a three-drug regimen of efavirenz, tenofovir, and lamivudine. This dual therapy may provide a new option for patients with HIV-associated tuberculosis.

Supplemental material: Figure 1 showed Comparison of patient proportions with HIV-1 RNA < 50 copies/mL between the 2DR (DTG/3TC) and 3DR (TDF/3TC/EFV) groups at week 12, 24, and 48 of ART. In the 2DR vs. 3DR arm, virological suppression rates were 46.4% (13/28) vs. 29.4% (5/17) at week 12, 76.2% (16/21) vs. 90.9% (10/11) at week 24, and 85.7% (6/7) vs. 100% (6/6) at week 48. There were no statistically significant differences in viral suppression between the two arms (all P values > 0.05).

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Characteristics of Cryptococcal Meningitis and Therapeutic Lumbar Puncture Among People with HIV at Indonesian Tertiary Hospital

Putri C¹, Maharani K¹, Andini P¹, Estiasari R¹,
Tunjungsari D¹, Imran D¹

¹Department of Neurology, Faculty of Medicine, Universitas Indonesia, Dr. Cipto Mangunkusumo Hospital, , Indonesia

Background: Cryptococcal meningitis is one of the most common central nervous system infections in people with HIV, with a prevalence of 10-30%. One of the challenges in cryptococcal meningitis is raised intracranial pressure management. This study aims to describe characteristics of cryptococcal meningitis and evaluate the impact of therapeutic lumbar punctures on mortality outcomes.

Method: We included cases of people with HIV and cryptococcal meningitis at Dr. Cipto Mangunkusumo Hospital during 4 year period (2019-2023) retrospectively. We obtained cryptococcal meningitis patients data from Indonesian Brain Infection Study (IBIS) registry and electronic medical records for lumbar puncture frequencies data. The outcome during hospitalization was then compared with the frequency of lumbar punctures.

Result: This study analyzed a total of 19 cases. The sex distribution showed a predominance of males (73.7%). For clinical symptoms, the most common symptom was headache (84.2%), followed by fever (78.9%). Other notable symptoms included altered consciousness (52.6%), vomiting (52.6%), cranial nerve palsy symptoms (36.8%), and seizures (31.6%). Additionally, motor deficits were present in 15.8% of cases. Among the participants, 57.9% (n=11) received monotherapy with either Amphotericin B or Fluconazole, while 42.1% (n=8) completed both therapies. The CD4 count had a mean of 38.56 ± 34.55 (n=18), ranging from 5 to 126. The lumbar puncture opening pressure had a mean value of 27.82 ± 16.57 (n=17). Cerebrospinal fluid volume obtained during lumbar puncture revealed a wide range of values, with a mean of

18.37 ± 8.376 (n=15). In terms of HIV case classification, the majority (89.5%) were old cases, while only 10.5% were newly diagnosed. Patient outcomes showed that 31.6% (n=6) of cases resulted in mortality, while 63.2% (n=12) were successfully discharged. One patient (5.3%) opted for self-discharge. The frequency of lumbar punctures varied among 19 patients, with a mean of 4.53 ± 3.221 and the interval between lumbar punctures with a mean of 5.56 ± 3.39 (n=17). The relationship between the frequency of lumbar punctures and patient outcomes showed that among 19 patients, 9 (47.4%) received more than three lumbar punctures with 22.2% mortality rate, and 10 (52.6%) received three or fewer lumbar punctures with 40% mortality, but not statistically significant (p=0.628).

Conclusion: There is a potential trend toward improved outcomes with more frequent lumbar punctures. However, given the small sample size and low expected counts, further studies with larger cohorts are necessary to clarify the potential clinical benefit of frequent lumbar punctures.

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Calvarial Tuberculosis in a Patient with Disseminated Multidrug-Resistant Tuberculosis and Advanced HIV Disease: A Rare Case Report

Bernardino D¹, Gascon A¹

¹Research Institute For Tropical Medicine, Muntinlupa City, Philippines

Background: In 2022, 1.3 million people died from Tuberculosis (TB), with multidrug-resistant tuberculosis (MDR-TB) posing a significant public health challenge; only 2 in 5 patients accessed treatment. Calvarial TB, a rare form characterized by skull lytic lesions, becomes even more complex with MDR-TB and Human immunodeficiency virus (HIV). This case report discusses a 41-year-old male with advanced [HIV and disseminated MDR-TB, emphasizing the rarity and clinical significance of calvarial TB.

