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ABSTRACT BOOK

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ORAL ABSTRACT PRESENTATIONS

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1

Optimizing real-time data flow from community outreach to public facility HIV confirmatory testing and treatment for key population clients in Ho Chi Minh City, Vietnam

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Background: Approximately 6,500 key population (KP) clients are referred annually from community outreach to HIV facilities (HFs) in Ho Chi Minh City (HCMC), Vietnam. Early data management using an offline Excel tool lacked seamless flow between community outreach and facilities, resulting in inaccuracies in client records and suboptimal tracking. To enhance program management, EpiC collaborated with the Ho Chi Minh City Center for Disease Control (HCDC) to introduce an online platform (KP eLog) in October 2022.

Materials and Methods: The KP eLog web-based platform enables outreach and facility workers to refer and track KP clients from community testing to confirmatory testing and treatment at HFs. Lay workers input client and HIV screening data using internet-enabled devices. HFs then access individual records online to offer clients tailored services. Prior to KP eLog, testing record crosschecks were conducted manually on Excel. KP eLog employs user interface indicators to notify whether a testing record has mismatched information.

We compared data flow by looking for consistency on select data between community and HF testing records over a 21-month period prior to KP eLog implementation (January 2021–September 2022) and a one-year period after implementation (October 2022–October 2023) in HCMC, Vietnam. Data points included PrEP registration date, PrEP customer code, ARV registration date, master patient index code, and service providers' unique

treatment codes. We exported databases before and after implementation in JSON format and analyzed the data using Excel and Python.

Results: In the period prior to KP eLog, 48.25% of unique IDs from community testing records matched with HF records (89,441 records). Following KP eLog implementation alignment increased to 94.1% (234,599 records). Real-time data flow enabled HFs to validate unique IDs assigned to community workers and client data entered during initial contact. Routine data quality assurance led to improved consistency for above key information between community and HF records — from 25% with the same values prior to implementation, to 80% after.

Conclusions: Seamless, real-time data flow can strengthen community-facility referrals by helping HFs track ART/PrEP referrals with treatment data from the national HIS, enhancing client management across the cascade. It can also promote complementarity and coordinated public health response. HCDC will expand KP eLog to all community partners and HFs in HCMC and share lessons with other provinces preparing to roll out KP eLog.



2

Hybrid Model of Care: Looking at Lessons Learned in Blending In-person and Teleconsultation in an HIV Clinic in the Philippines through the RE-AIM Framework

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Background: Teleconsultation has been recognized for years as a way to increase access to care but was not widely adopted until the COVID 19 pandemic. In the Philippines, HIV services were affected during the pandemic with temporary closure of HIV clinics. To ensure access to care and treatment, the HIV clinic at the Research Institute for Tropical Medicine, which provides care to 6600 people living with HIV (PLHIV) on antiretroviral medication, started providing teleconsultation to PLHIV in August 2020. This was maintained with reintroduction of in-person consultation in April 2022 resulting to the adoption of a hybrid care model.

Description: We used the RE-AIM framework to evaluate the hybrid care service in the HIV clinic through observed data on clinic processes, patients' and providers' perspectives and clinic census.

Reach: From its inception in April 2022, 7 159 in-person consultations and 4 097 teleconsultations were provided.

Effectiveness: Described as the benefit of implementing a hybrid care, it has offered more options in accessing care for PLHIV. Newly diagnosed PLHIV were primarily consulted in-person. Those on antiretrovirals or had treatment disruptions, can be retained or re-engaged in care, respectively through either in-person or teleconsultation.

Adoption: All five doctors in the HIV clinic provided both in-person and tele-consultations. Infrastructure, toolkits and process for

teleconsultation which started during the pandemic, were in place which facilitated the wider adoption of hybrid care.

Implementation: The following organizational changes were made to implement hybrid care: integrating the digital consultation platform and supporting infrastructure into routine services, restructuring clinic processes, and adaptation of healthcare workers to provide both in-person and teleconsultations.

Maintenance: Hybrid care has been integrated as a routine practice at the clinic. Processes for teleconsultation and in-person consultation have been institutionalized and incorporated into the care system. Organizational policies, leadership commitment, financial support, personnel engagement, and communication mechanisms are in place to ensure its maintenance.

Lessons learned: The hybrid care model may help improve the accessibility of HIV care for PLHIV and is a feasible approach to maintain services across the HIV care continuum in a low-to-middle-income setting. To expand the adoption of the model into routine clinical care, several organizational-level adaptations were made. During the integration process, institutional commitment through good leadership, technical support, and allocation of resources were important contributing factors. Personnel engagement and the recognition of patients' needs were integral in the implementation and maintenance of hybrid care.

Conclusions: The hybrid care model helped sustain HIV care during and after the pandemic by creating additional options for accessing HIV services. It can provide a more patient-centered approach by taking diverse patient needs into consideration with the potential to promote retention in care and reduce loss to follow-up. However, a more robust evaluation is still needed to assess its reach and effectiveness in retention and re-engagement in care, and sustainability.



3

Enhancing Same-Day ART Policy and Implementation at a Provincial Level through a National Contest: Short-Term and Long-Term Results from the Thailand Test and Treat Contest

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Background: Thailand launched its same-day antiretroviral therapy (SDART) guidelines in 2021, with a series of training conducted by the Ministry of Public Health (MOPH). However, the translation of guidelines into practice varied substantially by province and by hospital. The Thailand Test and Treat Contest explored how competition and rewarding system could enhance SDART policy adoption and implementation at a provincial level.

Methods: Of 77 provinces in Thailand, 16 applied for the contest; 4 participating exclusively in Phase I (March-September 2022), 3 in Phase II (February-July 2023), and 9 engaging in both phases. HIV diagnosis and ART status were retrieved from the National AIDS Program database. Outcomes were categorized into short-term (single-phase participation) and long-term duration (participation in both phases). Data during the contest phase were compared with those 6 months prior. Statistical analyses evaluated differences of percentages of ART initiation within same-day, 1-7 days, and >7 days after HIV diagnosis. The province with the largest improvement in ART initiation rapidness and the best demonstrated multi-stakeholder coordination

effort received cash prize and a certificate from a high-level MOPH officer.

Results: A Provincial Test and Treat Contest kick-off meeting was held across provinces where high-level officers from Provincial Health and Administrative Offices, hospitals, and civil society organizations were brought together to discuss provincial SDART implementation plan. Short-term analysis across 16 provinces found 4,837 individuals newly diagnosed with HIV and 4,615 started ART. Significant improvements in ART initiation rapidness were seen in the contest phase, compared to the pre-contest phase, with percentages of same-day, 1-7 days, and >7 days ART initiation being 14.9%, 25.2%, and 59.9% vs. 13.7%, 23.6%, and 62.7%, $p=0.033$. Long-term data from 9 provinces showed 6,730 new HIV diagnoses, with 6,511 ART initiations. Percentages of same-day, 1-7 days, and >7 days ART initiation improved from 7.0%, 27.5%, and 65.5% pre-contest to 24.1%, 23.9%, and 52.0% during the contest ($p<0.001$).

Conclusions: The Thailand Test and Treat Contest successfully boosted up provincial implementation of SDART policy. Actual improvement in ART initiation rapidness was demonstrated as results. The national competition and rewarding system may be useful in scaling up other evidence-based health interventions.



4

Enhancing treatment outcomes, mental health, and quality of life for stable people living with HIV: a quasi-experimental study of a community-based antiretroviral therapy delivery model in Cambodia

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Background: HIV response highlights the crucial role of community-based service delivery of antiretroviral therapy (ART), enabling stable people living with HIV (PLHIV) to benefit from fewer clinic visits and enhanced care. This study evaluated the effectiveness of the Community-based ART Delivery (CAD) intervention on the care continuum for stable PLHIV in Cambodia.

Methods: This quasi-experimental study was conducted in 20 purposefully selected ART clinics spanning the capital city and nine provinces from May 2021 to April 2023. ART adherence (self-reporting + pill identification test), viral load suppression, care retention, mental health, and quality of life were compared within and between two arms, comprising 1626 PLHIV in the CAD group and 1441 in the group (multi-month dispensing [MMD]), at baseline and endline. Descriptive analyses, difference-in-difference analyses, and multivariable logistic regressions were performed using STATA and R.

Results: Viral suppression and care retention consistently exceeded 97% throughout the study. In comparison, self-reported ART adherence remained stable in the CAD group (87.0% at

baseline, 86.8% at endline). In contrast, the MMD group experienced a significant decline from 90.3% to 84.4% ($p < 0.001$). Pill identification tests showed minimal change in the CAD group (98.0% at baseline, 97.0% at endline) but a significant decrease in the MMD group (98.5% at baseline, 95.1% at endline) ($p < 0.001$). Difference-in-difference analyses revealed a higher predicted margin of ART adherence in the MMD group (89.8%) than the CAD group (85.6%) at baseline, with a steeper decline in the MMD group (81.3%) compared to the CAD group (84.6%) at endline, suggesting CAD's potential effectiveness in sustaining ART adherence. Predicted margins also indicated an increase in PLHIV with good mental health in CAD (76.3% to 77.6%) over time, contrasting with a decline in MMD (84.2% to 82.1%), highlighting a positive impact on mental well-being in the CAD group.

Conclusions: The study highlights the CAD intervention's success in sustaining ART adherence, promoting mental health, and improving the quality of life for stable PLHIV. It establishes a solid evidence base, paving the way for future CAD model implementation, scale-up, and development of standard operating procedures in Cambodia, advancing its impactful adoption.



5

Facilitators and Barriers to Mental Health Service Integration in Outpatient HIV Care: Insights from Women Living with HIV in Malaysia

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Background: Women living with HIV(WWH) have a higher prevalence of mental health(MH) disorders compared to women without HIV. MH disorders in WWH are associated with non-adherence to antiretroviral therapy and poor retention in care. In low-and-middle income settings like Malaysia, integrating HIV and MH services is uncommon, despite evidence of improved outcomes in both domains. This pre-implementation study explored facilitators and barriers to integrating MH screening and linkage to care amongst WWH at a tertiary care hospital in Malaysia.

Material and Methods: We conducted in-depth interviews with nineteen WWH receiving HIV care at the Infectious Diseases(ID) Clinic, University Malaya Medical Centre between December 2022-January 2024. WWH were purposively sampled to ensure maximum variation by age, race, and previous engagement with MH services. A semi-structured interview guide, developed using the Consolidated Framework for Implementation Research 2.0, was utilized to explore facilitators and barriers to integrating MH screening and linkage to care into outpatient HIV care. We conducted thematic analysis using Dedoose.

Results: Nineteen WWH, comprising 17 Malaysians of varying ethnicities-Malay, Chinese and Indian, and 2 Non-Malaysians were interviewed by an ID clinician. Their median age was 49, with a median of 10 years since HIV diagnosis. Facilitators of integrating MH screening into the HIV clinic included patients' awareness of MH conditions and willingness to disclose their MH status to their ID clinicians. WWH preferred face-

to-face screenings and were open to screening by nurses or peer counsellors. Barriers to integrating MH screening included a reluctance to engage with digital platforms, and that all WWH were hesitant to answer MH screening questions as they evoked negative memories of HIV acquisition. WWH expressed a preference for screening conducted by staff possessing non-discriminatory behaviour and effective communication skills. For MH linkage to care integration, facilitators include WWH's motivation to feel better and openness to recommendations from their ID clinicians, though some preferred exclusive MH consultations with their ID clinicians. Participants also reported that co-location, same-day appointments, face-to-face consultations, and trust in HIV status confidentiality facilitated linkage to care within the HIV clinic. WWH considered additional costs of up to USD5 acceptable. Significant barriers to MH linkage to care included poor MH-seeking behaviour driven by HIV stigma and limited knowledge of available MH treatments. Recommendations for addressing these barriers included establishing peer support groups and offering flexible follow-up appointment timing. Unique themes specific to women emerged, emphasizing the role of patients, providers and communities in influencing MH engagement. At the patient level, familial responsibility and the desire for autonomy drive engagement. Providers prioritizing timely MH support, especially at HIV diagnosis, while understanding evolving needs, was important for WLWH. At the community level, family support and religious faith emerge as powerful motivators to engage in MH care, while cultural stigma among Indians presents a significant barrier.

Conclusion: This study emphasizes the imperative for integrated MH screening and linkage to care for WWH. WWH prefer integrated services despite multiple identified barriers. Addressing such barriers and obtaining provider perspectives are vital for developing tailored integrated MH services for WWH.



6

Strongly Association of PNPLA3 rs738409 genotype on hepatic steatosis among non-obese people living with HIV

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Background: In addition to the well-established association of obesity, there is a growing recognition of genetic influences on susceptibility to liver diseases. We investigated genetic determinants of steatotic liver disease (SLD) among Thai people with HIV (PWH).

Methods: A cross-sectional study was conducted at the HIV Netherlands Australia Thailand (HIV-NAT), Bangkok, Thailand. PWH aged ≥ 18 years without excessive alcohol consumption who underwent controlled attenuation parameter (CAP) between July 2013 and June 2023 and had tested with single nucleotide polymorphism (SNPs) including PNPLA3 rs738409 and HSD178B rs6834314 were analysed. SLD was defined as CAP ≥ 248 dB/m. Multivariable logistic regression investigated associations between SNPs and SLD, and interactions between genotypes and obesity (BMI > 25 kg/mm²).

Results: Of 764 PWH (35% female, median age 45 (IQR 36-52) years) analysed, SLD was observed in 270 (35.3%) participants and 136 (50%) were not obese. The median duration of ART and median CD4 count was 11 (5-18) years and 581 (422-753) cells/mm³, respectively. Seventy-four (35%) were on integrase strand transfer inhibitors. Participants with SLD had higher BMI (24.9 [22.8-28.1] vs 22.1 [IQR 20.3-23.9] kg/m²) and a higher proportion diabetes mellitus (25% vs. 16%), hypertension (83% vs. 60%), dyslipidemia (88% vs.

76%) and liver fibrosis (LSM ≥ 7.5 kPa, 22% vs. 12%), compared to those without SLD. Overall, PNPLA3 rs738409 CC, CG and GG genotypes were present in 50%, 39% and 11%, and HSD178B rs6834314 AA, AG and GG genotypes in 36%, 51% and 13%, respectively. In the multivariable model, the male sex (aOR=1.98, 95% CI 1.23-3.18, $p=0.005$), higher BMI (aOR=1.32, 95% CI 1.24-1.41, $p<0.001$) and PNPLA3 rs738409 G allele (aOR=1.49, 95% CI 1.003-2.22, $p=0.049$) were associated with an increased risk of SLD. There was a significant interaction between PNPLA3 rs738409 genotype and BMI ($p=0.014$). After subgroup analysis using BMI, PNPLA3 rs738409 G allele was significantly associated among non-obese individuals (aOR=1.79, 95% CI 1.18-2.72, $p=0.006$).

Conclusions: Nearly half of the participants with SLD in our cohort were not obese. PNPLA3 rs738409 genotype was associated with SLD among non-obese Thai individuals. This underscores that genetic factors can influence liver disease susceptibility in PWH, independent of established risk factors.



7

Noninferior efficacy, reduced weight gain, and improved lipid metabolism of switch to ainoovirine- versus boosted elvitegravir-based regimen in virologically suppressed people living with human immunodeficient virus 1: the 48-week results of the SPRINT trial

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Background: Safety concerns arise from integrase strand transfer inhibitor (INSTI)-based regimen due to weight gain and metabolic complications. An alternative antiretroviral (ARV) switch therapy may be warranted for in virologically suppressed people living with human immunodeficient virus 1 (PLWH). We compared the efficacy and safety profiles of ainoovirine (ANV), a new-generation non-nucleoside reverse transcriptase inhibitor (NNRTI), with boosted elvitegravir (EVG), both combined with the nucleoside reverse transcriptase inhibitor (NRTI) backbone in single-

tablet regimen (STR), in PLWH who had achieved virological suppression on previous NNRTI-based ARV regimen.

Methods: This is a phase 3, multicenter, randomized, double-blind, active-controlled, non-inferiority study. Eligible participants must have maintained virological suppression (plasma HIV-1 ribonucleic acid [RNA] titer below 50 copies per mL) confirmed on two successive tests at an interval of at least one month prior to randomization. Participants were randomly assigned (1:1) to receive ANV 150 mg plus lamivudine (3TC) 300 mg and tenofovir disoproxil fumarate (TDF) 300 mg or cobicistat (Cobi) 150 mg boosted EVG plus emtricitabine (FTC) 200 mg and tenofovir alafenamide (TAF) 10 mg. Both arms received ARV in STR once daily for up to 48 successive weeks, followed by an optional open-label extension period with 48-week ANV/3TC/TDF treatment. The primary efficacy endpoint was the proportion of participants with HIV-1 RNA titer at 50 copies per mL or above at week 48 using the US Food and Drug Administration snapshot algorithm, with a non-inferiority margin of 4 percentage points at a two-side 95% confidence level. A single efficacy estimand (de jure) was defined using the composite variable strategy, in which the protocol-defined intercurrent events were considered as virological failure. This trial is active, but not recruiting, and is registered at Chinese Clinical Trial Registry (ChiCTR), ChiCTR2100051605.

Findings: 762 participants were randomized and had received at least one dose of ANV/3TC/TDF (n=381) or EVG/Cobi/FTC/TAF (n=381). At week 48, 7 (1.8%) participants on ANV/3TC/TDF and 6 (1.6%) participants on EVG/Cobi/FTC/TAF had plasma HIV-1 RNA titer at 50 copies per mL or above including missing virological data within the time window (the Cochran-Mantel-Haenszel method, estimated treatment difference [ETD], 0.3%, 95%CI -1.6 to 2.1), establishing the non-inferiority of ANV/3TC/TDF regimen to EVG/Cobi/FTC/TAF regimen. At week 48, the participants on ANV/3TC/TDF showed a significantly less weight gain from baseline compared to those on EVG/Cobi/FTC/TAF (least square mean, 1.16 versus 2.05 kg, -0.90 kg, -1.43 to -0.37). At week 48, the ETDs in changes from baseline were -0.39 mmol per L [-0.47,-0.32] for low-density lipoprotein cholesterol, -0.69 mmol per L [-0.77,-0.60] for non-high-density lipoprotein cholesterol, -0.84 mmol per L [-0.92,-0.75] for total cholesterol, and -0.98 mmol per L [-1.18,-0.78] for triglyceride, respectively. A small proportion of participants discontinued study drug due to AE



(0.3% versus 0.3%), and serious AEs (SAEs) were similar across groups (2.9% versus 2.4%). Interpretation: In virologically suppressed PLWH, switch to ANV-based regimen resulted in less weight gain and improved lipid metabolism while maintaining virological suppression non-inferior to that to boosted EVG-based regimen.



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Week 96 Asian Sub-Analysis of a Phase 3 Randomized Controlled Trial of Bictegravir/Emtricitabine/Tenofovir Alafenamide (B/F/TAF) vs Dolutegravir + Emtricitabine/Tenofovir Disoproxil Fumarate (DTG + F/TDF) as Initial Treatment in HIV-1/HBV Coinfected Adults (ALLIANCE)

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Background: The Asia-Pacific region has one of the highest hepatitis B burdens in the world. HIV-1/HBV coinfection is associated with higher liver-related mortality than HBV mono-infection. Both B/F/TAF and DTG+ F/TDF have dual efficacy in managing HIV-1 and HBV infections and demonstrated high viral suppression rates in the ALLIANCE study. In a recent week 48 Asian sub-analysis of the study, B/F/TAF demonstrated superiority over DTG + F/TDF in relation to HBV DNA suppression, as well as significantly higher rates of HBsAg and HBeAg loss/seroconversion. Here, we report week 96 results from an Asian sub-analysis of the ALLIANCE study.

Methods: This was a post-hoc sub-population analysis of results from a double-blind, active-controlled trial in which treatment-naïve adults with HIV-1/HBV coinfection were randomized 1:1 to receive B/F/TAF or DTG + F/TDF (each with matching placebo). Week 96 data from study

participants of Asian descent were evaluated for this analysis.

Results: Data from 212 participants of Asian descent who were randomized and treated with B/F/TAF or DTG + F/TDF (106 in each treatment arm) were analyzed. Baseline characteristics, including age (< 50 years, 95.3 vs 96.2%), HIV-1 RNA (> 100,000 copies/mL, 30.2 vs 30.2%), CD4 count (median, 243 vs 228 cells/ μ L; <200 cells/ μ L, 38.7% vs 45.3%), HBV DNA ($\geq 8 \log_{10}$ IU/mL, 48.1% vs 50.9%), and HBeAg positive status (77.4 vs 79.2%), were similar between the treatment groups. Overall, 95.8% of participants were male. At week 96, 87.7% of participants in both treatment groups had HIV-1 RNA < 50 copies/mL (snapshot analysis) ($p=1.0000$). Numerically larger proportions of participants in the B/F/TAF vs the DTG + F/TDF group achieved HBV DNA < 29 IU/mL (75.5% vs 68.9%, $p=0.3527$) and ALT normalization by the 2018 AASLD criteria (73.6% vs 53.8%, $p=0.0552$).