Case proper: The patient, diagnosed with HIV in 2015, had been treated for a psoas abscess drug-susceptible TB but lost to follow-up after starting antiretroviral therapy. He presented with fever, cough, and dyspnea. Examination revealed two soft, non-tender skull masses. A cranial computed tomography (CT) scan showed lytic lesions in the left frontal and right high posterior parietal bones. Sputum, Cerebrospinal fluid (CSF) and parietal mass aspirate revealed rifampicin-resistant *Mycobacterium tuberculosis*. Additional tests indicated resistance to first line TB drugs, confirming disseminated MDR-TB involving the calvaria, central nervous system (CNS), and lungs. He began an 18-month regimen with Levofloxacin, Bedaquiline, Linezolid, and Cycloserine, and was referred for surgical intervention.

Discussion: Calvarial TB is extremely rare, occurring in less than 0.01% of mycobacterial infections, and is difficult to diagnose due to its rarity and non-specific symptoms. Advanced HIV can lead to widespread dissemination, causing bone destruction and granulation tissue formation

in the skull. Trauma may also contribute though its role is likely coincidental rather than causal. Typical signs include painless scalp swellings and circumscribed lytic lesions as observed in this case. Radiography and CT scans shows soft tissue swelling and skull destruction. Treatment involves Fine-needle aspiration cytology (FNAC) or debridement and anti-TB therapy. Managing MDR-TB in HIV patients is complex, requiring multidisciplinary care and newer drugs like Fluoroquinolones, Bedaquiline, and Linezolid.

Conclusion: This case emphasizes the rarity and clinical significance of calvarial TB in disseminated MDR-TB and advanced HIV. Early diagnosis and comprehensive management, including surgical and medical interventions, are crucial. Multidisciplinary care and individualized treatment regimens are essential for managing MDR-TB in immunocompromised patients.

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Prevalence and Profile of HIV Infection Among Multidrug-Resistant or Rifampicin-Resistant Pulmonary Tuberculosis (MDR/RR TB) Patients in a Tertiary Hospital in South Jakarta, Indonesia.

Wibisana K¹, Mauleti I¹, Kaffah S²

¹Division of Tropical Medicine and Infectious Disease, Departement of Internal Medicine, Fatmawati General Hospital, South Jakarta, Indonesia, ²Departement of Pulmonology, Fatmawati General Hospital, South Jakarta, Indonesia

Introduction: Indonesia is one of the countries with the highest burden of drug-resistant tuberculosis cases in the world. Based on World Health Organization (WHO) Global TB Report 2024, Indonesia accounts for 7.4% of the total global cases of multidrug resistant/rifampicin-resistant tuberculosis (MDR/RR-TB) in 2023, making it the third highest in the world. HIV infection raises the risk of developing MDR/RR-TB. It also accelerates disease progression and increases mortality rate in MDR/RR-TB patients. The success rate of anti-tuberculosis therapy for MDR/RR-TB cases is lower in people living with HIV (PLHIV) compared to non-PLHIV.

The prevalence of HIV and tuberculosis co-infection in Indonesia has been well established. However, data on the prevalence and outcomes specifically related to HIV and MDR/RR-TB co-infection remain limited. This study aims to determine the prevalence and profile of HIV infection among MDR/RR-TB patients enrolled in a tertiary referral hospital in South Jakarta, Indonesia.

Material and Methods: A retrospective study was conducted on adult patients with pulmonary MDR/RR-TB who were enrolled at Fatmawati General Hospital, Jakarta, between 2020 and 2024. Demographic, clinical, and laboratory data were obtained from hospital medical records and the Tuberculosis Information System of the Ministry of Health of Republic Indonesia.