Compared with DTG + F/TDF, participants treated with B/F/TAF maintained significantly higher rates of HBsAg loss (24.5% vs 10.4%, $p=0.0058$), HBeAg loss (39.0% vs 14.3%, $p=0.0004$), and HBeAg seroconversion (34.1% vs 11.9%, $p=0.0008$) at week 96. There was a numerically higher rate of HBsAg seroconversion for B/F/TAF vs DTG + F/TDF (10.4% vs 4.7%, $p=0.119$).

Adverse event rates were similar between treatment groups. For B/F/TAF and DTG + F/TDF, median changes in body weight from baseline at week 96 were 4.0 kg (IQR, 0.7, 7.7) and 2.3 kg (-0.3, 5.7), respectively.

Conclusions: In an Asian population with HIV-1/HBV coinfection, both B/F/TAF and DTG + F/TDF achieved high rates of HIV-1 RNA and HBV DNA suppression over 96 weeks, with the B/F/TAF treatment group attaining significantly higher rates of HBeAg/HBsAg loss and HBeAg seroconversion than the DTG + F/TDF group.



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Dolutegravir/lamivudine versus bicitegravir/emtricitabine/tenofovir alafenamide fumarate: Real-world Assessment of weight Gain in people living with HIV of Asian Origin (DRAGON study)

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Background: Studies have shown an increase in weight among people living with HIV (PWH) who have undergone integrase strand-transfer inhibitor (INSTI) containing antiretroviral therapy (ART). However, limited data are available regarding analysis of risk factors of weight gain among individuals of Asian origin. The aim of our study was to assess associated factors of weight gain after initiating or switching to dolutegravir/lamivudine (DTG/3TC) or bicitegravir/emtricitabine/tenofovir alafenamide fumarate (BIC/FTC/TAF) among treatment-naïve or experienced PWH.

Methods: This was a retrospective, multiple-center, observational cohort study conducted at seven HIV-care-designated hospitals from October 2019 to October 2023. Information on demographics, body weight, clinical characteristics, laboratory testing, HIV viral loads, and lipid profiles was collected and analyzed. The first weight measure after the prescription of DTG/3TC or BIC/FTC/TAF, both pre- and 30 days

post-index, was defined as baseline weight. The last measure at week 48, both pre- and 30 days post, was defined as post-weight. Weight change was reported as absolute change and the proportion of patients with increased weight.

Results: A total of 2,196 patients were included, with 969 in the DTG/3TC group and 1,227 in the BIC/FTC/TAF group. At baseline, 21.7% were >50 years old, 92.4% were males, and 15.6% were treatment-naïve patients (mean baseline weight: DTG/3TC: 71.8 ± 13.3 kg, BIC/FTC/TAF: 68.6 ± 11.3 kg; $p < 0.01$). Among treatment-naïve individuals, 88.3% (53/60) of patients in the DTG/3TC group and 92.6% (262/283) in the BIC/FTC/TAF group achieved HIV RNA <50 copies/mL ($p = 0.28$); among virally suppressed and treatment-experienced individuals, 97.4% (885/909) of patients in the DTG/3TC group and 98.0% (925/944) in the BIC/FTC/TAF group maintained HIV RNA <50 copies/mL ($p = 0.37$) at week 48. Statistical analysis revealed no differences from baseline to week 48 between both groups regarding total cholesterol (2.7 vs 6.5 mg/dL, $p = 0.05$), HDL (0.6 vs 0.9 mg/dL, $p = 0.54$), and triglycerides (-8.9 vs -7.5 mg/dL, $p = 0.82$). However, significant differences were observed in body weight (1.3 vs 2.6 kg, $p < 0.01$) and LDL (0.5 vs 5.7 mg/dL, $p < 0.01$) between the DTG/3TC and BIC/FTC/TAF groups. Additionally, 192 patients (7.7%) exhibited ≥10% weight gain. Logistic regression analysis identified risk factors for ≥10% weight gain, including ART-naïve PWH (AOR 2.53, 95% CI 1.81–4.10), previous ART containing TDF with a switch to BIC/FTC/TAF (AOR 2.05, 95% CI 1.40–2.98), previous ART containing TAF with a switch to BIC/FTC/TAF (AOR 2.18, 95% CI 1.33–3.57), previous ART containing efavirenz (EFV) (AOR 1.93, 95% CI 1.23–3.01), and previous ART containing boosted protease inhibitors (PIs) (AOR 3.24, 95% CI 1.64–6.39).

Conclusions: In a real-world setting, BIC/FTC/TAF is associated with greater weight gain compared to DTG/3TC. Furthermore, previous antiretroviral therapy containing EFV or boosted PIs may increase the likelihood of experiencing greater weight gain. The study results provide valuable insights to healthcare providers when discussing treatment choices with PWH.



10

Same-day treatment of sexually transmitted infections among people living with HIV: an opportunity to apply lessons learned from community-led clinics in Bangkok, Thailand

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Background: Community-led clinics are successful in providing same-day antiretroviral treatment (SDART). However, a gap in management of other sexually transmitted infections (STIs) among key populations with HIV remains unaddressed, including treatment of chlamydia trachomatis (CT), *Neisseria gonorrhoeae* (NG), syphilis, hepatitis B virus (HBV), and confirmatory testing and treatment for hepatitis C virus (HCV).

Methods: We implemented SDART at two community-led clinics in Bangkok, Thailand. Thai nationals who tested HIV positive, were at least 13 years old, and had never received ART were eligible for SDART. During the baseline visit, STI, HBV, and HCV testing were conducted. Descriptive analyses were performed.

Results: From October 2021-September 2023, 609 people tested HIV-positive, and 595 (97.7%) initiated SDART. Of those, 542/595 (91.1%), 44/595 (7.4%), and 9/595 (1.5%) were men who have sex with men, transgender women, and cisgender women, respectively. Among people initiating SDART, 120/595 (20.2%), 60/595 (10.1%), and 182/595 (30.5%) tested positive for CT, NG, and syphilis, respectively, 51/595 (8.6%) had CT-NG co-infection. HBV and anti-HCV positivity were 31/595 (5.2%) and 38/595 (6.4%), respectively. HCV-RNA confirmatory testing rate was 22/38 (57.9%), with 15/595 (2.5%) testing

positive. All clients with positive STI or HCV were referred for treatment, of those 114/171 (66.7%) initiated treatment for CT, 85/111 (76.6%) for NG, 154/182 (84.6%) for syphilis, and 8/15 (53.3%) for HCV. All clients initiated a tenofovir-based SDART regimen, including those with HBV.

The median (min-max) times to treatment after diagnosis were 1 day (0-90) for CT, 3 days (0-118) for NG, 3 days (0-124) for syphilis, and 0 days (0-286) for HCV. The median (min-max) time to confirmation after screening for HCV was 5 days (0-112). Overall, for 33.15% of clients with STI or HCV, treatment was initiated after more than 5 days.

Conclusions: Key populations with HIV initiating SDART at community-led clinics have high STI prevalence. While community-led clinics are successful in providing HIV treatment services, linkage to timely STI management remains a challenge. Using lessons from SDART implementation, same-day STI test and treat should be integrated at community-led clinics, as another promising strategy in order to eliminate HIV and STI co-infections.



11

The Effectiveness of Co-Created Digital Intervention to Improve PrEP Adherence Among Chinese Men Who Have Sex with Men: A Stepped-wedge Randomized Trial in China

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Background: Co-creation – an iterative process where researchers and participants work together in health intervention- is a promising strategy for encouraging behavior change. We conducted a stepped-wedge trial (SWT) to evaluate the efficacy of co-created digital PrEP adherence messages to facilitate adherence among Chinese MSM PrEP users.

Methods: This trial is nested in a PrEP demonstration trial in Guangzhou and Wuhan, China (NCT04754139). Participants were provided TDF/FTC for 12 months and followed up quarterly. MSM were randomly allocated to four sequential groups receiving weekly WeChat-based (a popular Chinese chat media) PrEP adherence messages in a quarterly staggered order. Intervention messages were co-created through open calls and three co-creation rounds with 19 PrEP users in the trial, including short videos, images, and infographics. Generalized linear mixed-effects models were used to assess primary outcomes, including self-reported optimal PrEP adherence (daily users: 6-7 pills/week, on-demand users: full compliance with the 2-1-1 dosing scheme per sex event), self-initiated switching between daily and on-demand

dosing strategies, and retention in care (i.e. whether the loss to follow-up).

Results: From July 2021 to December 2023, 910 MSM (mean age=28.4, IQR=24.1-31.6) who completed at least one follow-up survey (i.e. at 3 months) were included. About 24.2% of the participants were college students, and 64.1% had 2 or more sex partners in the past 3 months. SWT cluster sizes at baseline were 251, 272, 280, and 282, respectively. About 25% (n=277) of the participants were lost to follow-up before the 12th month, with no significant difference across SWT clusters. Throughout the trial, approximately 60% of the participants reported almost 100% adherence to PrEP, with an insignificant secular trend of declining adherence over time. The co-created PrEP messages intervention marginally improved adherence levels (aOR=1.07, 95%CI.: 0.82-1.40), but not statistically significant. On-demand PrEP users [(55%) versus daily PrEP users (45%) were less likely to report optimal adherence (aOR=90.2, 95%CI.: 54.59-148.99). MSM of younger age or with higher income are more likely to report optimal adherence.

Conclusions: Co-creating PrEP adherence intervention messages with Chinese MSM has the potential to improve self-reported adherence. Our findings of varied adherence performance among individuals highlight the need for future research into differentiated PrEP interventions.



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Abstract number 12 has been withdrawn.



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Preferences for accessing pre-exposure prophylaxis among men who have sex in Australia

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Background: The introduction of HIV pre-exposure prophylaxis (PrEP) has contributed significantly to reducing annual HIV notifications among men who have sex with men (MSM). However, PrEP usage remains below the national 75% coverage target. This study examined PrEP choice drivers, predictors of uptake for different program models, and identified subgroups with similar preferences among MSM in Australia.

Method: MSM aged ≥18 years with no prior HIV diagnosis and residing in Australia completed an online discrete choice experiment (DCE) between May and November 2022. They were recruited through dating apps and local MSM community organisations. We used random parameters logit (RPL) models to estimate each attribute's relative importance and predict PrEP uptake for varied program configurations. A latent class model (LCM) was used to explore sub-groups with similar preferences for PrEP programs.

Result: Overall, 1,892 MSM participated, with a mean age of 40 (±12.7) years. Cost was the most important driver of PrEP program choice, followed by the type of PrEP, side effects, extra sexually transmitted infection (STI) testing, location and visit frequency. The least preferred PrEP program, which resulted in 48% predicted uptake, consisted of a cost of AU\$100, a removable PrEP implant

with potential rare kidney problems, and access to PrEP via hospital every two months without STI testing. Our model predicted that the uptake could increase up to 100% with the most preferred PrEP program, which included free long-acting oral PrEP with no side effects, accessing PrEP via a pharmacy annually, and including STI testing. The LCM identified four groups of MSM: "Long-acting oral or injectable PrEP from STI clinics" (22%), "Daily oral PrEP from pharmacy" (5%), "Long-acting oral PrEP from pharmacy" (52%), and "injectable PrEP from the hospital" (22%).

Conclusion: There is a growing demand for alternatives to oral daily PrEP, with the majority of MSM in Australia prefer long-acting oral or injectable PrEP. Decentralising access to PrEP through pharmacies was also preferred by the majority. Re-designing PrEP programs to cater for changing preferences could optimize the uptake of PrEP and accelerate the achievement of eliminating HIV transmission in Australia.



14

Impact of changing PrEP regimens on retention among men who have sex with men in Hanoi, Vietnam (2020-2023)

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Background: Understanding retention patterns among people who use HIV pre-exposure prophylaxis (PrEP) is necessary to achieve its protective benefits. We examined the association of PrEP retention with use of daily, event-driven (ED), or regimen switching reported at last visit among men who have sex with men (MSM) in Hanoi, Vietnam.

Methods: Between April 2020 and February 2023, we collected data from PrEP clients at Hanoi Medical University. We restricted analysis to those who were male at birth, identified as male, reported sex with men, and returned for follow-up. The routine follow-up schedule was: 30 days after the initial visit, 60 days after the first revisit, and every 90 days thereafter. Clients were prescribed either ED or daily PrEP at the initial visit; at subsequent visits, clients reported the regimen used since the prior visit. For analyses, we defined three categories of PrEP use: ED-PrEP exclusively, daily PrEP exclusively, and switching between the two. The outcome was time to first discontinuation in the study period, defined as missing a scheduled visit by >30 days. We performed survival analysis using Kaplan-Meier curves.

Results: In total, 2,115 people were included; 61.1% (n=1,292) reported using daily PrEP exclusively, 10.5% (n=221) using ED-PrEP exclusively, and 20.7% (n=602) switched PrEP regimens. Among those who switched, 425 (70.6%) switched once and 177 (29.4%) switched multiple times. Median time to first discontinuation was 105 days [IQR: 80-204] among

those reporting ED-PrEP at last visit, 104 days [IQR: 119-411] among those reporting daily PrEP, and 136 days [IQR: 123-386] among those who switched (multi-switchers: 231 days; one-time switchers: 133 days) (Figure 1).

Conclusion: We provide real-world data from MSM in Vietnam that switching between PrEP regimens is common. Those who switched had longer periods of retention during the study period. This supports offering PrEP clients in global settings an option to switch regimens.



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Assessing HIV prevention coverage among men who have sex with men (MSM) across 15 countries in Asia: Results from the PrEP APPEAL Study

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Background: Asia has some of the fastest growing epidemics among men who have sex with men (MSM) globally. Measuring behaviours associated with HIV risk is critical to determine areas for improvement and monitoring.

Methods: We used data from an online cross-sectional survey conducted in 15 Asian countries and territories among MSM from May to November 2022 (Cambodia, China, Hong Kong, India, Indonesia, Japan, Lao People's Democratic Republic [PDR], Nepal, Malaysia, Myanmar, Philippines, Singapore, Taiwan, Thailand, Vietnam). Among those who were sexually active, we assessed behavioural HIV risk from questions on sexual behaviour, condom use, and PrEP use in the last 6 months. Risk categories were: 1) No anal/vaginal intercourse, 2) Consistent condom use with all casual partners, 3) Condomless intercourse with casual partners (CLIC) with PrEP, and 4) CLIC without PrEP; the final category was considered the highest-risk for HIV. Factors associated with CLIC without PrEP were identified with multivariable logistic regression.

Results: Among 13,437 MSM, within the last 6 months, 1,520 (11.3%) had no anal/vaginal sex, 4,016 (29.9%) consistently used condoms, 1,984 (14.8%) had CLIC with PrEP, and 5,917 (44.0%) had CLIC without PrEP. This varied significantly by country. For example, CLIC without PrEP ranged

from 76% in Lao PDR to 28% in Vietnam; CLIC with PrEP ranged from 38% in Nepal to 2% in India; and consistent condom use ranged from 41% in China to 16% in Lao PDR and Nepal. Compared to those not at highest-risk, participants reporting CLIC without PrEP were more likely to: live in a high-income country (28.4% vs 33.9%, aOR=1.40, 95%CI=1.29-1.51), have been paid for sex (10.3% vs 12.8%, aOR=1.37, 95%CI=1.21-1.54), or have engaged in chemsex (18.3% vs 21.2%, aOR=1.23, 95%CI=1.12-1.35). They were less likely to: be older (31.4 vs 30.9, aOR=0.99, 95%CI=0.99-0.99), be in a relationship (44.5% vs 41.9%, aOR=0.93, 95%CI=0.86-1.00), or have engaged in injecting drug use (7.4% vs 6.1%, aOR=0.71, 95%CI=0.61-0.83). They were more likely to prefer event-driven PrEP (23.9% vs 26.0%, aOR=1.29, 95%CI=1.15-1.44) or a monthly oral pill (23.9% vs 26.1%, aOR=1.32, 95%CI=1.18-1.48) compared to daily PrEP.

Conclusions: Significant proportions of MSM throughout Asia reported sexual behaviour with a risk of HIV transmission: overall, this was nearly half of participants at 44%, with more than 50% of MSM in four of the countries being in this category (i.e. Lao PDR, Indonesia, Taiwan and Japan). Greater PrEP access, including to new PrEP modalities, and supporting condom use, should remain priorities in this region.



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Fully Integrated Mental Health Management within Routine HIV Adolescent and Young Adult Services using a Collaborative Care Model in Thailand: Lessons Learned

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Background: Approximately 20% of Thai adolescents and young adults living with HIV (ALHIV) have mental health disorders (MHDs). Thailand has only 8 mental health professionals per 100,000 population compared to the global average of 13 and 45 in Europe. We aimed to provide a fully integrated collaborative care model (CCM) for mental healthcare in routine ALHIV clinic services to improve access.

Description: This program was conducted in a hospital-based clinic for ALHIV aged 15-24 years in Bangkok.

Phase 1 (2018-2019): PHQ-9 screening was routinely conducted at clinic visits. If ALHIV had moderate depressive symptoms (PHQ-9 score > 9), scored > 0 to question 9 of the PHQ-9 on suicidality, or pediatricians diagnosed major depressive disorder (MDD) using DSM-5, they were referred to the psychiatrist.

Phase 2 (2020-2023): The CCM utilizes collaboration and task shifting between a mental health specialist and primary care team to deliver shared care plans that incorporate patient goals. CCM was integrated into the clinic for mental health care. Initial capacity building of HIV care providers (physicians, nurses, counsellors) on basic mental health care (counselling, psychiatric medication) and monthly meetings (case management guidance) by a supervising

psychiatrist and protocol-driven care (management plans based on PHQ-9 follow-up scores at set intervals offering a combination of continued counselling, pharmacotherapy and/or monitoring) was conducted. All initial mental health care assessment and management, including emergencies, was done by clinic staff. Case managers accompanied ALHIV referred to psychiatric clinic and coordinated care delivery for moderate to severe conditions.

Lessons Learned: Between 2018-2023, 312 ALHIV were served, 57% of whom had acquired HIV during adolescence while 43% had perinatally-acquired HIV. Median age was 18 years. Eighty (25.6%) were diagnosed with MHDs, most commonly MDD (83.8%) and to a lesser extent bipolar disorder (7.5%). Of these, 19/80 (23.8%) attempted suicide, often in the context of HIV diagnosis, major life events or crystal methamphetamine intoxication. Psychiatrist-delivered care reduced from 100% in phase 1 to 37% in phase 2. Mental health outcomes were not systematically measured in phase 1, but in phase 2, 52.5% achieved remission of their MHD, 38.8% receive ongoing care and 8.7% refused care but remain in follow-up.

Conclusions: ALHIV access to mental health services was improved through existing provider trust, reduced stigma in accessing psychiatric services and reduced clinic visits. Monthly meetings empowered providers. The integrated CCM for mental health care supports WHO's fourth 90 on optimizing quality of life for people living with HIV.

Integrated mental health care using CCM enabled increased ALHIV mental health care accessibility and sustainable mental health care provision by HIV staff. This model can be adapted to other youth-focused services in middle-income countries. Cost-utility analyses looking at care delivery expenses relative to patient benefits are underway to explore the cost-effectiveness of this model of care.



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Enhancing access to HIV, sexual and reproductive health, and gender-based violence services for female entertainment workers in Cambodia: a cluster randomized controlled trial of a mobile health intervention

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Background: The challenges of reaching and linking female entertainment workers (FEWs) to essential health services are compounded by their elusive nature and the associated stigma. This implementation research developed, implemented, and evaluated the Mobile Link. This mobile health intervention actively engaged and connected FEWs with available HIV, sexual and reproductive health, and gender-based violence (GBV) services through a network of peer outreach workers in Cambodia.

Methods: In a randomized controlled trial spanning 2018 to 2022, 600 participants aged 18 to 30 were randomly selected from a pool of 4,000 female entertainment workers (FEWs) in Cambodia's capital city and three provinces. Utilizing a random number generator, 300 were assigned to the intervention arm, receiving automated health messages and direct links to peer outreach workers. The remaining 300 formed the control group receiving standard services. Outcome measures encompassed self-reported HIV/syphilis testing, contraceptive use, contact with peer outreach workers, escorted referral service utilization, forced drinking experiences, and gender-based violence incidents. Data analyses involved repeated measures and multilevel mixed-effects logistic regression.