Result: A total of 175 adult patients were diagnosed with pulmonary MDR/RR-TB between 2020 and 2024. The prevalence of HIV infection among MDR/RR-TB patients was 4.57% (8 out of 175 cases). The median age of the patients was 38 years old and the majority were male (87.5%). Two patients had MDR-TB while six patients had RR-TB. Regarding TB treatment history, two patients had primary drug-resistant TB with no prior history of TB treatment, two patients had a history of dropping out of TB treatment, and four patients had experienced TB treatment failure.

In terms of HIV status, three patients (37.5%) were newly diagnosed with HIV while three patients (37.5%) had been living with HIV for more than three years. As for antiretroviral therapy (ART) status, five patients (62.5%) were receiving ART, one patient (12.5%) had discontinued ART for three years, and two patients (25%) had never received ART. Regarding the outcome of MDR/RR-TB treatment, two patients died before initiating MDR/RR-TB treatment and ART, one patient died after a month of TB treatment, two patients are still undergoing treatment, one patient was declared cured, one patient was lost to follow-up, and one patient refused TB treatment.

Conclusion: The prevalence of HIV infection among MDR/RR-TB patients in this study is comparable to the studies from a referral hospital in Surabaya, Indonesia, and Vietnam. Mortality was observed in patients who were newly diagnosed with HIV and had not initiated ART, as well as in patients who had discontinued ART. Previous studies have demonstrated that ART reduces mortality in individuals with HIV-MDR/RR-TB coinfection. These findings highlight the importance of screening and early diagnosis of MDR/RR-TB and HIV co-infection, as well as ART initiation and adherence in PLHIV. Further research is needed to determine the prevalence and outcomes of HIV and MDR/RR-TB co-infection in Indonesia.

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Predictors of Opportunistic Infections in HIV Patients: The Role of CD4, Viral Load, and ART Adherence

Indiastari D¹, Zuhar M¹, Susanto C¹, Nurjihan I¹, Sururi N¹, Rosandy M¹

¹Universitas Brawijaya, Kota Malang, Indonesia

Introduction: Opportunistic infections (OIs) are the leading causes of morbidity and mortality in people living with HIV (PLHIV). The risk of OIs is closely linked to immunological (CD4 count) and virological (viral load) parameters, which serve as key indicators of disease progression. This study aims to analyze the relationship between these factors and the incidence of OIs in PLHIV receiving care at Dr. Saiful Anwar Malang General Hospital.

Methods: A cross-sectional study was conducted using secondary data from 140 PLHIV selected through purposive sampling based on the completeness of their medical records. Collected data included demographic variables, CD4 count, viral load, ART duration, and documented opportunistic infections. Bivariate analysis was performed using Chi-square tests, while logistic regression was used for multivariate analysis to determine independent associations.

Results: Among the 140 participants (mean age: 38.5 ± 9.5 years), 60.7% were male, and 77.9% identified as heterosexual. A significant proportion (35.0%) had CD4 counts <200 cells/mm³, and 58.6% experienced OIs, with candidiasis being the most common (30 cases). A significant inverse association was found between CD4 count and OI incidence ($p = 0.017$), where higher CD4 levels corresponded to lower OI risk (OR: 0.32, 0.45, and 0.25 for CD4 counts of 200-349, 350-499, and ≥ 500 cells/mm³, respectively). Conversely, a higher viral load was associated with increased OI risk (OR: 2.50 for ≤ 1000 copies/mL; 3.47 for >1000 copies/mL). Longer ART duration (≥ 5 years) significantly reduced OI risk (OR = 0.19).

Conclusion: This study confirms that immunological (CD4 count) and virological (viral load) markers significantly influence OI incidence in PLHIV. Longer ART duration and higher CD4

counts serve as protective factors, highlighting the need for early ART initiation and strict adherence. These findings underscore the importance of regular monitoring and targeted interventions to minimize OI risk in PLHIV populations.