Results: We included 218 FEWs in the intervention and 170 in the control arms in per-protocol analyses. Positive intervention effects were observed in specific areas. FEWs in the intervention group were significantly more likely to contact an outreach worker (at 30 weeks: AOR 3.29, 95% CI 1.28–8.47) and receive an escorted referral (at 30 weeks: AOR 2.86, 95% CI 1.09–7.52; at 60 weeks: AOR 8.15, 95% CI 1.65–40.25). Additionally, the intervention group showed a significant reduction in instances of forced drinking at work compared to the control group (at 60 weeks: AOR 3.95, 95% CI 1.62–9.60). However, no significant differences were noted in fully adjusted models for primary outcomes.

Conclusions: The Mobile Link intervention effectively connected FEWs with outreach workers and facilitated escorted referrals, indicating promise in addressing specific issues such as forced drinking. While the impact on primary outcomes was not significant, the potential for longer-term messaging to enhance service access and influence the health outcomes of FEWs is evident, highlighting avenues for future improvements in this mobile health intervention.



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Developing and evaluating an HIV self-testing service with online real-time counselling provided by an artificial intelligence Chatbot (HIVST-Chatbot)

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Background: Proactively providing counseling support for all HIV self-testing (HIVST) users could increase the linkage to care. HIVST-OIC, the provision of online real-time instruction and counseling for HIVST, was an evidence-based HIVST intervention developed by our team. Although the HIVST-OIC is effective in increasing HIVST uptake and the proportion of HIVST users receiving counselling along with testing, it requires intensive manpower to implement and is less sustainable. In this study, we developed an artificial intelligence Chatbot to provide real-time instruction and counseling for HIVST users (HIVST-Chatbot).

Objectives: The primary objectives are to compare the efficacies of HIVST-Chatbot and HIVST-OIC in increasing HIVST uptake and proportion of HIVST users receiving counselling along with testing.

Methods: A partially-blinded (outcome assessors and data analysts), parallel-group, and non-inferiority RCT was conducted. Participants were Hong Kong Chinese-speaking sexually-active MSM aged ≥ 18 years. Those who have been diagnosed as HIV-positive were excluded. A total of 531 participants were recruited through multiple sources and randomized evenly to either the HIVST-Chatbot (n=266) or the HIVST-OIC group (n=265).

In the HIVST-OIC group, participants watched an online video promoting HIV testing in general and

HIVST-OIC, selected their preferable HIVST kits (oral fluid-based or blood based), chose a service model (comprehensive version: both real-time pre-test and post-test counseling, or simplified version: real-time post-test counseling only). Upon appointment, an experienced HIV testing administrator implemented HIVST-OIC through live-chat applications. Users who received a positive result were given immediate psychological support and linked to care.

In the HIVST-Chatbot group, participants watched an online video promoting HIV testing in general and HIVST-Chatbot, and selected their preferable HIVST kits. Participants could get the Chatbot to implement their preferable service model (comprehensive or simplified) without a previous appointment. Chatbot would provide standard-of-care pre-test and/or post-test counseling. Users were asked to report their results by answering a multiple-choice question, and to upload a photo of their testing result to a secure webpage for verification. For users receiving a positive result, the Chatbot would automatically and immediately notify designated supporting staff, who would follow up with the user as soon as possible. Intention-to-treat (ITT) analysis was performed.

Results: Majority of the participants were under 35 years old (56.9%), received tertiary education (84.0%), and identified themselves as gay (90%). At Month 6, 194 participants (72.9%) in the HIVST-Chatbot group and 196 participants (74.0%) used any type of HIVST during the follow-up period. The between-group difference in the HIVST uptake was statistically non-significant ($p=.79$). The proportion of HIVST users received counseling support was significantly higher in the HIVST-Chatbot group than that in the HIVST-OIC group (93.3% vs. 61.2%, $p<.001$). Regarding the types of counseling, more HIVST users in the HIVST-Chatbot group received comprehensive version than that in the HIVST-OIC group (35.6% vs. 5.1%, $p<.001$).

Conclusion: The HIVST-Chatbot is feasible and acceptable to deliver real-time counseling support for MSM HIVST users in Hong Kong. The RCT proved that the HIVST-Chatbot was non-inferior to HIVST-OIC in improving HIVST uptake among MSM. More HIVST users in the HIVST-Chatbot group received counseling along with HIVST.



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Integrating strengths from various sources through a digital health platform: an online-to-offline service model for HIV pre-exposure prophylaxis (PrEP)

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Background: Over the past decade, PrEP has globally proven highly effective, reducing the risk of acquiring HIV by at least 90% among men who have sex with men (MSM). In 2020, China approved TDF/FTC for PrEP. However, PrEP services, primarily provided by hospitals specializing in HIV antiretroviral treatment (ART), face low utilization due to factors such as intricate clinic procedures and inadequate friendliness towards the LGBT community. In Guangzhou, a prominent city in China, the proportion of MSM seeking PrEP services in 2022 was merely 4.9% compared to post-exposure prophylaxis cases in these HIV ART hospitals, emphasizing the need for more convenient, LGBT-friendly, and complementary service models.

Description: The HIV digital health platform, named "Chabei," established by our team, functions as a central hub connecting organizations specializing in specific services to form an online-offline PrEP service model. Initially, LGBT community-based organizations (CBOs) offer online/offline MSM-friendly consultation and assessments for PrEP. Guangzhou center for disease control and prevention, in collaboration with third-party testing facilities, conduct offline testing for HIV, HBV, HCV, STIs, and creatinine. Physicians familiar with ART medicines review test results and prescribe PrEP medications through online medical platforms. The medications are then delivered to MSM by the online medical platform. Subsequent follow-up, including testing and medication renewal, is managed by CBOs. The HIV digital health platform acts as a unified portal for all online/offline services, integrating service processes and data from different organizations to

enhance efficiency, user experience, and data flow. In this model, consultation, assessment, testing, and follow-up services are all provided free of charge, with MSM only responsible for medication costs.

Lessons learned: This model was designed in 2019 and launched in Guangzhou in December 2021. As of June 2023, we have provided PrEP consultations for a total of 920 MSM, with 223 participating in pre-medication testing. Among, 4 individuals with positive HIV antibodies were deemed unsuitable for PrEP, while 6 with positive HBV antigen were referred to HIV ART hospitals for further assessment. Additionally, 27 exhibited abnormal creatinine levels, but the severity did not preclude PrEP use. Ultimately, 207 MSM initiated PrEP through our model, representing 3.6 times the service volume of all HIV ART hospitals in Guangzhou during the same period. In our model, 99.5% of PrEP users opted for event-driven PrEP, with 50.7% participating in the follow-up. No instances of HIV antibody seroconversion observed up to the present.

Conclusions/next steps: By integrating strengths from various sources through the HIV digital health platform, this model blends the convenience of online healthcare with standardized, safe, and MSM-friendly PrEP service procedures. Our model represents a distinctive complement to the PrEP services offered by HIV ART hospitals, improving the applicability and promotion of PrEP. It has considerable potential for adaptation and expansion to other Chinese cities. In the next phase, we aim to investigate simplified processes and flexible follow-up methods in accordance with the WHO PrEP guidelines.



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Integrating hepatitis C virus self-testing into HIV and harm reduction services as an approach towards HCV micro-elimination among key populations and people living with HIV in Vietnam.

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Background: Hepatitis C virus self-testing (HCVST) is an innovative approach to accelerate progress towards HCV elimination goals. We conducted a cross-sectional observational study to assess the acceptability and effectiveness of HCVST compared to routine HCV testing among key populations (KP) and people living with HIV (PLHIV) in Hanoi and Ho Chi Minh City, Vietnam.

Methods: From September 2023 to January 2024, we engaged eight community-based organizations (CBOs), six anti-retroviral therapy and methadone maintenance treatment (MMT) public clinics, and four KP-led private clinics in implementing community-based, facility-based, online, and secondary distribution. Clients were offered the choice of an oral fluid-based HCVST, or rapid HCV testing provided by CBOs and clinic staff (PL-HCVT). Individuals with a positive HCV test were referred or linked to designated public and private clinics for HCV confirmatory testing and treatment initiation. Acceptability of HCVST was defined as the proportion of first-time HCV testers utilizing the service, and effectiveness was measured by HCV positivity and treatment initiation rates.

Results: Of 2,882 individuals recruited, 1,858 opted for HCVST and 1,024 opted for PL-HCVT. The proportion of first-time HCV testers was significantly higher among HCVST clients compared to PL-HCVT clients (67.6% vs. 59.1%), and particularly high in secondary distribution and community-based HCVST compared to online and facility-based HCVST (91.4% and 83.8% vs. 48.9% and 36.8%, respectively). Overall, HCV positivity

rate was lower in HCVST than in PL-HCVT (11.1% vs. 17.9%), however, it was higher in community-based and facility-based HCVST compared to secondary distribution and online HCVST (17.7% and 16.8% vs. 3.6% and 1.5%, respectively). HCV positivity rate was highest among PLHIV (27.5%), followed by MMT clients (25.5%), people who inject drugs (17.2%), KP partners (3.9%), female sex workers (2.8%), and men who have sex with men (0.3%). Of 392 HCV positive individuals detected, 208 were from HCVST, of which 94.1% received confirmatory testing, and 93.2% of them initiated HCV treatment.

Conclusions: HCVST is an additional effective approach to increase uptake of HCV testing and treatment among KPs and PLHIV. HCVST is most effective in reaching unreached high-risk populations through community-based model, followed by facility-based, secondary distribution and online distribution.



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Outcomes from a community-clinic hybrid PrEP approach as part of a clinical trial in China, 2021-2023

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Introduction: Data on PrEP uptake, persistence, discontinuation, adverse events, and HIV incidence among Chinese at-risk PrEP users is limited. This study addresses the research gap by summarizing the results of a PrEP phase 4 clinical trial in China.

Methods: We conducted a 12-month PrEP demonstration project in Wuhan and Guangzhou, China, using a community-clinic hybrid model for recruitment, participant engagement, and PrEP delivery. The healthcare providers implemented oral PrEP prescribing, medical consultation, and medicine dispensed through clinic visits or mail-delivered PrEP by community-based organizations. PrEP refill was monthly for the first quarter and trimonthly thereafter. PrEP persistence (defined as finishing the follow-up as required) and adherence (defined as self-reported taking more than 4 pills in 7 days for daily and over 75% strict adherence to 2+1+1 for event-driven dosing) information was surveyed quarterly. Enrollment, PrEP persistence, adherence, discontinuation, and adverse events were descriptively summarized.

Results: From September 2021 to December 2023, we screened 3649 PrEP-eligible participants. Of those, 1138 participants started oral PrEP, with a median age of 29.1(SD=5.9). Most participants identified as gay or bisexual(1066/1138) and cis-gender men(1134/1138). After initiation, PrEP persistence at 3, 6, 9, and 12 months were 83.7%(947/1131), 76.9%(795/1034), 68.2%(589/864), and 60.6%(439/724) respectively. At 3-month follow-up, 43.8%(415/947) and 56.2% (532/947)

chose the daily and on-demand regimen. In the end, 39.4%(173/439) of participants reported increasing dosing strategies switching, 35.3% (61/173), 40.5%(70/173), 57.8%(100/173), 64.7%(112/173) at each time follow up. Among them 88.4%(153/173) participants had transferred from daily to the on-demand regimen. The self-reported adherence was 75.0%(774/1032), 67.8%(637/940), 58.6% (469/800), and 50.7%(340/670) at each time point. 285 participants (25.0%, 285/1138) discontinued PrEP during the study. 47.6% and 55.4% of subjects reported alcohol use and nitrates at baseline and 12 months. Six participants were seroconverted, resulting in an HIV incidence rate of 0.53 per 100 person-years. (The absence of PrEP in this population is 5.10 per 100 person-years)

Conclusion: The hybrid CBO and clinic-based model proved feasible for reaching and dispensing PrEP among Chinese at-risk populations. On-demand use and mail-order drugs were popular alternatives and one-half of participants engaged in sex using alcohol and nitrates. Long-term PrEP persistence and optimal adherence continuously decreased among Chinese users during the 12 months.



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Machine Learning Algorithms for Predicting HIV Infection among Young Men Who Have Sex with Men in Thailand.

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Background: Scaling up of HIV testing among key populations in Thailand has indicated an increasing trend in the number of new HIV infection among young men who have sex with men (MSM). The study aimed to develop machine learning (ML) models to predict HIV infection and assessed the associated factors at diagnosis among young MSM through the Universal Health Coverage program (UHC) in Thailand.

Methods: Young MSM aged 15 to 24 years at HIV testing through the UHC program from 2015 to 2022 were included. HIV infection was diagnosed HIV positive in the database according to the UHC program. Risk factors included age, year at HIV test, HIV routine testing, region, nonoccupational post-exposure prophylaxis, number of HIV testing, prisoner status and having a sexual partner with HIV. We divided data for the model development into two groups: training data (70%) and testing data (30%) by applying Synthetic Minority Oversampling Technique to address the imbalance in the dataset. ML models, including K-nearest neighbor (KNN), Random Forest (RF) and Extreme Gradient Boosting (XGB), were established to predict HIV infection. Model performance was evaluated using accuracy, precision, sensitivity, specificity, and the Area Under the Curve (AUC). Feature selection was based on the feature importance (FI) score derived from the best-performing ML model. Multivariable logistic regression was used to investigate factors associated with HIV infection based on the top ranked of FI score.

Result: A total of 146,813 young MSM were included, 11% were diagnosed with HIV. The median age at HIV test was 20 years and 74% underwent routine HIV testing (defined as a rate of tests per year ≥ 1.5 tests/year). Most young MSM were from Northeastern region (26%) and followed by Northern region (21%) and Bangkok (15%). After developing ML with feature selection, the XGB model exhibited the highest performance of predicting HIV infection, with 72% accuracy, 88% precision, 73% sensitivity, 72% specificity and 72% AUC, respectively. The XGB algorithm ranked the top three important predictors based on FI scores, which were routine testing (27.8%), year at HIV test (26.3%) and age at HIV testing (18.4%). In the multivariable model, MSM with age 20-24 years (aOR 2.63, 95%CI 2.53-2.74) had a higher risk of testing positive for HIV compared to those aged 15-20 years. Young MSM who underwent routine testing (aOR 3.23, 95%CI 2.99-3.49) were more likely to test positive for HIV than those who did not have routine testing. Additionally, young MSM who were tested for HIV between 2015-2017 (aOR 6.31, 95%CI 6.01-6.63) and 2018-2020 (aOR 2.51, 95%CI 2.41-2.62) had higher odds of HIV infection compared to those tested during 2021-2022. Young MSM with a sexual partner with HIV (aOR 6.10, 95%CI 4.23-8.80) were at a higher risk of HIV infection.

Conclusion: XGB machine learning algorithm effectively identified significant predictors for HIV infection among Thai young MSM. Limitations include the absence of PrEP data or sexual behavior, which could influence HIV diagnosis. These findings support the scale-up of HIV testing to monitor community HIV risk potential through UHC program in Thailand.



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A mobile health approach for facilitating regular HIV testing among men who have sex with men

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Introduction: HIV testing plays a crucial role in identifying undiagnosed people living with HIV and promoting early access to treatment. Innovative means is warranted to boost the suboptimal regular testing rate among men who have sex with men (MSM). To this end, this study aimed to assess the effectiveness of a mobile health (mHealth) approach in promoting regular HIV testing.

Methods: A stepped wedge trial was designed to compare the effectiveness of two approaches, namely an mHealth approach with text message-based reminders and an HIV self-test (HIVST) subscription model. The 1-year observation period was divided into 3-month intervals. All participants started with the mHealth approach then crossed over to the HIVST arm at Month 3, 6, or 9, depending on the 1:1:1 randomization at baseline. Participants in either arm received a text message (reminder for the reminder arm, and HIVST delivery information for the HIVST arm). Fourteen days after receiving the message, a follow-up survey was sent to enquire if they had undergone testing. In the current analysis, the focus was on the first interval when all participants were in the reminder arm. Proportion of and factors associated with adherence to the protocol as well as performance of HIV test were evaluated using bivariate analysis.

Results: Between 15 January and 15 March 2024, a reminder message and consequent follow-up survey were delivered to 135 recruited MSM. Totally 55 (41%) responded to the follow-up questionnaire and 28 (51%) self-reported an HIV test had been done after receiving the message.

Among them, 15 (54%) self-tested, 11 (39%) tested at a community-based organisation, and 2 tested elsewhere. The most commonly cited reason for not testing was not having time (37%), followed by not knowing where to get tested (22%) and low perceived risk (22%). Participants adhering to the protocol by completing the follow-up survey were more educated ($p=0.02$) and more concerned about the opening hours of testing services ($p=0.006$). They were also more experienced in using an HIV self-test ($p=0.02$) and did not have a preference for the type of HIV self-tests ($p=0.02$). MSM who did not get tested after receiving the reminder message were less likely to have a regular testing habit for at least twice yearly ($p=0.01$), and more likely to avoid discussing about sexual behaviours during testing sessions ($p=0.05$) and give a lower score for recommending their peers to join a text message-based reminder programme ($p=0.03$).

Conclusion: HIV self-testing has become more common in the MSM community, which could be preferred by people who did not want to share their sexual history for risk assessment when attending a testing service. The mHealth approach was useful to reinforce regular testing habit and could be promoted through peer influencers.



POSTER ABSTRACT PRESENTATIONS

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Integrated analysis of microbiome and host transcriptome unveils correlations between lung microbiota and host immune in bronchoalveolar lavage fluid of pneumocystis pneumonia patients with HIV/AIDS

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Objective: Studies have indicated that the lung microbiota of patients with pulmonary diseases is disrupted and impacts the immunity. Pneumocystis pneumonia (PCP), a severe opportunistic pulmonary infection in HIV/AIDS, is predominately attributed to host immune status. Little is known about the microbiological and immune landscape of the lungs in these patients. We aimed to explore the interaction between the lung microbiota and host immunity in PCP through multi-omics analysis.

Methods: We selected pulmonary infection patients with HIV/AIDS admitted to Beijing You An Hospital, Capital Medical University, from January 1, 2022 to August 31, 2022 and underwent bronchoscopy. Participants were divided into PCP and non-PCP group. We investigated the lung microbiota (via 16S rRNA gene sequencing) and host immune (via RNA-sequencing) on bronchoalveolar lavage fluid samples. The datasets were analyzed individually using bioinformatics approaches. Then we constructed a diagnostic model using differential genes with LASSO regression. The immune infiltration analysis was performed to explore the landscape of lung immune in patients with PCP. Additionally, we performed spearman correlation analysis to assess the correlation between the OUT abundance of differential species and the expression levels of the differentially expressed genes (DEGs) related to the MAPK signaling pathway.

Results: The study enrolled 58 patients, including 19 with PCP and 39 without. The microbiota data

showed a low alpha diversity of lung microbiota in PCP patients. At the level of phylum, patients with PCP displayed the microbiota signature in the lung characterized by the declined abundance of Actinobacteriota, Bacteroidota, Fusobacteriota and Campilobacterota, and the elevated abundance of Firmicutes and Patescibacteria compared to non-PCP samples. The predicted function of these differentially abundant microbiota primarily influenced immunity and metabolism. Transcriptome data analysis showed that compared with non-PCP patients, the PCP group had 3433 DEGs, of which 1103 genes were upregulated. These genes were mainly associated with immunity, inflammatory response as well as cell growth and death. Moreover, the Gene Set Enrichment Analysis (GSEA) revealed a down-regulation of the MAPK signaling pathway. The transcriptomic marker MAPK10, TGF β 1, and EFNA3 indicated a potential to predict the onset of PCP (AUC = 0.86, 0.73-0.99). The lung immune landscape of patients with PCP showed the lower levels of naïve CD4 T cells and activated dendritic cells compared to non-PCP individuals. The correlation analysis of the MAPK signaling pathway-related DEGs and the OTU abundance of the differential microorganisms at the level of phylum showed that the Firmicutes was negatively correlated with these DEGs.

Conclusion: In addition to characterizing lung microbiota and host immunity, our study indicated that the Firmicutes may negatively regulate the MAPK signaling pathway. This knowledge may pave the way for novel therapeutic strategies targeting the lung microbiota to enhance host immune defenses and improve outcomes in PCP patients with HIV/AIDS.



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Abstract number 23 has been withdrawn.



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Enhanced immune reconstitution with Albuvirtide in HIV-infected immunological non-responders

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Background: Incomplete immune recovery in people living with HIV/AIDS (PLWHA) remains an important clinical challenge with the lack of an effective strategy currently available to restore their T-cell immune response. This study aimed to evaluate the effect of Albuvirtide (ABT) on immune recovery in immunological non-responders (INRs) and attempted to explore potential mechanisms of ABT on the functionality of immune cells.

Methods: In this prospective, open-label, controlled clinical study, participants with incomplete immune reconstitution (continuous ART over 5 years and CD4+ T lymphocyte absolute count of <500 cells/ μ L or ART for 2-5 years and CD4+ count of <200 cells/ μ L with undetectable viral load) were received intensive treatment with ABT or maintained on the original ART regimen at a ratio of 1:1. Immune response and safety were examined within 24 weeks. In the cytological study, T subsets, cell apoptosis, and cell autophagy were analyzed using immunofluorescence staining and flow cytometry from 25 blood specimens (6 healthy donors (HDs); 5 immunological responders (IRs); 8 satisfactory immune response (sIRs); 6 unsatisfactory immune response (UIRs)). Satisfactory immune response was defined as incomplete immune reconstitution with CD4+ cell counts >200 cells/ μ L, and unsatisfactory immune response was defined as incomplete immune reconstitution with CD4+ cell counts <200 cells/ μ L.

Results: Both groups (n=25 each) in the clinical study were comparable in age, gender, and ART duration. At week 12, CD4+ cell count increased significantly in the intensive ABT group compared

with the control group (the change from baseline in CD4+ count: 45 vs. -5 cells/ μ L, $p < 0.001$). After ABT discontinuation, CD4+ cell counts remained significantly higher in the intensive ABT group at week 24 (55 vs. -5 cells/ μ L, $p = 0.012$). Participants over 45 years or ART treatment history over 5 years benefit most from ABT. All participants were well tolerated with ABT treatment. In laboratory analysis, naïve CD4+ T cell amounts were lowest among participants with UIR to ABT ($p = 0.001$). Compared with HDs and PLWHA with sIR, a decreased proportion of CD45RA+CD31+CD4+ T cells (thymocyte output) was found in PLWHA with UIR (26.5%, 31.5%, 19.3% vs 7.4%, $p = 0.001$). The proportion of caspase 3+CD45RA+CD31+CD4+ T cells (cell apoptosis) was significantly lower in participants with sIR to ABT ($p < 0.05$).

Conclusion: Significant CD4+ cell count increase suggests ABT enhances immune function in INRs which may be attributed to its antiviral properties as well as its ability to increase thymic cell output and decrease cell apoptosis.



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Altered KEGG pathways are associated with different immunologic responses to antiretroviral therapy in HIV-infected men who have sex with men

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Background: The association between Kyoto Encyclopedia of Genes and Genomes (KEGG) metabolic pathways and immunologic non-response among people living with HIV (PLHIV) on antiretroviral therapy (ART) is not well documented. This study aimed to characterize KEGG metabolic pathways 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 on ART >24 months in Guangzhou, June-October 2021. HIV-infected MSM were grouped into poor immunological responders (PIR) (CD4+ T cell count < 350 cells/ μ L) and good immunological responders (GIR) (CD4+ T cell count \geq 350 cells/ μ L). Stool samples were collected. Bacterial 16S ribosomal DNA sequencing was performed on stool samples, and KEGG metabolic pathways of gut microbiota were imputed from 16S rDNA sequences.

Results: A total of 51 HC, 41 PIR, and 56 GIR were enrolled. The median time since HIV diagnosis for PIR and GIR was 4.6 and 4.2 years. KEGG metabolic pathways were significantly different among HC, PIR, and GIR groups. Retrograde endocannabinoid signaling, pantothenate and CoA biosynthesis, bile

secretion, non-homologous end-joining, and gastric cancer were the top five important KEGG metabolic pathways associated with the immunologic responses. Specifically, retrograde endocannabinoid signaling performed best in discriminating PIR and GIR.

Conclusions: This study presented a comprehensive landscape of KEGG metabolic pathways in PLHIV with different treatment outcomes. These results suggest the potential of KEGG metabolic pathways as novel disease progression markers and therapeutic targets.



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Polymorphonuclear Myeloid-Derived Suppressor Cells regulates immune reconstitution during HIV infection through PD-L1 and TGF- β signaling

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Background: Although myeloid-derived suppressor cells (MDSCs) are widely recognized for their immunoinhibitory effect in a variety of pathological conditions, their function during human immunodeficiency virus (HIV) infection and the onset of inadequate immune reconstitution remains elusive.

Methods: We conducted a cross-sectional study in which 30 healthy controls and 62 HIV-1-infected subjects [31 immunological non-responders (INRs) and 31 immunological responders (IRs)] were selected. The proportion of MDSCs was measured and their relationship with HIV disease progression was studied. Specifically, using flow cytometry and real-time PCR, immune regulatory molecules (including programmed death-ligand 1 [PD-L1], arginase 1, inducible nitric oxide synthase, interleukin 10, transforming growth factor beta [TGF- β], and indoleamine 2,3-dioxygenase) that are relevant for MDSCs activity were quantified. Furthermore, we investigated the impact of the blockade of PD-L1 and/or TGF- β signaling on MDSCs and their effects on CD4+ T cells using in vitro functional experiments.

Results: We found that polymorphonuclear MDSCs (PMN-MDSCs) are more abundant and negatively correlated with CD4+ T-cell counts in HIV-infected individuals. PMN-MDSCs suppress CD4+ T-cell proliferation and interferon- γ (IFN- γ) production in INRs. Furthermore, correlations were found between PD-L1 expression on PMN-MDSCs and PD-1+ CD4+ T-cells. TGF- β expression on PMN-MDSCs was likewise enhanced in INRs. Importantly, inhibiting both PD-L1 and TGF- β signaling had a synergistic impact on restoring CD4+ T-cell activity in vitro.

Conclusions: PMN-MDSCs expansion inhibits CD4+ T-cell responses. We suggest that targeting PD-L1 and TGF- β pathways together may significantly improve immune reconstitution in INRs.



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The potential role of P-selectin glycoprotein ligand-1 in the onset of incomplete immune recovery in HIV infection

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P-selectin glycoprotein ligand-1 (PSGL-1) is an HIV-1 restriction factor; however, cumulative evidence indicates that expression and signaling of PSGL-1 may not be entirely beneficial to the human host. Indeed, considered to be an immunological checkpoint protein, PSGL-1 is also responsible for T-cell (i) exhaustion and (ii) loss of function. Contemporarily, the expression of PSGL-1 during HIV-1 infection, and the precise role that PSGL-1 may play in the pathophysiology of HIV infection, particularly during highly active antiretroviral therapy (HAART), remains elusive.

In this observational study, blood samples from HIV-1 positive patients under HAART [both immunological responders (IRs) and immunological nonresponders (INRs)] were collected and analyzed. Flow cytometry and qRT-PCR were used to determine the levels of PSGL-1 on/in CD4+ T-cells. Levels of CD4+ T-cell-platelet aggregates in IRs and INRs were determined using anti-CD42a antibodies. Similarly, anti-caspase 3 was used to determine the levels of caspase 3 in CD4+ T-cells and CD4+ T-cell-platelet aggregates. Also, enzyme-linked immunosorbent assay (ELISA) kits were used to determine levels of plasma markers of inflammation and/or translocation, i.e., sCD163, sCD14, sCD40, lipopolysaccharides, and β -glucans. Spearman's correlation test was used to determine the correlation between PSGL-1 expression and plasma markers of inflammation and/or translocation.

qRT-PCR results indicated that compared to INRs, intracellular expression of PSGL-1 in IRs was significantly lower ($p=0.010$). Flow cytometry analysis confirmed the preceding observation, indicating that PSGL-1 is overexpressed in INRs ($p<0.001$). Interestingly, when compared to IRs, INRs display higher levels of CD4+ T-cell-platelet aggregates ($p<0.001$). When considering individual

CD4+ T-cells, INRs display a higher proportion of caspase 3, and thus, have higher levels of apoptosis compared to IRs ($p<0.001$). In the context of CD4+ T-cell-platelet aggregates, these preliminary results suggest that PSGL-1 signaling promotes increased cellular death via apoptosis in both IRs (from 2.9% in individual CD4+ T-cells to 30.8% in CD4+ T-cell-platelet aggregates) and INRs (from 58.1% in individual CD4+ T-cells to 87.5% in CD4+ T-cell-platelet aggregates). In analysing plasma markers of inflammation and/or translocation, both IRs and INRs display significant ($p<0.05$) and strong correlations between PSGL-1 and the considered plasma markers ($r=0.86, 0.79, 0.79, 0.74, \text{ and } 0.86$, for PSGL-1-sCD163, PSGL-1-LPS, PSGL-1- β -glucan, PSGL-1-sCD14, and PSGL-1-sCD40, respectively).

It is likely that elevated levels of inflammation and microbial translocation may drive PSGL-1 upregulation in INRs. Consequently, the upregulated levels of PSGL-1 may engage P-selectin on a higher number of platelets, which consequently form elevated numbers of CD4+ T-cell-platelet aggregates. Thus, these trapped CD4+ T-cells are likely to ultimately initiate cellular death via apoptosis. Further investigations are required to validate the preceding observations.



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An atlas of immune cell transcriptomes in human immunodeficiency virus-infected immunological non-responders identified marker genes that control viral replications

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Background: Previous studies have examined the bulk transcriptome of peripheral blood immune cells in acquired immunodeficiency syndrome patients experiencing immunological non-responsiveness. This study aimed to investigate the characteristics of specific immune cell subtypes in acquired immunodeficiency syndrome patients who exhibit immunological non-responsiveness.

Methods: A single-cell transcriptome sequencing of peripheral blood mononuclear cells obtained from both immunological responders (IRs) (CD4 + T-cell count >500) and immunological non-responders (INRs) (CD4 + T-cell count <300) was conducted. The transcriptomic profiles were used to identify distinct cell subpopulations, marker genes, and differentially expressed genes aiming to uncover potential genetic factors associated with immunological non-responsiveness.

Results: Among the cellular subpopulations analyzed, the ratios of monocytes, CD16 + monocytes, and exhausted B cells demonstrated the most substantial differences between INRs and IRs, with fold changes of 39.79, 11.08, and 2.71, respectively. In contrast, the CD4 + T cell ratio was significantly decreased (0.39-fold change) in INRs compared with that in IRs. Similarly, the ratios of natural killer cells and terminal effector CD8 + T cells were also lower (0.37-fold and 0.27-fold, respectively) in the INRs group. In addition to several well-characterized immune cell-

specific markers, we identified a set of 181 marker genes that were enriched in biological pathways associated with human immunodeficiency virus (HIV) replication. Notably, ISG15, IFITM3, PLSCR1, HLA-DQB1, CCL3L1, and DDX5, which have been demonstrated to influence HIV replication through their interaction with viral proteins, emerged as significant monocyte marker genes. Furthermore, the differentially expressed genes in natural killer cells were also enriched in biological pathways associated with HIV replication.

Conclusions: We generated an atlas of immune cell transcriptomes in HIV-infected IRs and INRs. Host genes associated with HIV replication were identified as markers of, and were found to be differentially expressed in, different types of immune cells.



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Diagnostic and prognostic utility of Xpert Ultra in blood and Myco/F Lytic blood culture for TB in hospitalized patients with advanced HIV disease in Vietnam

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Background: People with advanced HIV disease (AHD) are at risk for disseminated TB that is difficult to diagnose and has high mortality. We aim to determine (1) the added value of Xpert Ultra directly in blood and Myco/F Lytic blood culture in TB diagnosis, (2) the prognostic value of cycle threshold (Ct) in blood Xpert Ultra and time to positivity (TTP) from Myco/F Lytic blood culture.

Material and Methods: We prospectively recruited hospitalized adults with AHD (CD4 count ≤ 100 cells/ μ L or WHO stage 3 or 4 disease) at three referral hospitals in Vietnam. In addition to conventional microscopy, GeneXpert, and MGIT culture of sputum and/or other clinical specimens as clinically indicated, we performed Xpert Ultra in blood and Myco/F Lytic blood culture for all enrolled participants - regardless of symptoms. Whole blood was treated with 5% acetic acid prior to Xpert procedure to remove red cells. Positive blood cultures for acid-fast bacilli were sub-cultured further for molecular identification of TB.

Participants were treated according to standard of care and were followed monthly over 24 weeks. Cox proportional hazard models were used to assess the association between 24-week mortality and (1) Ct value of IS6110-1081 gene (CtIS) in the Xpert Ultra test, and (2) TTP of Myco/F Lytic blood culture.

Results: Among 901 participants recruited between February 2021 and July 2023, 82.9% were men; median age 36 years (IQR: 29-44); median CD4 count 19 (IQR: 9-45). 253/901 participants (28.1%) had microbiologically-confirmed TB. TB was diagnosed less often by conventional approach (150/253, 60%) than the intensified approach (168/253, 66.4%), $p=0.3$, McNemar. The intensified approach identified 89 (35.2%) additional TB cases; 45 (50.6%) by Xpert only, 28 (31.5%) by Myco/F Lytic blood culture only, and 16 (18.0%) by both. Among the total 119 cases with positive Xpert, the CtIS value was significantly lower in cases where Myco/F Lytic culture was also positive (21.1 vs. 23.9, $P<0.001$, Wilcoxon rank-sum test). The 253 confirmed TB cases were divided in four Ct clusters: CtIS ≤ 21 , CtIS 21-25, CtIS >25 , and negative Xpert Ultra. Kaplan-Meier curve and a multivariable Cox regression model, adjusted for sex, age, and CD4 count, showed that CtIS ≤ 21 was associated with significantly higher mortality compared to the other 3 groups (46% vs. 24%, HR: 2.5, 95% CI: 1.3 - 4.7, $p=0.003$). In a Cox regression model adjusted for age and CD4 count, TTP (in days) was significantly associated with mortality (HR: 0.95, 95% CI: 0.91 - 0.99, $p=0.02$).

Conclusion: Screening for TB in blood using Xpert Ultra and Myco/F lytic culture detected a 35.2% additional TB cases in hospitalized patients with AHD; half of these were detected by Xpert Ultra which enables rapid TB therapy. CtIS value ≤ 21 was significantly associated with high mortality. This study reveals an important role of blood Xpert Ultra in making an early diagnosis of disseminated TB in patients with AHD, enabling early therapy as well as prognosis of patient outcome.



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Mortality Risk Prediction Model in AIDS Patients with Pneumocystis Pneumonia in China

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Introduction: We aimed to develop a risk model for the near-term prognosis of acquired immunodeficiency syndrome (AIDS) people with pneumocystis pneumonia (PCP) and verify its effectiveness.

Methods: This single-center, retrospective observational study was conducted at Beijing Youan Hospital, Capital Medical University from January 2012 to October 2022. Totally, 972 eligible AIDS patients with PCP were recruited. The patients were divided into death group and survival group according to clinical outcome during hospitalization. Data of the two groups were collected including general information and laboratory tests. We adopted two methods (Multivariate logistic regression and Lasso regression) to screen prediction variables. Then, we used Receiver Operating Characteristic (ROC) curve to identify the discrimination of training and testing data sets. Finally, we used Sharpley Additive exPlanations (SHAP) values to explain the feature weights.

Results: The overall mortality rate among hospitalized patients was 17.8%. We found that the best prediction effect can be obtained when albumin (ALB), arterial oxygen partial pressure (PaO₂), Total bilirubin (TBIL), lactate dehydrogenase (LDH), CD4 counts were incorporated into the PCP risk prediction model. The model had a perfect discrimination with area under curve (AUC) of 0.994 and 0.947 in training and testing cohorts. Other model performance evaluation indicators: accuracy, precision, recall, and F1 scores of 0.816, 0.507, 0.926, and 0.656 in the training dataset; 0.902, 0.579, 0.917, and

0.710 in the testing dataset, respectively. The calibration curve showed good consistency between the training dataset and the testing dataset. Hosmer Lemeshow goodness of fit test $p > 0.05$. The importance of variables was measured by the mean SHAP value. Based on the linear transformation of the measured values and SHAP values of each variable, a prognostic model scoring system was ultimately established. The prognosis risk grade was divided into three grades: low-risk group (0-25 points, mortality rate 5.9%), moderate-risk group (25-50 points, mortality rate 45.1%) and high-risk group (greater than 50 points, mortality rate 80%). There was a statistically significant difference in mortality among the three grades ($p < 0.001$).

Conclusion:

We developed and validated a model of the prognostic risk of AIDS patients with PCP using the results of blood tests reviewed by patients at routine visits. The model is more convenient to use, allowing clinicians to obtain a determined probability value of PCP mortality with simple calculations.



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HCV, HBV and Syphilis Infections Incidence Among People living with HIV in a Thai Cohort

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Background: Sexually transmitted infections (STIs) are major public health issues worldwide. Emerging evidence suggests a rising prevalence of hepatitis C virus (HCV), hepatitis B virus (HBV) infections and other STIs among young men who has sex with man (MSM) living with HIV. Our study investigated the incidence rates of HBV, HCV and Syphilis infections over time in our cohort.

Methods: We conducted a longitudinal cohort study of people living with HIV aged ≥ 18 years who underwent regular STI screening at The HIV Netherland- Australia-Thailand Research Collaboration from 2010-2023. HCV (HCV antibody and/or HCV RNA), HBV (HBs Ag and/or HBc antibody/antigen) and Syphilis (Treponema pallidum antibody and/or VDRL test) were performed as screening tests in our clinic annually. A positive test result was defined as an incident infection. We excluded those with positive tests at baseline and who did not have follow-up testings. We assessed incidence rates of HBV, HCV and syphilis infections. Cox-regression was performed for each STI.

Results: Of three thousand and fifty-eight participants (3058) in our cohort, 70.3% were male, and 38.2% were men who have sex with men (MSM). Median age was 32 (interquartile range (IQR) 26-39) years and only 3.3% (N=102) self-reported substance use. The overall incidence rate of HCV, HBV or syphilis was 2.92 (95% confidence interval 2.65-3.21) per 100 persons year follow-up (PYFU). In MSM, the incidence rate 7.26 (95%CI 6.42-8.20) per 100 PYFU. For multivariable analysis, Incidence rates of each

individual infection were higher in MSM compared to heterosexual men and women, adjusted hazard ratio (aHR) for HCV, HBV and syphilis of 3.09 (95%CI 2.00-4.78; $p < 0.001$), 1.83 (95%CI 1.22-2.74, $p = 0.003$) and 2.88 (95%CI 1.63-5.10); $p < 0.001$) respectively.

Conclusions: STIs incidence was significantly higher in MSM than heterosexual clients in our cohort. Regular screening and treatment for STIs should be implemented in prevention packages for young PLWH and high-risk population.



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An evaluation of Mp1p antigen screening for talaromycosis in HIV-infected antiretroviral therapy-naïve population in Guangdong, China

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Objective: Southern China is one of the major endemic regions of *T. marneffei*, thus the prevention and control of talaromycosis are urgently needed. Unfortunately, the lack of screening remains a major obstacle to improve the treatment of *T. marneffei*-infected patients. To address the knowledge gaps, we performed this study to evaluate the prevalence of talaromycosis based on the Mp1p antigen detection, a *T. marneffei*-specific protein which located throughout the cell wall of *T. marneffei* yeast and was abundantly secreted, and to assess the utility of Mp1p antigen screening among HIV-infected ART-naïve population in Guangdong, China.

Methods: We performed a cross-sectional study of HIV-infected antiretroviral therapy (ART)-naïve adult patients in 2018 at Guangzhou Eighth People's Hospital, Guangzhou Medical University. Serum samples collected from all the 784 enrolled patients were tested for Mp1p antigen using double-antibody sandwich enzyme-linked immunosorbent assay. Receiver operating characteristic (ROC) curve analysis and Youden's index (J) were used to determine the optimal cut-off of CD4 count for classifying the presence of Mp1p antigen. A culture of pathogen was conducted in 350 clinically suspected patients to confirm talaromycosis, and to evaluate the screening efficacy of Mp1p antigen by comparing this result with that of the Mp1p antigen test.