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Cross-Sectional Study on Mental Disorders in Maintenance Hemodialysis Patients with HIV/AIDS

He G, Liu J

¹The Third People's Hospital Of Kunming, Kunming, China

Objective: The study aims to investigate the incidence rates of mental disorders such as anxiety, depression, and sleep disorders in maintenance hemodialysis HIV/AIDS patients, compare them with general hemodialysis patients and non-dialysis HIV-infected individuals, and analyze the related influencing factors.

Methods: The cross-sectional study was adopted to conduct questionnaire surveys among maintenance hemodialysis patients and HIV-infected individuals treated at the Third People's Hospital of Kunming City from August to December 2024. Participants were divided into three groups: hemodialysis with HIV group (HIV-HD group, n=51), general hemodialysis group (HD group, n=50), and HIV-infected non-dialysis group (HIV group, n=102). The Hospital Anxiety and Depression Scale (HADS) was used to assess anxiety and depression, used Pittsburgh Sleep Quality Index (PSQI) to evaluate sleep disorders, at the same time explored the risk factors for mental disorders by single factor analysis.

Results: A total of 203 patients were included. The prevalence of mental disorders in each group was as follows : HIV-HD group : Anxiety (25.5%), depression (37.3%), sleep disorders (86.3%), anxiety with depression (15.7%), anxiety and depression comorbid with sleep disorders (13.7%). HD group: Anxiety (22.0%), depression (56.0%), sleep disorders (90.0%), anxiety with depression (20.0%), anxiety and depression comorbid with sleep disorders (20.0%). HIV group: Anxiety (7.8%), depression (17.6%), sleep disorders (40.2%), anxiety with depression (3.9%), anxiety and depression comorbid with sleep disorders (2.0%). The research showed that the HIV-HD and the HD groups had significantly higher rates of mental disorders than the HIV group (all $p < 0.05$). The HD group demonstrated a significantly higher prevalence of depression than the HIV-HD group (p

< 0.05). Single factor analysis showed that unaccompanied status during hemodialysis sessions, depression, hypocalcemia, hyperuricemia, and hypoalbuminemia were independent risk factors for anxiety; low income, alcohol, anxiety, unaccompanied dialysis, high Charlson Comorbidity Index, and elevated parathyroid hormone levels were significantly associated with depression; besides, hypophosphatemia, hyperuricemia, hypoproteinemia, hypoalbuminemia, and elevated hemoglobin levels emerged were primary influencing factors of sleep disorders.

Conclusion: The prevalence of mental disorders is significantly higher in both HIV/AIDS patients on hemodialysis and general hemodialysis patients compared to non-dialysis HIV-infected individuals, the HD group shows a higher risk of depression than the HIV-HD group. Disorders of calcium and phosphorus metabolism, malnutrition, insufficient social support, and biochemical abnormalities constitute significant contributing factors to mental disorders in maintenance hemodialysis patients with HIV/AIDS. Clinicians should enhance mental disorders monitoring and implement personality interventions to improve clinical outcomes in maintenance hemodialysis patients with HIV/AIDS.

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Prevalence of Urinary Tract Infections in People Living with HIV at Adam Malik Hospital, Indonesia

Siregar C¹, Sihotang L¹, Samosir N¹

¹Adam Malik Hospital, Medan, Indonesia

Background: Bacterial urinary tract infections (UTIs) are common among people living with HIV (PLHIV) due to their compromised immune systems. This study aimed to determine the prevalence of UTIs in the PLHIV population.

Methods: This cross-sectional study was conducted in Adam Malik Hospital, Medan, Indonesia, from September to November 2024. The study included HIV/AIDS outpatients who had CD4+count < 200 cells/μl in the last six months and had not received cotrimoxazole prophylaxis. The inclusion criteria were HIV/AIDS patients with urological disorders based on anamnesis, who take antibiotics, and who had consumed antibiotics within the previous two weeks. Blood samples were collected for CD4+count examination, and urine samples were obtained from participants for culture and sensitivity testing. Bacterial identification was performed using MALDI-TOF (Bruker, Germany). Antibiotic sensitivity testing was conducted using the Vitek-2 Compact system (bioMérieux, France).