Results: The overall prevalence of talaromycosis based on the Mp1p antigen detection was 11.4% (89/784) and peaked at 32.2% (75/233) in patients with CD4+ \leq 50 Nr/ μ l. Logistic regression analysis

found Mp1p antigen positive rate decreased with the increase in CD4+ counts (OR 0.982, 95% CI 0.977-0.987, $P < 0.01$). Compared to the Mp1p negative group, the positive group presented with more advanced HIV disease, characterized by significantly lower CD4+ counts (12 Nr/ μ l [IQR, 6-38 Nr/ μ l] vs. 179 Nr/ μ l [IQR, 61-315 Nr/ μ l], $P < 0.001$), lower CD4+/CD8+ ratio (0.05 [IQR, 0.03-0.10] vs. 0.22 [IQR, 0.10-0.38], $P < 0.001$), higher proportion of HIV/AIDS stage IV (78.7% vs. 11.2%, $P < 0.001$), higher proportion of other known OIs (86.5% vs. 34.2%, $P < 0.001$) and higher risk of hospitalization (83.2% vs. 40.3%, $P < 0.001$). ROC curve analysis revealed the ability of CD4+ count to discriminate between patients who were Mp1p antigen positive or negative with the area under ROC curve [AUC] = 0.870 (95% CI, 0.835–0.906, $P < 0.001$). The optimal cut-off point of the CD4+ count was 50 Nr/ μ l or less, yielding a sensitivity of 84.3% and specificity of 77.7%. Among the 350 patients received both fungal culture and Mp1p antigen detection, 95/350 (27.1%) patients were culture-positive for a *Talaromyces marneffei*, 75/350 (21.4%) patients were Mp1p antigen positive. The Mp1p antigen assay showed a good agreement to the culture of pathogen, and the sensitivity, specificity, positive predictive value, negative predictive value and kappa value was 71.6% (68/95), 97.3% (248/255), 90.7% (68/75), 90.2% (248/275), and 0.737, respectively. The screening accuracy of the Mp1p antigen assay in patients with CD4+ counts of \leq 50 Nr/ μ l was superior to that in those with higher CD4+ counts.

Conclusions: Mp1p antigen screening can be an effective tool for more efficient diagnosis of Talaromycosis, especially in HIV/AIDS patients with low CD4+ counts. Future validation studies are needed.



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A Field Evaluation of a Dual Treponemal/Non-treponemal Point-Of-Care Test for Syphilis Within an HIV Pre-exposure Prophylaxis Program in Hanoi, Vietnam

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Background: Syphilis infections are high among men who have sex with men (MSM) on HIV pre-exposure prophylaxis (PrEP). Point-of-care tests (POCTs) that incorporate non-treponemal testing can improve diagnosis and treatment, particularly in a high-prevalence population. We performed a field evaluation of a dual treponemal/non-treponemal POCT within an HIV PrEP program in Hanoi, Vietnam.

Methods: From December 2023 to March 2024, MSM aged ≥ 18 years who received care at the HIV PrEP clinic at Hanoi Medical University and reported sexual intercourse in the last year were enrolled into a study to evaluate the Chembio DPP Syphilis Screen and Confirm (Medford, NY). Demographic, behavioral, and clinical data were collected. Participants underwent fingerstick for DPP testing and venous blood draw for treponemal (Abbott Bioline or Determine; Abbott Park, IL) and non-treponemal (Rapid Plasma Reagin [RPR]) testing. Clinical staff performed and interpreted the DPP tests in clinic, and DPP results were not used for clinical management. Positive percent agreement (PPA), negative percent agreement (NPA), Cohen's kappa, and 95% confidence intervals (CI) were calculated for the DPP versus treponemal/non-treponemal tests.

Results: There were 120 participants enrolled (median age 26.7 years; IQR: 22.5–29.9), and 93.3% (112/120) identified as men. Among participants who reported sex partners in the last week, 9.3% (10/108) reported two or more. Among those who reported anal sex with a male

partner in the last month, 15.2% (12/79) reported never using condoms. In the last six months, 13.3% (16/120) of participants reported group sex, 48.3% (58/120) reported sexualized drug use, and 67.5% (81/120) reported meeting sexual partners through mobile apps. STI diagnosis in the last three months was reported by 5.4% (5/93) of participants asked, and syphilis was the most common diagnosis among the six reported (50%, 3/6). In the prior month, 22.9% (24/105) of reported STI symptoms were rectal symptoms. Diarrhea was reported most often (37.5%; 9/24).

The overall prevalence of treponemal reactivity was 35.0% (41/117). The PPA for the DPP treponemal test was 75.6% (95% CI: 59.7%–87.6%) and the NPA was 93.4% (95% CI: 85.3%–97.8%), with Cohen's kappa of 0.71 (95% CI: 0.55–0.82). The prevalence of RPR reactivity was 17.6% (21/119). The PPA for the DPP non-treponemal test was 42.9% (95% CI: 21.8%–66.0%) and the NPA was 99.0% (95% CI: 94.4%–100.0%), with Cohen's kappa of 0.53 (95% CI: 0.28–0.71). For RPR titers $\geq 1:8$, the PPA of the DPP was 100.0% (95% CI: 59.0%–100.0%) and the NPA was 97.3% (95% CI: 92.4%–99.4%), with Cohen's kappa of 0.81 (95% CI: 0.52–0.93).

Conclusion: Among MSM with a high prevalence of syphilis in an HIV PrEP program in Vietnam, the DPP performed well as a POCT compared to routine treponemal tests. While the non-treponemal DPP performance was lower, performance was very high for RPR titers $\geq 1:8$. This field evaluation of the DPP test shows that it holds promise for identifying high-priority, active syphilis infections within this population. Continued study with RPR titers $\geq 1:8$ is needed to further characterize the clinical applicability of DPP testing in a population with a high prevalence of syphilis.



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The incidence of active tuberculosis in HIV-infected individuals not receiving universal tuberculosis preventive treatment: a retrospective cohort study

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Background: Tuberculosis (TB) preventive treatment (TPT) is recommended for people living with HIV (PLWH) due to increased risks of developing active TB. However, implementation of TPT varies with regions; and necessity of universal TPT remains debated. We retrospectively investigated the incidence of developing active TB following ART initiation among PLWH without universal prophylaxis, for a more targeted strategy in TB management.

Methods: Treatment-naïve patients of HIV-1 infection who started ART between January 2000 and May 2023 were retrospectively enrolled in Peking Union Medical College Hospital (PUMCH), Beijing, China. Incidence of active TB was estimated in the first five years of ART. Kaplan-Meier analysis was used to plot survival curves, and Log-rank test was used to evaluate differences. Cox proportional hazards model was used to determine the risk factors associated with active TB development.

Results: We screened and enrolled 940 treatment-naïve HIV-1-infected patients. Among them, 23 developed active TB during the five-year follow-up. Kaplan-Meier analysis showed that the cumulative incidence of active TB was around 2.4%. The incidence density was about 7 per 1,000 person-years (95% confidence interval (CI): 4-10). Most episodes of active TB occurred within the first three months of ART. 65% (15/23) of those who developed TB had a baseline CD4+ T cell count <200/μl. Specifically, the cumulative incidence of active TB in patients with a baseline

CD4+ T cell count <200/μl was significantly higher than that in patients with CD4+ count ≥200/μl (P=0.006). Active TB seldomly took place when the average CD4+ count exceeded 470/μl. All the 23 patients were successfully treated for TB, with only one experiencing apparent drug-related side effects. Multivariate regression analysis revealed that baseline CD4+T cell counts <200/μl (odds ratio (OR):2.541, 95%CI: 1.036-6.640) and baseline HIV-1 RNA≥5log₁₀ copies/mL (OR:2.832, 95%CI: 1.174-7.025) were independent risk factors for active TB development in HIV patients not receiving TPT.

Conclusions: In HIV/AIDS patients not receiving universal TPT, risk of active TB development in the first 5 years of ART was largely dependent on patient baseline immune status, more prominent in those with advanced HIV status. Stratified strategy for TB prophylaxis may be necessary in different disease statuses.



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Expression and prognostic significance of the PD-1/PD-L1 pathway in AIDS-related non-Hodgkin lymphoma

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Objective: Immune tolerance and evasion play a critical role in virus-driven malignancies. However, the phenotype and clinical significance of programmed cell death 1 (PD-1) and its ligands, PD-L1 and PD-L2, in aggressive acquired immunodeficiency syndrome (AIDS)-related non-Hodgkin lymphoma (AR-NHL) remain poorly understood, particularly in the Epstein-Barr virus (EBV)-positive subset.

Methods: We used in situ hybridization with EBV-encoded RNA (EBER) to assess the EBV status. We performed immunohistochemistry and flow cytometry analysis to evaluate components of the PD-1/PD-L1/L2 pathway in a multi-institutional cohort of 58 patients with AR-NHL and compared EBV-positive and EBV-negative cases.

Results: The prevalence of EBV+ in AR-NHL was 56.9% and was associated with a marked increase in the expression of PD-1/PD-L1/PD-L2 in malignant cells. Patients with AR-NHLs who tested positive for both EBER and PD-1 exhibited lower survival rates compared to those negative for these markers (47.4% vs. 93.8%, $P = 0.004$). Similarly, patients positive for both EBER and PD-L1 also demonstrated poorer survival (56.5% vs. 93.8%, $P = 0.043$). Importantly, PD-1 tissue-expression demonstrated independent prognostic significance for overall survival in multivariate analysis and was correlated to elevated levels of LDH ($r = 0.313$, $P = 0.031$), increased PD-1+ Tregs ($P = 0.006$), and robust expression of EBER ($r = 0.541$, $P < 0.001$) and PD-L1 ($r = 0.354$, $P = 0.014$) expression.

Conclusions: These data emphasize the importance of PD-1-mediated immune evasion in the complex landscape of immune oncology in AR-NHL co-infected with EBV, and contribute to the diagnostic classification and possible definition of immunotherapeutic strategies for this unique subgroup.



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Transverse comparison of clinical characteristics and prognostic factors in HIV infected patients with Cytomegalovirus encephalitis in Guangdong, China

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Background: Cytomegalovirus encephalitis (CME) is one of the serious opportunistic complications in human immunodeficiency virus (HIV) infected patients, characterized by a rapid onset, poor prognosis and high mortality. Until now, there have been limited comprehensive research on the clinical and prognostic characteristics of HIV/CME patients reported in China.

Methods: We conducted a retrospective enrollment of 43 patients diagnosed with CME among individuals infected with HIV from 2015 to 2023 in Guangzhou eighth people's hospital. Among them, 27 patients experienced favorable prognosis and 16 patients experienced unfavorable prognosis (which includes death, ineffectiveness of treatment, or aggravated condition) as determined by clinical diagnosis. Statistics of clinical symptoms and laboratory examinations between two groups were analyzed. Multivariate analysis and nomogram were developed using statistical variables.

Results: HIV/CME patients with unfavorable prognosis represented more consciousness disorder and nuchal rigidity than those with favorable prognosis. There were no identifiable differences between the two groups in terms of clinical characteristics such as hemiparalysis, meningeal irritation, cerebrospinal fluid (CSF) pressure, and other relevant factors. In the CSF, the level of chloride (Cl) was obviously higher in HIV/CME patients with favorable prognosis, while the Cytomegalovirus (CMV)- DNA showed the opposite trend. A multivariate analysis of fever, nuchal rigidity, consciousness disorder, and CSF CMV-DNA can be used to predict prognosis in HIV/CME patients, with C-index of 0.83 (95% CI:

0.64-1.00). The log CSF CMV-DNA copies/mL emerged as an independent risk factor for prognosis. High CSF CMV-DNA ($\geq 300,000$ copies/mL) indicated unfavorable prognosis.

Conclusion: HIV/CME patients with unfavorable prognosis usually showed obvious signs and symptoms of central nervous system infection, lower CSF Cl level, and higher CSF CMV-DNA compared to favorable prognosis patients. Recognizing these indicators early and administering timely antiviral therapy before the disease progresses to CME are of great value in improving the survival rate of patients.



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HIV knowledge, its transmission, prevention and treatment associated with HIV testing among reproductive women

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Background: From 2021 Country Snapshots for Asia and the Pacific reported data of HIV/AIDS cases, Philippines has approximated 7100 cases of women and 431 cases of pregnant living with HIV (PMTCT). The low level of awareness and insufficient knowledge of HIV and AIDS had identified by some researches as hindrances in preventing the spread of infections.

Methods: A validated questionnaire was used to collect the data that covered in February, 2024. The knowledge questionnaire comprised of 20 items: 6 items about HIV, 6 items HIV mode of transmission, 4 items HIV prevention and 4 items HIV treatment. A total of 454 women participated in the study. Almost half of the respondents (48%) had ages of < 23 years old and more than half (52%) had ages of > 24 years old. Majority of the respondents were residents of Molo District in Iloilo City. There were several pregnant women (12%) participated in the study. More than half of the women were willing to be tested for HIV (55%) and almost half were not willing (45%). To assess the association between the knowledge in HIV, its mode of transmission, prevention, and treatment and willingness to be tested for HIV among women, Chi square test was executed.

Results: Majority of the respondents had high knowledge about HIV (70%) and its mode of transmission (62%). More than half of them had high knowledge on HIV prevention (68%) but only one-third of the respondents had high knowledge on HIV treatment (37%). Chi square test results indicated an association between HIV knowledge ($p=.002$), its prevention ($p=.001$) and treatment ($p=.002$) and willingness to be tested for HIV. For

knowledge in HIV, age group ($p=.004$), employment ($p=.000$), marital status ($p=.005$), family income ($p=.000$), level of education ($p=.000$) and being pregnant or not ($p=.000$) were significantly associated. Furthermore, the knowledge level about HIV mode of transmission, displayed significantly associated with respondents' employment status ($p=.000$), marital status ($p=.005$) family income ($p=.000$), level of education ($p=.000$) and being pregnant or not ($p=.003$). For level of knowledge on mode of transmission, it was significant associated with employment status, For level of knowledge in HIV prevention, it only associated with the level of education ($p=.001$) of the respondents. Lastly, the level of knowledge in HIV treatment was significantly associated with respondents' level of education ($p=.001$) and being pregnant or not ($p=.001$). The mentioned associations had their $p < .05$ alpha at 95% confidence interval. The results were generated through the use of SPSS software, version 25.

Conclusions: Women with high level of knowledge about HIV, its mode of transmission, prevention and treatment are more likely have high willingness to be tested for HIV. In the four areas of HIV knowledge being assessed, only few are knowledgeable to HIV treatment. Woman must have wide understanding and awareness on HIV prevention and treatment. They must be informed about HIV Undetectable=Untransmittable, or U=U, concept. They have to care and protect themselves for reducing vulnerability to HIV infection.



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Patterns of liver fibrosis evolution in Chinese HIV/HBV coinfecting adults after 5-year TDF-containing ART

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Background: The patterns of liver fibrosis change during long-term combined antiretroviral therapy (ART) in adults with HIV and chronic hepatitis B virus remain (HBV) unclear. We investigated the trajectories of liver fibrosis and the association of baseline variables with different patterns of liver fibrosis evolution.

Material and Methods: 507 HIV/HBV coinfecting individuals treated with long-term ART were enrolled in this study. Demographic, clinical, and biochemical data was collected at entry and annual visits. The trajectory patterns of liver fibrosis were detected by group-based trajectory models (GBTMs) by using the longitudinal data of FIB-4 and APRI scores. Baseline predictors of liver fibrosis evolution were identified by logistic regression analysis.

Results: The median age of all participants was 33 years. Of these, 86.1% were initially treated with TDF-containing ART. Two patterns of liver fibrosis evolution were detected by GBTMs either using APRI or Fib-4 scores: more than three-quarters of individuals showed stable none or low fibrosis with no progression (78.5% for APRI scores and 75.3% for Fib-4 scores; pattern A), and the remaining presented liver fibrosis regression from high levels (21.5% for APRI scores and 24.7% for Fib-4 scores; pattern B). Participants in pattern A were younger, of higher CD4 cell count and white blood cell count, of lower platelet count and higher hemoglobin than in pattern B.

Conclusions: Long-term ART containing TDF has demonstrated efficacy in reducing liver fibrosis in Chinese individuals co-infected with HIV and HBV.



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Overweight and low anti-HBs antibody titers are associated with earlier loss of anti-HBV seroprotection after HBV vaccination in Japanese people living with HIV

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Background: Hepatitis B virus (HBV) co-infection is one of the most common co-infections among people living with HIV (PLWH). Although vaccination against HBV is recommended for all PLWH without immunity to HBV infection, HBV vaccination response and duration of seroprotection are suboptimal in PLWH. The earlier loss of anti-HBs antibody has been reported but the associated factors are unknown.

Methods: We performed a retrospective analysis of the hepatitis B virus vaccination program among PLWH in our hospital (n=277). Three doses of hepatitis B vaccine (Bimugen®, containing 10µg of hepatitis B surface antigen) were administered subcutaneously (at 0, 1, and 6 months). Among primary responders (n=164, 59%), we analyzed the durability of anti-HBV seroprotection by assessing antibody titers at least twice after the vaccination. Participants with decreasing anti-HBs titers <10 mIU/mL were defined as earlier loss of anti-HBV seroprotection. Cox proportional hazards analysis was performed to identify predictors of earlier loss of HBV seroprotection.

Results: 152 participants were included in the analysis. The median age was 39 (IQR: 35-46) years and 144 (95%) were men. The median body mass index (BMI) was 22.9 (20.7-26.1) and 55 (36%) were overweight (BMI>25). The median CD4 cell count was 479 (352-651) /µL, and 98 (64%) were receiving antiretroviral therapy at the entry of this program. During 616.3 participant-years of follow-up, 113 (74%) showed a loss of anti-HBV seroprotection. The median time to loss of anti-

HBV seroprotection was 3.5 and 10.2 years for participants with an anti-HBs titer of 10-100, and >100 mIU/mL at first vaccination, respectively. Cox-proportional hazards analysis showed overweight (BMI>25) and low anti-HBs antibody titer (anti-HBs titer < 100 mIU/mL) after vaccination were independently associated with early loss of anti-HBs seroprotection, adjusting for age, CD4 and HIV viral suppression [adjusted hazard ratio (aHR) 1.882, 95% confidence interval (CI) 1.261-2.810; p = 0.002, aHR 3.979, 95%CI 2.517-6.290; p < 0.001, respectively].

Conclusions: The response to HBV vaccination in Japanese PLWH was weak, both in terms of initial response and long-term durability of seroprotection. Further research is warranted to implement better HBV vaccination strategies for PLWH.



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In silico and in vitro Anti-hepatitis B virus activity of bioassay-guided compound quercetin and Myricetin-3-O-rhamnoside from Pistacia lentiscus

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Background: In silico and in vitro Anti-hepatitis B virus activity of bioassay-guided compound quercetin and Myricetin-3-O-rhamnoside from Pistacia lentiscus Aims Acute and chronic hepatitis B are disorders of the liver brought on by the hepatitis B virus (HBV). The current study describes the column-guided isolation and structural characterization of two anti-HBV compounds from Pistacia lentiscus utilizing an HBV-reporter cell culture paradigm, as well as the molecular docking elucidation of the mode of action.

Methods: Pistacia lentiscus leaves recently demonstrated in vitro anti-hepatitis B virus (HBV) action, and quercetin and other flavonoids were identified by HPTLC. Here, we describe the bioassay-directed fractionation of Pistacia lentiscus leaves using column chromatography and the isolation of two flavonoids from the n-butanol fraction, as well as the determination of their structures (1H, 13C, and 2D-NMR) and evaluation of their antiviral activities (HBsAg and HBeAg assay) in HBV-reporter HepG2.2.2.15 cells.

Results: The HBV polymerase (Pol/RT) and capsid (Core) proteins, as well as the host-receptor sodium taurocholate co-transporting polypeptide (NTCP), were subjected to further molecular docking. Myricetin-3-O-rhamnoside and quercetin were recognized as the two isolated bioactive substances that are to be isolated from Pistacia lentiscus. In comparison to myricetin-3-O-rhamnoside, quercetin considerably decreased the synthesis of HBsAg and HBeAg by 43% and 36%, respectively, and by roughly 58% and 64%, respectively. The two anti-HBV flavonoids' greater

affinity for Pol/RT than NTCP and Core was revealed by molecular docking.

Conclusions: By binding to viral Pol/RT and Core as well as host NTCP proteins, their potential route of anti-HBV activity is indicated. And shown that both chemical compounds isolated from Pistacia lentiscus were found to be effective and suggested potential virus inactivation mechanisms



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Efficacy of Bictegravir/Emtricitabine/Tenofovir Alafenamide among Treatment-Naïve Patients with Pre-treatment Drug Resistance: A Chinese Real-World Study

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Background: The trend of increasing Pre-treatment drug resistance (PDR) cannot be overlooked. BIC/FTC/TAF has been endorsed by major international guidelines as the preferred regimen for treatment-naïve patients. Consequently, there is an urgent need to investigate the impact of pre-treatment resistance on the efficacy of BIC/FTC/TAF. In this study, we address this issue within the context of central China.

Material and Methods: We retrospectively selected patients newly diagnosed with HIV-1 infection at The First Hospital of Changsha from January 2021 to December 2023, who had available HIV-1 RNA genotype results. Subsequently, we conducted a descriptive analysis of the HIV-1 virology results in all patients.

Results: A total of 829 HIV-1 naïve patients underwent PDR testing, with 202 patients tested PDR, of which 53 were treated for BIC/FTC/TAF. Among these patients, 46 were male, with a median age of 31.0 years. The most common HIV-1 subtype observed was CRF01_AE (22/53, 41.5%), with a median follow-up duration of 9 months. Baseline measurements indicated a median CD4 count of 255 cells/mm³ and a median HIV-1 RNA count of 133,840 copies/ml. 6 patients exhibited resistance to Nucleoside reverse transcriptase inhibitors (NRTIs), with resistance mutation sites including M184I (n=1), M184V (n=3), D67G (n=1), and A62V+K65R+Y115F+M184V (n=1), all with viral loads below 50 copies/ml. Among the 45 patients

with Non-nucleoside reverse transcriptase inhibitors (NNRTIs) resistance mutation, including V179D (n=11), V179E (n=13), K238N (n=12), E138G+V179E (n=2), K103N (n=2), A98G(n=1), K103N+M230I(n=1), V106M+V179D(n=1), K238N+V179D(n=1), and Y181V(n=1), 91.1% (41 / 45) of these individuals exhibited viral loads below 50 copies/ml, while all of them had viral loads below 200 copies/ml. Resistance mutation to Integrase strand transfer inhibitors (INSTIs) were observed in E157Q (n=5) and T97A (n=1), all achieving virological suppression. Additionally, four patients demonstrated PDR to protease inhibitors (PIs), with resistance mutation sites including V82L+Q58E, Q58E, L33F, and M46L, of which 75% (3/4) had viral loads below 50 copies/ml, and all were below 200 copies/ml.

Conclusion: In real clinical scenarios, BIC/FTC/TAF, as a first-line ART, demonstrates a favorable antiviral effect in treatment-naïve patients infected with HIV-1 who exhibit PDR.



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Switching to Bictegravir/Emtricitabine/Tenofovir Alafenamide in Virologically Suppressed Participants with Historical Pre-existing Drug Resistance

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Background: Pre-existing drug resistance can limit the efficacy of human immunodeficiency virus (HIV) antiretroviral therapy (ART). Data on the efficacy of the single-tablet regimen Bictegravir/Emtricitabine/Tenofovir Alafenamide (B/F/TAF) in people with HIV (PWH) who fail to respond to the initial therapy has been relatively scarce, particularly for those who have developed resistance to K65N/R mutations.

Methods: This was a prospective, multicenter, single-arm, observational study conducted at 4 clinical centers in Jiangsu, China, from August 2022 to December 2023, to evaluate the efficacy and safety of switching to a B/F/TAF single-tablet regimen in virologically suppressed (plasma HIV RNA load (PVL) <200 copies/ml) PWH aged ≥18 years with pre-existing resistance to reverse transcriptase inhibitors or protease inhibitors (PIs). The primary endpoint was the proportion of participants with PVL<50 copies/mL at week 24. The secondary outcomes included the rate of medication adherence and the proportion of participants maintaining PVL <200 copies/mL at week 24.

Results: Of 73 PWH enrolled, 80.8% (59/73) completed the 24-week efficacy follow-up period, 61.6% (45/73) completed the 48-week follow-up period. The participants were predominantly male (97.3%), median duration of PVL<200 copies/mL before switching to B/F/TAF was 4 years (2-6),

median (IQR) baseline CD4 count was 442 cells/mm³ (294-618), and had median (IQR) age of 36 years (33-36). 78.1% (57/73) participants switched from lopinavir/ritonavir (LPV/r) based regimen. An analysis of resistance substitutions revealed that 68.5% (50/73) participants had archived M184V/I, 32.9% (24/73) participants had archived K65N/R, and 15.1% (11/73) cases exhibiting a combination of M184V/I and K65N/R. The proportion of participants with PVL<50 copies/mL and PVL<200 copies/mL was both 97.8% (58/59) at week 24 and 100% (45/45) at week 48. Only one individual discontinued at week 36 due to financial reasons. No serious adverse events (SAEs) were observed.

Conclusion: B/F/TAF can maintain its efficacy regardless of the presence of M184V/I and/or K65N/R mutations and is well tolerated. No participant discontinued B/F/TAF due to efficacy or safety issues.



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Efficacy of antiretroviral therapy in HIV-1 patients harboring drug resistance mutations to non-nucleoside reverse transcriptase inhibitors: Results of a retrospective study in China

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Objectives: The prevalence of mutations associated with pretreatment drug resistance (PDR) is up to 20.3% in the class of non-nucleoside reverse transcriptase inhibitors (NNRTIs) in people living with HIV-1 (PLWH) in our region, and PLWH harboring NNRTIs drug resistance mutations (DRMs) receive different regimens for initial antiretroviral therapy (ART). This study aimed to analyze the efficacy of different ART regimens for PLWH with DRMs to NNRTIs.

Methods: We retrospectively enrolled the ART-naïve patients with NNRTIs PDR in Chongqing Public Health Medical Center from June 1, 2018 to June 1, 2022, The choice of ART regimens was studied and the efficacy was analyzed. Low-level, intermediate-level, or high-level resistance was designated as truly resistant (TR), and the potential low-level resistance was designated as PR.

Results: A total of 165 patients with varied NNRTIs DRMs were enrolled in this study and all of them received 3-drug ART regimens. At baseline, the median HIV-1 viral load (VL) (log₁₀) was 5.7 (IQR: 5.1, 6.1) copies/mL, and the median CD4+ T-cell count was 73.0 (IQR: 28.0, 179.0) cells/μL. A total of 133 of the 165 patients (80.6%) received protease inhibitors (PIs)- or integrase inhibitors (INSTIs) -based regimens throughout the treatment. Among those 133 patients, 85.0% (113/133) achieved successful virological suppression (VS) at week 24 and 94.0% (125/133) achieved successful VS at week 48. Twenty-two of the 165 patients (13.3%) initially selected EFV PR as the 3rd drug. Among those 22 patients, 17

patients (77.3%) achieved VS at week 24 and 19 patients (86.4%) achieved VS at week 48. Two of the 165 patients (1.2%) initially selected EFV with low-level TR as the 3rd drug, 1 patient achieved VS at week 24 and week 48, while the other one experienced VF. In addition, 8 of the 165 patients (4.8%) were initially initiated PIs/INSTIs-based regimens, which were later switched to EFV- based regimens with PR later for different reasons after successful VS was achieved. All of the 8 patients successfully achieved complete VS at week 48.

Conclusions: Our results demonstrated that patients with NNRTIs DRMs should avoid EFV-based regimens as initial ART regimens for a lower VS rate. However, for patients with EFV-PR, it seemed still feasible to be switch to EFV- based regimens after successful VS has been achieved with more potent ART regimens.



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Neglected Low-Level Viremia on Virological Failure in People Living With HIV: Is Prediction Possible?

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Background: Low-level viremia (LLV) followed by anti-retroviral therapy (ART) for people living with HIV (PLWH), has not received enough attention. To ascertain the prevalence and risk factors for LLV, a systematic review was conducted to identify the evidence-based intervention for PLWH. Furthermore, LLV was examined for association with an increased risk of mortality and virological failure (VF).

Methods: In this meta-analysis, PubMed, Cochrane Library, Embase, and Web of Science were searched for clinical trials, and prospective or retrospective cohort studies reporting LLV in PLWH from inception to February 23, 2024. Studies that investigated PLWH over the age of 15 years and presented data that allowed the establishment of the prevalence of LLV or the association between LLV and VF were included. According to the 2021 WHO Guidelines, all participants were categorized by their longitudinal viremia profiles 6 months or more after starting ART using the following definitions: (1) LLV, defined as the occurrence of at least one viral load measurement of 51–999 copies/mL; (2) VF, defined as one or more HIV VLs of ≥ 1000 copies/mL; and (3) virological suppression, defined as VL < 50 copies/mL. This study was registered with PROSPERO (CRD42023410779).

Results: Acquired data from 15 cohorts that reported the LLV of 698,478 patients. In all, 1,345,692 PLWH had a pooled prevalence of LLV of 14.51% (95% CI 12.56%-16.46%), blip of 15.32% (6.57%-24.07%, 21,552/121,129), and persistent LLV (pLLV) of 4.85% (3.25%-6.45%, 2,883/101,226). A relative risk (RR) and 95% Confidence Intervals (CI) for LLV in PLWH with viral load (VL) $\geq 10^5$ copies/mL at baseline (1.79, 1.11-2.88), AIDS-defined illness (1.22, 1.08-1.38) at baseline, and

protease inhibitors-based regimen (1.45, 1.37-1.53) at antiretroviral therapy (ART) initiation can increase the risk of LLV. Conversely, the non-nucleoside reverse transcriptase inhibitors (NNRTIs)-based regimen (0.91, 0.86-0.96) and the integrase strand transfer inhibitors (INSTIs)-based regimen (0.56, 0.51-0.61) can reduce the risk of LLV. Furthermore, there was increased aHR for VF in PLWH with LLV (2.77, 2.03-3.76). In the blip subgroup, PLWH with a VL of 500-999 copies/mL had a greater risk of VF (2.46, 1.35-4.48). In the subgroup of persistent LLV, the aHR of developing VF was higher than those with virological suppression, and this risk increased with an increasing range of LLV, from 51-199 copies/mL (2.41, 1.91-3.05) to 200-499 copies/mL (5.11, 1.64-15.88) to 500-999 copies/mL (9.44, 3.85-23.15).

Conclusions: The prevalence of LLV in PLWH should not be overlooked. Screening for LLV risk factors, including PLWH with high baseline VL and AIDS-defined diseases. Regimens based on INSTIs are advised. Strict management of LLV patients, particularly pLLV and blip patients with high VL levels, could reduce the incidence of VF and all-cause mortality.



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Acceptance and preference for Long-Acting Antiretrovirals among people living with HIV in China

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Background: Long-acting Antiretroviral (LAARV) was found as effective as standard daily oral ART for maintaining HIV-1 suppression. A novel Long-acting Antiretroviral regimen of cabotegravir and rilpivirine (CAB+RPV LA) was approved for use as a complete alternative regimen for PLHIV. As CAB+RPV LA may be available in China in the near future, the acceptance and preference among PLHIV in China are left unknown.

Material and Methods:

We conducted a cross-sectional survey by online questionnaire among PHIV in China between June 1 and November 30, 2020 on acceptance and preference of LAARV. The acceptance based on a five-point scale was dichotomized to more likely to use (i.e., very likely, likely) and less likely to use (i.e., very unlikely, unlikely, uncertain). We used logistic regression to assess acceptance and preference for LAARV and correlates.

Results: A total of 2570 PLHIV responded to the questionnaire, among which 67% were interested in switching to LAARV. For univariate logistic regression, people who were interested in using LAARV was significantly higher among heavy drinkers (OR 1.74, 95% CI 1.04 to 2.94 $p=0.037$). Multivariable logistic regression, adjusted for age, race, marital status, income, and alcohol use, discovered that the odds of being interested in trying LAARV were 1.68 times higher among those using a single pill versus those not using a single pill (OR 1.68 95% CI 1.32 to 2.15 $p<0.01$), and patients taking medicine for twice a day were more desired to choose LAARV compared with those who take medicine only once a day (OR 1.37 95% CI 1.10 to 1.69 $p<0.01$ $p=0.004$). Besides that, suboptimal adherence (self-reported adherence $<90\%$) was also independently associated with interest in trying LAARV with

significant statistical differences (OR 1.54, 95% CI 1.17 to 2.00 $p=0.001$), especially for those with adherence less than 80% (OR 1.63, 95% CI 1.30 to 2.05 $p<0.01$). The preference for LAARV types from high to low among PLHIV in China was intramuscular injection (35.1%, every 1-2 months), implants (24.4%, every 6-12 months), and intravenous infusion (7.5%, once every 1-2 weeks). The most common reason why respondents would try LAARV was "They don't need to remember to take HIV drugs every day" (36.4%), followed by "concerns about carrying medicines with them at all times" (30.7%) and "no one will see themselves taking HIV drugs" (26.4%). The most concerned problem about LAARV was the possible side effects (82.4%) and worries about the possible interaction with alcohol or other drugs (79.1%).

Conclusion: This study firstly revealed a nearly 70% acceptance of LAARV among PLHIV in China. We identified the PLHIV currently using the STR as the most potential users for LAARV in China. Subjective assessment of less adherence to ART was correlated with more interest in LAARV. The long-acting intramuscular injection ART is the most preferred type of LAARV in China, followed by implants. With the largest national sample, this study closed the knowledge gap that exists in the implementation of LAARV in China, having added value to future LAARV implementation strategies worldwide.



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Cost-Effectiveness Analysis of Long-Acting Cabotegravir Plus Rilpivirine Versus Daily Oral Antiretroviral Therapy for People with HIV-1 Infection Who are Virologically Suppressed on a Stable Antiretroviral Regimen in Singapore

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Background: Cabotegravir plus rilpivirine is a two-drug long-acting regimen (CAB+RPV LA) comprising an integrase strand transfer inhibitor (INSTI) and a non-nucleoside reverse transcriptase inhibitor (NNRTI), respectively. CAB+RPV LA is indicated for the treatment of HIV-1 infection in adult people who are virologically suppressed (HIV-1 ribonucleic acid [RNA] <50 copies/mL) on a stable antiretroviral regimen, without present or past evidence of viral resistance to, and no prior virological failure with NNRTIs or INSTIs. This long-acting regimen is administered intramuscularly every two months.

Compared with standard of care oral antiretroviral therapies (ARTs), two-monthly CAB+RPV LA is non-inferior to daily oral ARTs in achieving virologic suppression, and resulted in a comparable change in CD4+ count, from baseline to week 48, based on an indirect treatment comparison of the ATLAS, ATLAS-2M and FLAIR trials. This long-acting regimen is expected to reduce adherence burden compared with daily oral ARTs, which in turn improves viral suppression and improves health-related quality of life.

This analysis evaluates the cost-effectiveness of CAB+RPV LA against a basket of clinically relevant oral ARTs in people with HIV-1 who are virologically suppressed on a stable antiretroviral regimen in Singapore.

Materials and Methods: A deterministic hybrid cost-effectiveness model comprising a Markov model and a decision tree process was developed to compare CAB+RPV LA versus oral ARTs, from a Singapore healthcare payer perspective. The model accounted for disease transmission to capture the decreased likelihood of sub-optimal viral suppression, and therefore reduced onwards disease transmission, from improved adherence associated with long-acting treatment. The model included health states defined by treatment line, virologic response and CD4+ cell count, and death is an absorbing state. A lifetime time horizon of 36 years was adopted.

HIV transmission probabilities, adherence rates, and efficacy of CAB+RPV LA and oral ARTs were informed by the ATLAS-2M trial, published literature, and local clinicians' input. Health state utilities were informed by ATLAS and FLAIR trials, published literature and local clinicians' input. Costs and healthcare resource use were informed by the Singapore Healthcare Resource Sheet and local clinicians' input. A 3.0% discount rate was applied to costs and outcomes. Sensitivity analyses were conducted to assess the robustness of the model.

Results: CAB+RPV LA was associated with an increase of 0.334 quality-adjusted life years (QALYs) and 0.167 life years, at an incremental cost of SGD37,642.90 versus oral ARTs. The incremental cost-effectiveness ratio (ICER) was SGD112,573.69/QALY. The ICER was most sensitive to variations in the adherence to first-line ART in both the CAB+RPV LA and oral ARTs arms, switching adherence modelling off in the model, and time horizon.

Conclusion: At a willingness-to-pay threshold of SGD113,779/QALY gained, which represents the 2023 gross domestic product per capita in Singapore, two-monthly CAB+RPV LA is cost-effective versus daily oral ARTs for people with HIV-1 who are virologically suppressed on a stable antiretroviral regimen in Singapore.



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Willingness to switch to long-acting injectable cabotegravir and rilpivirine every 2 months for HIV-infected patients in Nanjing, China

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Background: Daily oral medication is currently the most common antiretroviral therapy (ART) for patients infected with human immunodeficiency virus (HIV). As the first complete long-acting (LA) ART regimen, cabotegravir (CAB) and rilpivirine (RPV), are considered as novel treatment approach with less frequent administration, via bimonthly infusion. Due to the upcoming availability of this regimen in China, the present study aimed to analyze the willingness and reasons of people living with HIV (PLWH) to switch to CAB+RPV therapy.

Methods: A questionnaire survey among PLWH receiving oral ART was carried out between March 25 and April 8, 2023, in the Second Hospital of Nanjing, China. The participants were asked about their willingness to switch to CAB+RPV LA regimen and provided reasons for their decision. Subsequently, we analyzed the reasons for switching to CAB+RPV LA therapy, and the factors affecting their willingness were analyzed by multinomial logistic regression.

Results: A total of 712 participants completed the questionnaire, with 693 cases being valid. Among the 693 participants, 56.7% expressed willingness to switch to the CAB+RPV regimen, 32.6% were uncertain, while 10.7% were unwilling to change therapy. The most common reasons for switching to CAB+RPV therapy included not being concerned about daily adherence to ART (22.6%), not having to carry antiretroviral (ARV) drugs (21.7%) and not being concerned about others seeing their ARV drugs (14.1%). Uncertainty about switching to CAB+RPV therapy was mainly associated with patients' concern in terms of price (31.6%) and safety (31.1%) of the novel drugs. Unwillingness

was mainly due to patients' satisfaction with their current treatment regimen (20.3%) and their concern about the cost of the novel drugs (13.7%). In multivariate analysis, Higher education level [odds ratio (OR): 2.990; 95% confidence interval (CI): 1.171-7.636] was positively associated with the willing of patients to switch to CAB+RPV therapy, while age of ≥ 60 (OR: 0.142; 95% CI: 0.036-0.554) was negatively associated.

Conclusions: Our survey demonstrated that the majority of PLWH were willing to switch from oral ART to the CAB+RPV LA regimen. The enhanced convenience and reduced risk of disease exposure in patients treated with LA regimens were the key factors that made CAB+RPV therapy particularly appealing. However, their concerns regarding price, efficacy, safety and the requirement to adhere to the bimonthly injection could be the key challenges for the clinical implementation of the CAB+RPV LA regimen in the future.

Keywords: HIV, Cabotegravir, Rilpivirine, Long-acting injectable



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Effect of Fluconazole on the Pharmacokinetics of AINUOVIRINE in Healthy Adult Subjects

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Background: AINUOVIRINE (ACC007), is a newly developed next-generation non-nucleoside reverse transcriptase inhibitor (NNRTI) for used in combination therapy for treatment-naïve human immunodeficiency virus type 1 (HIV-1) positive adults in China. The aim of this phase 1 study was to assess the drug-drug interactions and safety of AINUOVIRINE when coadministered with fluconazole, a strong CYP2C19 inhibitor and moderate CYP2C9 and CYP3A inhibitor, in healthy adult subjects.

Methods: This was a single-center, open-label, parallel-group, sequential design, two-period study in healthy subjects (aged 20–45 years). 18 healthy subjects were randomly allocated into two groups. In group A, 18 healthy subjects received oral AINUOVIRINE (150 mg single dose) once daily in Period 1 (Days 1–7), followed by coadministration with oral fluconazole (200 mg single dose) once daily in Period 2 (Days 8–16). In group B, 18 healthy subjects received oral fluconazole (200 mg single dose) once daily in Period 1 (Days 1–7), followed by coadministration with oral AINUOVIRINE (150 mg single dose) once daily in Period 2 (Days 8–16). Blood samples were collected before and after dosing.

Results: All subjects (N = 36) completed the study. In group A, when coadministered with fluconazole, geometric means of AINUOVIRINE pharmacokinetics parameters C_{max,ss}, AUC_{0-24,ss} increased by 233.0% and 349.6% respectively, versus AINUOVIRINE alone, whereas the median T_{max,ss} was unaffected. In group B, there were no

apparent effects of AINUOVIRINE on C_{max,ss}, AUC_{0-24,ss} and T_{max,ss} for fluconazole. Possible treatment-related adverse events (AEs) assessed by investigators were fewer in Group A (83.3%) versus Group B (94.4%), no death or grade ≥3 serious AE was reported.

Conclusion: Coadministration of AINUOVIRINE with fluconazole significantly increased AINUOVIRINE systemic exposure, whereas AINUOVIRINE did not appear to affect the exposure of fluconazole. Therefore, it is recommended that the AINUOVIRINE dose be halved (i.e., 75 mg) when AINUOVIRINE is coadministered with fluconazole.



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Charting the Uncharted: The Anonymous Clinic's Revolutionary March to 95-95-95 Victory in Bangkok

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Background: The Anonymous Clinic at the Thai Red Cross AIDS Research Centre in Bangkok navigates the complexities of delivering HIV/AIDS care in an urban setting. This study evaluates the efficacy of the clinic's urban-centric approach against the ambitious UNAIDS 95-95-95 targets, hypothesizing that specialized strategies in a metropolitan context significantly improve ART initiation and viral suppression, especially among diverse populations including Thai nationals and foreigners.