Results: The prevalence of UTI among the participants was 20% (14/70). Among the PLHIV with UTIs, CD4+count ranged from 199 to 949 cells/μl, with 64% (9/14) having more than 500 cells/μl CD4+count, 29% (4/14) CD4+count was 200-500 cells/μl, and 7% (1/14) CD4+count was <200 cells/μl. Gram-negative bacteria were the most frequently isolated pathogens, accounting for 67% (10/16) of the isolates, which included *Escherichia coli* 70% (7/10), *Acinetobacter junii* 20%(2/10) and *Klebsiella oxytoca* 10% (1/10). For gram-positive bacteria, *Staphylococcus aureus* 33% (2/6), *Streptococcus agalactiae* 33%(2/6), and *Enterococcus gallinarum* 17% (1/6) and *Staphylococcus epidermidis* 17% (1/6) were isolated. Gram-negative bacteria were 100% susceptible to ceftazidime, ceftriaxone, cefepime, gentamicin, amikacin, meropenem, and

tigecycline, while ciprofloxacin, nitrofurantoin, and cotrimoxazole were 90%, 90%, and 80%, respectively. No multidrug-resistant organisms (MDROs), ESBL-producing *E. coli*, or methicillin-resistant *Staphylococcus aureus* were detected.

Conclusion: The study revealed that 20% of PLHIV had UTIs, with a predominance of gram-negative bacteria. Notably, no ESBL-producing *E. coli* or methicillin-resistant *Staphylococcus aureus* were found

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Incidence Rate and Risk Factors for HCV Infection Among Methadone Maintenance Patients in China, 2004–2022

Chen J¹, Luo W

¹Chinese Center For Disease Control And Prevention, Beijing, China

Objective: To analyze the incidence rate and risk factors for hepatitis C virus (HCV) infection among patients receiving methadone maintenance treatment (MMT) across China from 2004 to 2022.

Methods: This study included patients receiving MMT with baseline HCV negativity between 2004 and 2022, monitored for new HCV infections to calculate the incidence rate, related risk factors were determined using a multivariable Cox proportional hazards model.

Results: Among 198,849 participants, 571,528.93 person-years were followed up between 2004 and 2022, with 31,025 HCV seroconversions observed, The incidence rate of HCV infection was 5.43 per 100 person-years (95%CI: 5.37-5.49). Multivariable Cox proportional hazards analysis identified female sex, Han ethnicity, unmarried status, unemployment, heroin use history ≥ 10 years, injection drug use, and urine morphine positivity rates of 10%-49% and $\geq 50\%$ as risk factors for HCV infection.

Conclusion: The incidence rate of HCV infection among Chinese MMT recipients first increased then decreased between 2004 and 2022. Female sex, Han ethnicity, unmarried status, unemployment, heroin use history ≥ 10 years, injection drug use, and urine morphine positivity rates of 10%-49% and $\geq 50\%$ were significantly associated with a higher risk of HCV infection.

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Nanopore-Based Targeted Sequencing (NTS) for Drug-Resistant Tuberculosis: An Integrated Tool for Comprehensive Drug Resistance Information, Personalized Treatment Plan, and Guidance for New Drug Development

Yang C

¹Nanjing Medical University, Nanjing City, China

Background: Drug-resistant tuberculosis has emerged as a major public health issue that requires immediate attention. NTS is an innovative method that allows for the direct detection of clinical samples without the need for culture. It could provide more accurate, reliable, and comprehensive information on drug resistance. Our goal was to draw attention to the method's extensive use in providing detailed information on drug resistance, helping medical professionals create more individualized treatment plans, and offering fresh hints for creative anti-tuberculosis medication development.

Methods: We collected clinical data retrospectively from patients suspected of having drug-resistant tuberculosis who visited the tuberculosis department at the Second Hospital of Nanjing in Jiangsu Province, China, from December 2023 to December 2024. The diagnostic efficiency of NTS for different types of drug-resistant tuberculosis and antimicrobial resistance was calculated. The relationship between resistance genes, mutated amino acids, and mutation sites was demonstrated.