Methods: This retrospective analysis (October 2020-September 2023) examined medical records of HIV-positive individuals at Thai Red Cross Anonymous Clinic, Thai Red Cross AIDS Research Centre (ACTRCARC), focusing on an urban demographic. The study evaluated ART initiation and viral suppression, considering the challenges unique to a metropolitan area. Key strategies included same-day ART services, free initial ART supported by various funding sources, and comprehensive counseling. Data were analyzed using SPSS version 27, with a focus on the urban context and demographic differences.

Results: Among 94,297 individuals tested, 3,800 were HIV-positive, primarily male (86.0%), with a median age of 30, and a large proportion being MSM(67.5%). The clinic's urban-adapted approach led to 94.1% of diagnosed individuals initiating ART. 79.2% of PLWH on ART underwent viral testing, with 77.1% achieving undetectable viral loads for over six months. Notably, the clinic's strategies resulted in higher viral testing and suppression rates among Thai nationals compared

to foreigners(80.6% vs. 78.5% in viral testing; 78.5% vs. 62.4% in viral suppression), reflecting the effectiveness of tailored care for diverse urban populations. ACTRCARC also outperformed other healthcare providers in both viral testing (84.2%vs.70.6%) and suppression (88.3%vs.66.4%).

Conclusions: The study demonstrates the success of the Anonymous Clinic's urban-centric model in a diverse metropolitan environment like Bangkok. By focusing on immediate ART initiation and continuous support, the clinic has made significant strides in meeting the 95-95-95 targets. This model, effective for both Thai nationals and foreign visitors, offers a scalable and impactful approach for urban healthcare systems globally in combating HIV/AIDS.



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Enhanced Treatment Outcomes in Chinese Patients with Rapid Initiation of ART: Insights from Central China

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Background: Rapid initiation of Antiretroviral Therapy (ART) is a global consensus in the therapeutic field. The concept of Rapid ART Initiation is nascent in China, with limited research and real-world data available, it is imperative to explore the benefits of rapid treatment initiation for individuals infected with HIV-1.

Material and Methods: A retrospective study was conducted to analyze the effects of ART on 745 patients confirmed to be infected with HIV-1 in Xiaonan District, Xiaogan City, Hubei Province, from 2002 to 2015, from 2016 to 2018, and from 2019 to 2023. The study comprised three phases: the initial routine diagnosis and treatment phase (2002-2015), the optimization of the diagnostic process phase (2016-2018), and the rapid initiation phase (2019-2023). During the routine phase, which spanned from 2002 to 2015, procedures included initial screening, confirmation, epidemiological investigation, and treatment initiation, with an average duration of 28 days. The second phase, from 2016 to 2018, focused on optimizing the diagnostic process, reducing the time from initial screening to confirmation to 7 days, and initiating ART after controlling opportunistic infections. In the third phase, starting from 2019 to 2023, ART initiation occurred within 7 days or on the same day as the diagnosis of HIV-1 infection. Data collected included gender, age, education, infection route, diagnosis and ART initiation time, opportunistic infections, CD4+ T cell count, viral load, follow-up status.

Results: Through the optimization of the confirmation process and the rapid initiation of ART and other interventions, the average time for

HIV confirmation was shortened from the initial 28 days to 7 days, the treatment coverage rate was increased by 30% (from 63.73% to 98.61%), and the maintenance treatment rate of ART for 12 months was increased by 40% (from 50% to 98.61%). Immune function was restored to a certain extent (the proportion of CD4+T cell count ≥ 500 cells /mm³ increased from 34.63% to 81.74%, an increase of 47%), and viral load was effectively suppressed (the proportion of viral load negative after 6 months of antiviral treatment increased from 60.77% to 90.45%, an increase of 30%). The case fatality rate of HIV-1 decreased by 24.1% (from 25.49% to 1.39%), the loss of follow-up rate decreased by 35% (from 36.27% to 0.55%), and the risk of transmission decreased.

Conclusion: Optimization of HIV-1 confirmation process and rapid initiation of ART can improve treatment coverage and 12-month maintenance treatment rate, inhibit HIV-1 effectively, reduce virus damage to the immune system, improve immunity, and reduce the loss of follow-up rate.



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HIV-1 Viral RNA and total DNA Decay Dynamics in Antiretroviral-Naïve Adults Initiating Dolutegravir/Lamivudine versus Bictegravir/Emtricitabine/Tenofovir Alafenamide Therapy

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Background: In recent years, research on treatment for antiretroviral-naïve HIV-infected patients has shown that the two-drug regimen (2DR) of dolutegravir/lamivudine (DTG/3TC) has exhibited similar virological efficacy compared to three-drug regimens (3DR) based on dolutegravir (DTG) or bictegravir (BIC). Although the DTG/3TC regimen has also been recommended by multiple international guidelines, the discussion on its efficacy is still ongoing, particularly regarding the potential issue of residual viremia (including viral reservoirs). This potential issue may suggest that this 2DR have shortcomings in treatment outcomes. This study aims to evaluate the impact of the DTG/3TC versus the bictegravir/emtricitabine/tenofovir alafenamide (BIC/FTC/TAF) on viral decay dynamics in antiretroviral-naïve HIV patients.

Materials and methods: This prospective open-label study was conducted at the Center for Infectious Diseases Clinic of Beijing Youan Hospital. This study enrolled 101 antiretroviral-naïve male-to-male (MSM) HIV patients aged 18 years or older. Based on patient preference, they were assigned to receive either the BIC/FTC/TAF (n=57) or the DTG/3TC (n=44), taken orally once daily. Blood samples were collected at baseline, week 4, week 12, week 24, and week 48. Plasma was separated by centrifugation and used for quantification of

HIV RNA (Abbott Diagnostics Inc, USA). DNA was extracted from peripheral blood mononuclear cells (PBMCs) (Qiagen, Valencia, CA, USA) for quantification of HIV-1 total DNA (SUPBIO, Guangzhou, China). Generalized estimating equations were used to assess the overall trends of changes in HIV-1 RNA and HIV-1 total DNA over the entire study period, testing for differences between the two treatment regimens, and analyzing the interaction between treatment regimen and time to compare the trajectories of the outcome variables.

Results: Among the 101 patients in this study, 97 reached the primary endpoint at week 48 (BIC/FTC/TAF group, n=56; DTG/3TC group, n=41), with similar proportions of lost to follow-up in the two groups. At week 48, the BIC/FTC/TAF group and the DTG/3TC group had reductions in HIV RNA levels of 2.99 (2.49 to 3.60) and 3.07 (2.44 to 3.46) log₁₀ copies/mL, respectively. The levels of HIV-1 total DNA decreased by 0.75 (0.47 to 1.06) and 0.84 (0.62 to 1.31) log₁₀ copies/10⁶ PBMCs, respectively.

Conclusions: No significant differences were found in the decay of HIV-1 RNA levels and HIV-1 total DNA between the two regimens. These findings suggest that the two-drug regimen (DTG/3TC) may be as effective as the three-drug regimen (BIC/FTC/TAF) in suppressing viral RNA and reducing HIV-1 total DNA, which has important implications for ART strategies.



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Efficacy and effect on lipid profile of ainoovirine-based regimen versus efavirenz-based regimen in treatment-naïve, HIV-1-positive adults: week 24 results from a multicenter, real-world, retrospective cohort study

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Objective: This study aimed to compare the efficacy and safety of Ainoovirine (ANV) and efavirenz (EFV) in treatment-naïve, HIV-1-infected adults after 24 weeks treatment.

Patients and methods: A multicenter, real-world, retrospective cohort study was conducted in 6 cities in China. Data of participants receiving either ANV-based regimens (ANV group) or EFV-based regimens (EFV 400 mg group and EFV 600mg group) were collected. Data of visit 0 (baseline), visit 1 (12 w) and visit 2 (24 w), including demographic, clinical features and laboratory results were compared. The primary endpoints included the difference in the log₁₀-transformed HIV RNA level between ANV and EFV groups at week 24, and the difference in lipid profile changes, including total cholesterol (TC), triglycerides (TG), high-density lipoprotein-cholesterol (HDL-C), and low-density lipoprotein-

cholesterol (LDL-C) between groups at week 24. The secondary endpoints included the differences in immune function changes (CD4+ cell count changes and CD4+/CD8+ ratio changes) at week 12 and week 24, the difference of TC/HDL-C, TG/HDL-C changes between groups at week 12 and week 24, the difference of lipid profiles between groups at week 12. Safety endpoints were the incidence of adverse events over 24 weeks.

Results: We retrospectively identified 274 eligible patients' data being treated with ANV+3TC+TDF or ANV/3TC/TDF fixed-dose compound tablet and 541 patients being treated with EFV+3TC+TDF. The baseline demographics and clinical characteristics of participants were generally balanced between groups. At week 24, 89.18% patients in the ANV group and 76.04% in the EFV group had HIV-1 RNA level below LOQ (P = 0.002). Compared with the EFV group, the mean change of log₁₀ HIV-1 RNA at week 24 from baseline decreased greater (-4.34 vs. -4.18, P < 0.001), the median changes from baseline in CD4+ T cell count increased more (106.00 cells/μL vs. 92.00 cells/μL, P = 0.007) in ANV group, while the CD4+/CD8+ ratio (0.15 vs. 0.20, P = 0.167) was similar between the ANV and EFV group at week 24 from baseline. The mean changes from baseline in TC (-0.02 vs. 0.25 mmol/L, P < 0.001), TG (-0.14 vs. 0.11 mmol/L, P = 0.024), and LDL-C (-0.07 vs. 0.15 mmol/L, P < 0.001) at week 24 was significantly different between the two groups. The incidence of any adverse events in ANV group was significantly lower than that in EFV group at week 12 (6.2% vs. 30.7%, P < 0.001) and was comparable at week 24 (3.6% vs. 5.5%, P = 0.28).

Conclusion: The ANV-based regimen was well tolerated in treatment-naïve HIV-1 infected patients with effective HIV-RNA suppressing effect, more CD4+ cell count improvement, less lipid abnormality, good safety profile, less AEs at week 24.



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Efficacy and effect on lipid profiles of switching to ainuovirine-based regimen versus continuing efavirenz-based regimen in HIV-1-Infected patients: week 24 results from a real-world, retrospective multi-center cohort study

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Background: Ainuovirine (ANV) is a novel non-nucleoside reverse-transcriptase inhibitor (NNRTI). In a randomized phase 3 trial, ANV demonstrated noninferior efficacy relative to efavirenz (EFV) and was associated with lower rates of hepatotoxicity, dyslipidemia, and neuropsychiatric symptoms.

Methods: We conducted a multi-center, retrospective, controlled cohort study to compare the lipid profile modifications in experienced HIV-1-infected patients switching to the ANV-based regimen from EFV.

Results: We retrospectively identified 318 patients eligible for the ANV group and 460 patients for the EFV group. At week 24, 96.65% of patients in the ANV group and 93.25% in the EFV group had HIV-1 RNA level below limit of quantification (LOQ). Median changes from baseline in CD4+ T-cell

counts (37.0 vs 36.0 cells/ μ L, $p=0.886$) and CD4+/CD8+ ratio (0.03 vs 0.10, $p=0.360$) were similar between the ANV and EFV group. The ANV group was superior to the EFV group for mean changes from baseline in total cholesterol (TC, -0.06 vs 0.26 mmol/L, $p=0.006$), triglycerides (TG, -0.6 vs 0.14 mmol/L, $p<0.001$), high-density lipoprotein-C (HDL-C, 0.09 vs 0.08 mmol/L, $p=0.006$), and low-density lipoprotein-C (LDL-C, -0.18 vs 0.29 mmol/L, $p<0.001$) at week 24. We also observed a higher proportion of patients in the ANV group had their TC (13.55% vs 4.45%, $P=0.015$) or LDL-C (12.93% vs 6.89%, $P=0.017$) level improved at week 24 than those in the EFV group.

Conclusions: We demonstrated good efficacy, favorable changes in lipid profile of switching to ANV from EFV in treatment-experienced HIV-1-infected patients in real-world, providing a promising switching option for patients who may have risk factors for metabolic syndrome or cardiovascular disease.



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The Efficacy and Safety of Switching to Dolutegravir and Lamivudine-Based Regimen for Virological Suppression in People Living with Human Immunodeficiency Virus Type 1: A Systematic Review and Meta-Analysis

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Introduction: Combination antiretroviral therapy (ART) effectively reduces the risks of opportunistic infections, decreases mortality, and improves life expectancies in people living with human immunodeficiency virus (PLHIV). Major guidelines currently recommend dolutegravir and lamivudine (DTG/3TC) as the initial treatment for PLHIV who are naïve to ART. The DTG/3TC-based regimen exhibits favourable tolerability, a high genetic barrier to resistance, and reduced potential for drug-drug interactions. Therefore, this study aims to determine the efficacy and safety of switching to a DTG/3TC-based regimen for virological suppression in PLHIV.

Methods: A systematic literature search was conducted in PubMed, ScienceDirect and Ovid SP from inception up until 31st January 2024 to identify relevant studies. The pooled effect of dichotomous data variables were expressed using risk ratio (RR) with 95% confidence intervals (CI) and the pooled effect of continuous data variables were expressed using mean difference (SMD) with 95% CI. The DerSimonian and Laird random-effects model was used to compute the pooled estimates. Statistical analysis was conducted in R programming.

Results: A total of 5 randomised controlled trials with 1065 patients switched to a DTG/3TC-based regimen and 1076 patients remained on their current ART were included in this meta-analysis. There were no statistically significant differences in virological suppression in the intention-to-treat

population (RR:1.00, 95% CI:0.98–1.03) and the per-protocol population (RR:1.01, 95% CI:0.98–1.03) for both treatment groups. In addition, there was no statistically significant change in CD4+ cell counts (MD:20.37, 95% CI:-2.16–42.90) in both treatment groups. The adjusted treatment difference for virological failure was -0.38 (95% CI:-0.96–0.20). The upper limit of CI was well below the most conservative published non-inferiority margin of 4%, demonstrating non-inferiority. Furthermore, the adjusted treatment difference for virological suppression was -0.02 (95% CI:-5.36–5.32). The lower limit of CI was well above the most conservative published non-inferiority margin of -8%, demonstrating non-inferiority. For the safety profile, there was no statistically difference in the rate of adverse events for both treatment groups (RR:1.11, 95% CI:0.98–1.38). However, patients who switched to a DTG/3TC-based regimen had a higher rate of neuropsychiatric adverse events (RR:2.28, 95% CI:1.36–3.80) compared to patients who remained on their current ART. Additionally, the patients who switched to DTG/3TC-based regimen had a higher rate of withdrawal due to adverse events (RR: 6.41, 95% CI:2.18–18.89).

Conclusions: Our study demonstrated that switching to DTG/3TC-based regimen was non-inferior compared to continuing current ART for patients with stable virological suppression. However, patients who were on DTG/3TC-based regimen had a higher rate of neuropsychiatric adverse events.



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Pharmacokinetics, efficacy and safety study of switching to albuvirtide every 4 weeks plus dolutegravir for maintenance of virological suppression in adults living with Human Immunodeficiency Virus 1

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Objective: Currently there are very few options of long-acting antiretroviral drugs. Albuvirtide (ABT) is the first long-acting fusion inhibitor with potent anti-HIV activity and good safety. We evaluated the pharmacokinetic profile, safety, and efficacy of ABT 640mg administered every 4 weeks in adults living with HIV who were virologically suppressed.

Methods: This was an open-label, prospective, single arm study enrolling ART-experienced adults with plasma HIV-1 level of less than 50 copies/mL. The subjects switched to ABT plus dolutegravir (DTG) for 24 weeks. ABT was intravenously administered at the dose of 640mg every 4 weeks, and DTG was orally taken once daily. The safety, pharmacokinetics profile of ABT in blood plasma, HIV-1 viral-load, CD4+ T cell counts were assessed during treatment.

Results: Of 10 participants enrolled, the median age was 48.50 (37.00, 50.00) years and 70% were male. The first dose and steady state trough concentrations (C_{trough}) of albuvirtide were 2.43±0.67µg/mL and 2.61±1.07µg/mL, respectively, which were 32.4- and 34.8- fold greater than the protein-adjusted concentration required for 90% viral inhibition (PA-IC₉₀) of 0.075µg/mL. At the time of analysis, week 24 data were available for 9 participants. Virological suppression was maintained in all participants. We used the trend effect of mixed-effect model test time to analyze the changes in CD4+T-cell counts before and after treatment. Compared to the baseline, CD4+T-cell counts were significantly increased after 24-weeks treatment

(F=7.38, P=0.0092). None of 10 participants experienced injection site reactions (a series of symptoms that occur around the injection site after the injection, such as erythema, pain, swelling, or itching), and all of participants were able to complete the study without serious ART-related adverse events during treatment.

Conclusion: For 24 weeks, ABT 640mg every 4 weeks in combination with DTG maintained virological suppression and increased CD4+ T cell counts even when the viral load was below limit of detection. The efficacy, safety, lack of injection site reaction suggest ABT potential in future long-acting ART regimen.



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Dolutegravir/lamivudine as a First-Line Regimen in a Test-and-Treat Setting: Real-World Evaluation

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Introduction: Dolutegravir/lamivudine (DTG/3TC) is indicated for treatment-naive and experienced people with HIV; however, questions remain about its utility in a test-and treat setting because of potential transmitted resistance, baseline hepatitis B virus (HBV) co-infection and high baseline HIV-1 viral loads. In real world clinical practice, results of hepatitis B virus (HBV) co-infection can be obtained on the same clinical day, and many data suggest that initiating DTG/3TC in individuals with high baseline HIV-1 viral loads is effective. Therefore, the primary concern of test-and-treat is potential transmitted resistance.

Methods: This retrospective study included treatment-naive HIV-1-infected individuals initiating the DTG/3TC between June 2021 and January 2023. Observed the maintenance rate and effectiveness of initiating DTG/3TC in real-world settings before HIV drug resistance reports are available. ART modifications were made if baseline testing revealed DTG or 3TC resistance. Primary endpoints were the maintenance rate of DTG/3TC treatment and the proportion of HIV-1 RNA <50 copies/mL at 48 weeks and the drug resistance.

Results: Of 266 participants enrolled, 248 (93.2%) were male, 56 (21.1%) were aged ≥50 years, and 209 (78.6%) were infected through homosexual activity. 231 (86.8%) initiated ART within 7 days (including 7 days) after the initial hospital visit, the median time was 4 days (IQR 0-7). While the median time from diagnosis of HIV-1 infection at the CDC to initiation of ART was 16 days (IQR 11-30). 65 (24.6%) participants had HIV-1 RNA ≥100,000 copies/mL, and 6 (2.27%) had HIV-1 RNA ≥500,000 copies/mL. 65 (24.6%) having a CD4+ T cell count < 200 cells/μL. Subsequent resistance testing results showed that 231 (86.8%) individuals

had resistance results, among which 29 (12.55%) were NNRTI-related resistance, 4 (1.73%) were PI-related resistance, and 1/231 (0.43%) was NRTI-related resistance, with no of 3TC-related resistance. There were no INSTI-related resistance cases. None of the patients who started ART within 7 days of their first clinical visit had drug resistance reports available.

At week 48, 256 (96.2%) still on DTG/3TC treatment. 10(3.8%) participants modified regimens for various reasons, including 5 due to adverse reactions, 3 due to economic reasons, and 2 due to other reasons. The proportions of participants with HIV-1 RNA <50 copies/ml at weeks 48 were 93.3%, among the participants who initiated the DTG/3TC regimen within 7 days of the initial hospital visit, the proportions with HIV-1 RNA <50 copies/ml at weeks 48 were 95.0%, respectively. By the end of week 48, the median CD4+ T cell count increased from 324 cells/μL (IQR 201-449) to 483.50 cells/μL (IQR 356.00-696.25), P < 0.001.

Conclusion: This study demonstrates that rapid initiation of the DTG/3TC regimen prior to resistance testing results lead to high maintenance and virological suppression rates, with no interruptions in DTG/3TC due to transmitted resistance or treatment failure. So there is no need to exclude DTG/3TC from the recommendation of rapid initiation regimen. The main barrier to test-and-treat may be the extended duration between diagnosis at the CDC and referral to a clinical center. Further discussion is needed on how to simplify this process.