Results: In this study, a total of 107 patients with drug-resistant tuberculosis were included, comprising 43 cases of mono-drug resistant tuberculosis, 20 patients with poly-drug resistant tuberculosis, 22 cases of multidrug-resistant tuberculosis, 21 cases of pre-extensively drug-resistant tuberculosis and 1 case of extensively drug-resistant tuberculosis. The accuracy of NTS in

diagnosing drug-resistant tuberculosis ranged from 42.9% to 93.0%. Except for second-line injectable drugs, NTS achieved a sensitivity of over 70% for other anti-tuberculosis drugs. NTS demonstrated superior and consistent diagnostic capability in paucibacillary clinical specimens.

Conclusion: NTS could effectively and precisely deliver comprehensive drug resistance results, assisting medical professionals to create more personalized treatment plans. Besides, it would encourage the development of new anti-tuberculosis drugs to broaden clinical treatment options for drug-resistant tuberculosis.

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A Challenging Case of HIV and TB Coinfection in a Young Man Intolerant of First- and Second-Line TB Medications Successfully Treated with BPaL Regimen

Valencia J¹

¹Cagayan Valley Medical Center, Tuguegarao City, Philippines

Background: Hypersensitivity reactions to anti-tuberculosis drugs pose a significant threat to treatment adherence and are associated with the emergence of drug resistance. This issue is particularly pronounced among people with HIV and TB coinfection.

We present the case of a person living with HIV co-infected with pulmonary and lymph node TB and who was intolerant to first- and second-line anti-TB drugs. He was successfully managed using the BPaL regimen.

Description: A 31-year-old man presented with a non-resolving left lateral neck abscess for eight months, accompanied by intermittent fever and weight loss. He reported no respiratory symptoms. Chest imaging revealed pulmonary tuberculosis, and an HIV screening test was reactive. M. tuberculosis was identified in a biopsy of the neck abscess using the Xpert MTb/Rif platform, with no resistance to rifampicin detected. Tests for other opportunistic infections returned negative. He began treatment with first-line anti-tuberculosis therapy (ATT) and started on cotrimoxazole and azithromycin prophylaxis. After two weeks, he started a fixed-dose antiretroviral treatment (ART) regimen of lamivudine/tenofovir/efavirenz. However, a week later, he developed pruritic maculopapular rashes that initially appeared on his face and neck but eventually spread. Testing for syphilis was negative, leading to a consideration of drug allergy. Consequently, the ATT and chemoprophylaxis medications were stopped, and antihistamines were administered. Despite these measures, new lesions emerged, prompting the discontinuation of the ART, as well.

After the patient's skin lesions resolved following the discontinuation of ART, drug rechallenge of first-line ATT was attempted. However, the sequential re-introduction of isoniazid, rifampicin, and ethambutol was unsuccessful, leading to the development of urticaria and erythroderma in addition to the previously observed maculopapular rashes.

Following a two-week washout period, a modified treatment regimen consisting of levofloxacin, bedaquiline, clofazimine, and linezolid was initiated. Unfortunately, skin lesions reappeared on his face and extremities after just five days on this regimen. This ongoing issue became a source of concern for the patient, who worked as a marketing specialist.

A skin biopsy revealed eosinophilic folliculitis. An allergy specialist evaluated the patient and conducted a drug rechallenge for both first- and second-line ATT, confirming hypersensitivity to rifampicin, isoniazid and fluoroquinolones. He was able to tolerate bedaquiline, pretomanid, and linezolid (BPaL). Subsequently, he was prescribed lamivudine, tenofovir, and dolutegravir with no adverse reaction observed.

He completed 6 months of the BPaL regimen with clinical evidence of disease resolution. His HIV viral load was undetectable after 6 months of ART.

Lessons learned: BPaL has significantly impacted the battle against drug-resistant TB. However, there is limited data available regarding its effectiveness for extrapulmonary disease and for individuals who are treatment intolerant rather than treatment resistant, particularly among people living with HIV. Our case highlights that BPaL may be a feasible treatment option.

Call for Action: Hypersensitivity to anti-tuberculosis therapy necessitates a personalized approach to management. The need for timely treatment of HIV-TB co-infection emphasizes the importance of exploring additional treatment options.