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Real-world Virologic and Safety Outcomes in People Living With HIV-1 Using Dolutegravir + Lamivudine in Asia Stratified by Viral Load, Including in Individuals With High Viral Loads

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Background: Viral load (VL) is an important consideration when initiating antiretroviral therapy (ART). Dolutegravir (DTG) + lamivudine (3TC) was effective for achieving virologic suppression (VS) among ART-naïve adults living with HIV-1 with VL $\geq 100,000$ copies/mL in the GEMINI-1/-2 and STAT trials. Although international guidelines recommend DTG + 3TC as first-line therapy for ART-naïve people with VL $< 500,000$ copies/mL, individuals in real-world settings have initiated this regimen with higher VLs. To complement trial data and support treatment decisions, we summarize real-world evidence for DTG + 3TC effectiveness in ART-naïve individuals with high VL in Asia.

Material and Methods: Embase®, PubMed, and Cochrane library databases and congress materials were searched (January 2013-March 2023) to identify non-interventional observational studies reporting DTG + 3TC use in $N \geq 10$ individuals. Post hoc targeted searches were performed to add more recent (to December 2023) and non-English-language literature. Publications were screened for studies reporting effectiveness and/or safety in ART-naïve individuals in Asia, stratified by baseline VL, at any time point. Results were summarized using lead study data for each cohort (ie, study with highest N) to avoid overlap. High VL was defined as \geq or $> 100,000$ copies/mL and very high VL as \geq or $> 500,000$ or $1,000,000$ copies/mL.

Results: From 235 publications identified, 21 were included, representing ART-naïve individuals using

DTG + 3TC from China (n=551, 6 cohorts) and Turkey (n=56, 1 cohort). Median ages ranged from 37 to 66.5 years, and 59% to 93% of cohorts were male. No baseline resistance-associated mutations were reported. The most common reasons for initiating were polypharmacy/drug-drug interactions and renal comorbidities. When lead study n/N were pooled according to VL category, 149/262 (57%) individuals had high VL and 147/353 (42%) had very high VL ($\geq 500,000$ copies/mL, 113/353; $\geq 1,000,000$ copies/mL, 40/152) at baseline. VS (primarily defined as VL < 50 copies/mL) rates among lead studies in people with VL $\geq 100,000$ vs $< 100,000$ copies/mL were 52% vs 64% at Week 4 and 60% vs 93% at Week 12; corresponding rates in those with VL $\geq 500,000$ vs $< 500,000$ copies/mL were 5% vs 20% and 50% vs 75%. Week 48 VS rate was 92% for high VL (1 study; entire cohort had VL $> 100,000$ copies/mL) and ranged from 64% to 96% for very high VL (vs 90%-92% with VL $< 500,000$ copies/mL; 3 studies). In one study, 2 individuals with high VL had virologic rebound at Week 48 and re-suppressed at Week 72. CD4+ cell counts increased across all VL categories. Outcomes were generally consistent between lead and non-lead, within-cohort studies. One virologic failure was reported in an individual with very high VL, attributed to non-adherence (non-lead study). Studies reported no discontinuations (n=1 study) or no discontinuations due to adverse events (AEs; n=7 studies), drug-related AEs (n=1 study), or drug-related serious AEs (n=1 study). Few serious AEs were reported.

Conclusions: Similar to randomized clinical trials, real-world evidence from ART-naïve individuals initiating DTG + 3TC in Asia demonstrated high VS rates and favorable safety outcomes, even when VL was high or very high at treatment initiation.



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CHANGES IN SLEEP QUALITY AFTER TRANSITIONING FROM NEVIRAPINE TO DOLUTEGRAVIR-BASED REGIMEN IN ADULTS LIVING WITH HIV

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Background: Indonesia recently running an ART transition program from nevirapine (NVP) to dolutegravir (DTG). Previous study showed that DTG associated with sleep problems. The aim of this study were to evaluate sleep quality change in 6 months after transitioning to DTG-based regimen and its predicting factors.

Methods: We conducted a cohort observational study on 145 adults living with HIV who underwent transitioning from AZT/3TC/NVP to TDF/3TC/DTG (TLD) from April to June 2023. Participants were asked to fill the Indonesian version of Pittsburg Sleep Quality Index (PSQI) before and 6 months after changing the regimen. Worsening sleep quality was defined as an increase of PSQI score at least 1 point. Baseline factors evaluated were sex, age, BMI, duration on previous ART, marriage status, HIV risk of transmission and baseline PSQI score.

Results: A total 145 participants were included in this study. The median age was 43 (min-max 18-67) years and 57.2% participants were male. Median duration of AZT/3TC/NVP was 14 (min-max 2-29) years before transition to TLD. At baseline 43.45% participant had poor sleep quality. After 6 months transition, 45.5% participants experienced worsening of sleep quality index. There were no significant difference in worsening sleep quality between sex (RR 0.98: 95% CI 0.68 – 1.41, p=0.94), age (RR 1.1: 95% CI 0.7 – 1.9, p=0.48), BMI (overweight versus non overweight, RR 0.76: 95% CI 0.53 – 1.04, p=0.15), duration on previous ART (<10 versus minimal 10 years, RR 1.04: 95% CI 0.7-1.5, p=0.83), marriage

status (RR 1.26: 95% CI 0.8 – 1.8, p=0,19) and route of transmission (RR 1.2: 95% CI 0.7 – 2.2, p=0,42). The only predicting factor of worsening sleep quality index was baseline PSQI score < 5 (normal sleep quality) before transitioning.

Conclusions: Almost half of participant developed worsening sleep quality after transitioning to dolutegravir-based regimen. We recommend clinicians should actively discuss this issue to minimize the effect.



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Anal high-grade squamous intraepithelial lesion screening algorithms for Thai cisgender men and transgender women who have sex with men: baseline results of a multiphase optimization strategy study

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Background: Men who have sex with men, especially with HIV, face heightened risk of anal cancer. Treating its precursor, anal high-grade squamous intraepithelial lesion (HSIL), can reduce this risk. The current standard screening practice, anal cytology, has low sensitivity (19%). We aimed to identify an optimal anal HSIL screening algorithm using a Multiphase Optimization Strategy Trial (MOST).

Methods: The optimization phase enrolled participants aged ≥ 30 years old with HIV and ≥ 40 years old without HIV in Bangkok, Thailand, and followed them every six months for one year. Participants chose between self-sampling and physician sampling. Self-sampled participants were randomized into groups receiving combinations of anal cytology and high-risk human papillomavirus (HPV) DNA testing. Physician-sampled participants were randomized into groups receiving combinations of digital anorectal examination, anal cytology, high-risk HPV DNA testing, and high-resolution anoscopy (HRA). In groups without HRA, positive digital rectal examination, cytology, or high-risk HPV results were followed up with HRA.

Results: Between October 2022 and April 2023, 157 cisgender men and 23 transgender women were enrolled and conducted baseline visits. Of these, 132 (73.3%) had HIV. Median age was 43

years in those with HIV, and 46 years in those without HIV. Four (2.22%) chose self-sampling, while 176 (97.8%) chose physician sampling. No HSIL diagnoses originated from self-sampled groups, while 20 were from physician-sampled groups (11.1% of 180, 95%CI 6.9%–16.6%). Of all HSIL diagnoses, 16/20 (80.0%) originated from groups with HRA as standard screening method, while 4/20 (20.0%) were from a positive high-risk HPV DNA followed up with HRA.

Conclusions: Most participants favored physician-sampled HSIL screening over self-sampling. HRA, with or without adjunctive testing, detected the most HSIL. While anal cytology did not contribute to HSIL diagnosis, using HRA as a follow-up test after a positive high-risk HPV result demonstrated potential as a screening approach.



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Differences in cognitive trajectories between sexes among aging virologically suppressed Thai people living with HIV

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Background: Due to the disparities in biopsychosocial factors experienced by men and women, the impact of HIV on cognitive performance may differ between sexes. We aimed to determine the differences in cognitive trajectories between men and women in an aging people living with HIV (PWH) cohort in Thailand.

Material and Methods: Virologically suppressed Thai PWH aged ≥ 50 years in the HIV-NAT 006 cohort were enrolled during 2015–2017 to evaluate cognitive performance using the Thai-validated Montreal Cognitive Assessment (MoCA), with the second assessments conducted since 2021. A multivariate linear mixed-effects model, with an interaction term between sex and age, was utilized to estimate for sex differences in cognitive trajectories with aging.

Results: Among 224 PWH included, median (IQR) age was 54.5 (51.9–59.7) years, 39.3% were women, 73.2% had >6 years of education, median duration of HIV infection was 17.9 (14.2–20.8) years, and median MoCA score was 24 (21–26), with 57.1% having cognitive impairment at baseline. Women were less likely to have >6 years of education (52.3% vs. 86.8%, $p < 0.001$) and had lower MoCA score (23 [18–25] vs. 25 [22.5–26], $p < 0.001$) than men. After adjusting for baseline MoCA, body mass index, education, smoking, alcohol consumption, diabetes, hypertension, and depression, men showed a greater decline in

cognitive performance with increasing age compared to women: from 23.7 (95%CI 23.0–24.5) to 21.4 (95%CI 20.5–22.3) in men and from 22.6 (95%CI 21.5–23.6) to 21.9 (95%CI 20.7–23.0) in women between the ages of 50 to 70 years. The greater decline in cognitive performance observed in men persisted after adding HIV-related factors to the model: from 23.8 (95%CI 23.0–24.7) to 21.1 (95%CI 20.0–22.2) in men and from 23.0 (95%CI 21.9–24.2) to 21.5 (95%CI 20.2–22.9) in women between the ages of 50 and 70 years.

Conclusions: Despite higher cognitive performance at the earlier stage, men living with HIV demonstrated a greater cognitive decline compared to their women counterparts. These findings underscore the importance of further investigation in sex differences for cognitive decline in aging individuals living with HIV.



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Clinical impact of switching to DTG/3TC on the recovery of BMD in PLHIV

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Background: The incidence of decreased BMD is high in PLHIV and has been demonstrated to be associated with Tenofovir (TFV). Proactive switching to TFV-free antiviral regimens should be beneficial for bone mineral density (BMD) recovery, but relevant clinical real world data are still very limited.

Material and Methods: A single-center retrospective observational study was conducted to analysis the impact of switching to DTG/3TC vs maintaining 3DR (TDF) on the recovery of BMD at 48 weeks. In addition, we analyzed T-values in patients ≥ 50 years and Z-values in patients < 50 years and We also analyzed the effect of switching to DTG/3TC on BMD recovery when $-1 < T > -2.5$ and $T < -2.5$ and $Z > -2$ and < -2 . Chi-square test and logistic regression were used to analyze the differences between the two groups.

Results: A total of 240 PLHIV with a decline in BMD or osteoporosis and with virus suppressed for >3 months were enrolled in this study: 120 switching to DTG/3TC between January 2021 and January 2023, 120 maintaining 3DR (TDF), 212 (88.3%) males, 137 (57.0%) homosexuals, 97 (40.4%) aged ≥ 50 years. The mean duration of continuous TDF use was 52.5 months. At week 48, the changes of BMD in the DTG/3TC group [0.10 (0.06,0.18)] was significantly better than that in the 3DR(TDF) group [-0.20 (-0.06,0.10), $P < 0.001$]. In patients ≥ 50 years, the changes of BMD and T in the DTG/3TC group [BMD, 0.10 (0.06,0.19) ; T, 0.79 (0.55,0.98)] were better than those in the 3DR(TDF) group [BMD, -0.01 (-0.04,0.01), $P < 0.001$; T, -0.02 (-0.20,0.13), $P < 0.001$]; Compared with $T < -2.5$ [BMD, 0.09 (0.05,0.14) ; T, 0.70 (0.52,1.11)], there was no difference in BMD and T changes at 48 weeks when switching to DTG/3TC at $-1 < T > -2.5$ [BMD, 0.10 (0.06,0.21), $P = 0.4$; T, 0.81 (0.56,0.95), $P = 0.5$]. In patients $<$

50 years, the changes of BMD and Z in the DTG/3TC group [BMD, 0.10 (0.06,0.17) ; Z, 0.62 (0.44,0.95)] were better than those in the 3DR(TDF) group [BMD, -0.03 (-0.09,0.00), $P < 0.001$; Z, -0.20 (-0.40,0.13), $P < 0.001$]; Compared with $Z < -2$ [BMD, -0.03 (-0.09,0.00) ; Z, -0.20 (-0.40,0.13)], the BMD and Z changes were better at 48 weeks when switching to DTG/3TC at $Z > -2$ [BMD, 0.10 (0.06,0.17), $P < 0.001$; Z, 0.62 (0.44,0.95), $P < 0.001$].

Conclusion: This study demonstrates that switching from 3DR(TDF) to DTG/3TC (TFV-free) has a positive effect on BMD (T in patients ≥ 50 years and Z in patients < 50 years) recovery in PLHIV with decreased BMD or osteoporosis. Although there was no statistically significant change in BMD and T when switching to DTG/3TC at $-1 < T > -2.5$ and $T < -2.5$, there were still differences in numerical values, which we believe may be related to shorter observation time (48 weeks) and slower BMD recovery in patients over 50 years old. So we believe that choosing to actively switch from 3DR (TFV) to DTG/3TC as early as possible is more beneficial for the recovery of BMD (T and Z) than choosing to switch passively.



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Impact of Depression on Virological Outcomes and Quality of Life among People Living with HIV in Thailand

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Introduction: Depressive symptoms impact the well-being and quality of life (QoL) in people living with HIV (PLWH), and is often associated with poorer virological control. Understanding depressive symptoms and their association with virological outcomes and QoL are crucial in devising comprehensive healthcare strategies tailored to the specific needs of PLWH. This study investigated the relationship between depression, virological outcomes, and QoL among PLWH.

Methods: A cross-sectional study was conducted among PLWH at HIV-NAT, Thai Red Cross AIDS Research Centre, Thailand, from December 2020 to June 2023. A Patient Health Questionnaire (PHQ)-9 score ≥ 10 was considered to represent moderate-to-severe depression. QoL was measured using the World Health Organization's Quality of Life-HIV (WHOQOL-HIV BREF) which is a validated 31-item in six domains, each rated on a 5-point scale, with 1 indicating low, negative perception and 5 indicating high, positive perception. Mean scores for each domain were computed. The scores ranged between 4 and 20. Higher scores indicated better QoL. Virological suppression was defined as having HIV RNA < 50 copies/mL. Multivariable logistic regression was used to evaluate the factors associated with moderate-to-severe depression.

Results: Among 508 participants, 17.5% were female, and the median age was 33.3 years, with 90.4% had HIV RNA < 50 copies/mL. Fifty individuals

(9.8%) experienced moderate-to-severe depressive symptoms. In a multivariable model, females (aOR: 4.18, 95%CI: 1.04-16.72) and HIV RNA ≥ 50 copies/mL (aOR: 3.07, 95%CI: 1.28-7.35) had higher risk to develop moderate-to-severe depression. Of all participants, 72.1% reported good or very good overall QoL and 71.1% expressed satisfaction and very good satisfaction with their general health perception. PLWH with minimal or mild depression had higher mean overall QoL (4.0 ± 0.7 vs. 3.2 ± 0.7 , $P < 0.001$), general health perception (3.9 ± 0.8 vs. 3.2 ± 0.9 , $P < 0.001$), and HIV RNA < 50 copies/mL (91.7% vs 78%, $p < 0.002$) compared to those with moderate-to-severe depression. In the QoL six domains, participants with minimal or mild depression also scored higher in physical health (16.7 ± 2.3 vs. 13.0 ± 3.1 , $P < 0.001$), psychological health (16.0 ± 2.3 vs. 12.6 ± 2.5 , $P < 0.001$), level of independence (16.6 ± 2.4 vs. 14.3 ± 2.4 , $P < 0.001$), social relationships (15.4 ± 2.4 vs. 12.6 ± 2.2 , $P < 0.001$), environmental health (15.6 ± 2.3 vs. 13.3 ± 2.4 , $P < 0.001$), and spirituality/self-beliefs (15.7 ± 3.1 vs. 12.7 ± 3.0 , $P < 0.001$) compared to those with moderate-to-severe depression. Among PLWH with minimal or mild depression, there was no significant difference in the six domains between those with virological suppression and those without suppression. PLWH with moderate-to-severe depression and virological non-suppression had the lowest overall QoL score as well as in each QoL domain.

Conclusion: PLWH with elevated rates of depression had lower QoL scores and were higher rates of virological non-suppression. Prioritizing mental health care is essential to improve health outcomes and quality of life in PLWH.



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ASSOCIATION OF STAPHYLOCOCCUS AUREUS NASAL COLONIZATION WITH SKIN AND SOFT TISSUE INFECTIONS AMONG PEOPLE LIVING WITH HUMAN IMMUNODEFICIENCY VIRUS IN A SPECIALTY HOSPITAL IN THE PHILIPPINES

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Background: Skin and soft tissue infections (SSTI) encompass a wide spectrum of common infectious diseases caused by *Staphylococcus aureus* and disproportionately impact people living with human immunodeficiency virus (PLHIV). Nasal carriage of *S. aureus* has been linked to subsequent infections, not just SSTIs, in a variety of clinical settings and populations.

Objective. In this study, we sought to determine the incidence of nasal *S. aureus* carriage and determine its association with SSTIs; describe the clinical factors associated with risk of having SSTIs among PLHIV; and determine the genetic determinants of antimicrobial resistance among methicillin-resistant *S. aureus* (MRSA)

Methods: The study was conducted from November 2022 to July 2023 at the Research Institute for Tropical Medicine (RITM). A total of 379 nasal swabs from PLHIV seen in the out- and in-patient clinics were screened for growth of *S. aureus*. MRSA was determined using ceftioxin disk test and further analyzed using phenotypic antibiotic susceptibility testing and whole genome sequencing (WGS). All subjects were followed up from the time of collection until 3 months. Patients who were laboratory confirmed to have MRSA carriage underwent decolonization after the 3-month follow-up.

Result: Nasal carriage of *S. aureus* was at 84.16% (n= 319/379), of which 2.82% (n=9/319) was identified as MRSA. None of the isolates were detected with vancomycin resistance. The most diagnosed SSTI was folliculitis, followed by carbuncles. There was no significant difference in the rate of current SSTI among patients colonized with MRSA/MSSA compared to those who were non-colonizers. However, there was an increased odds ratio of 2.05 (95% CI: 1.67-2.46, p = 0.05) of developing SSTI among subjects with nasal MSSA/MRSA colonization. The major risk factor for nasal *S. aureus* carriage was CD4< 350 cells/mm³.

Conclusion: A CD4+ T-cell count of <350 cells/mm³ is a risk factor for nasal carriage of MSSA/MRSA. The high prevalence of nasal MSSA carriage but low MRSA rate in this population may be indicative of high rate of community transmission of susceptible isolates; thus empiric treatment in this population need not cover for MRSA. The risk of developing SSTI is higher in those colonized with either MSSA/MRSA and prompt decolonization should be recommended in recurrent cases.



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The burden of sleep disturbances among people living with HIV/AIDS in China: A systematic review and meta-analysis

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Objective: People living with HIV/AIDS (PLWH) commonly face a range of health issues, among which sleep disturbances are common and are related to adverse health outcomes. This review aims to assess the pooled prevalence of sleep disturbances among PLWH in China through a comprehensive and quantitative meta-analysis.

Methods: We conducted comprehensive searches of Chinese databases (Wan Fang, SinoMed, the China National Knowledge Internet, and VIP data) and international databases (Web of Science, PubMed, Embase, and Cochrane Library) from their inception through December 23, 2023. The random effects model was used to calculate the pooled prevalence estimates with 95% confidence interval.

Results: This meta-analysis included 20 studies involving 10,902 Chinese PLWH, of which 5,086 PLWH experienced sleep disturbances. The pooled prevalence was 46% (95% CI: 42-51%). Subgroup analysis revealed that the prevalence of sleep disturbances was influenced by the mental status of depression ($Q=4.21$, $P<0.01$) and anxiety ($Q=4.76$, $P<0.01$), receiving support from family and friends ($Q=6.63$, $P<0.01$), treatment with Efavirenz (EFV) ($Q=37.53$, $P=0.007$), studies using different instruments ($Q=42.69$, $P<0.01$) and the cutoff value of PSQI ($Q=48.29$, $P<0.01$).

Conclusions: Chinese PLWH experience a significant burden of sleep disturbances, which is generally higher than the general population. Early screening and comprehensive interventions targeting sleep disturbances in this population should be prioritized.



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The Ratio of Hemoglobin to Red Cell Distribution Width is the Superior Predictor of Survival in AIDS-related DLBCL: a Novel Inflammatory Marker

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Background: AIDS-related diffuse large B-cell lymphoma (AR-DLBCL) remains a leading cancer in people living with HIV after the introduction of combined antiretroviral therapy, partly with inferior outcome. Identification of independent prognostic markers may help to stratify risk more accurately.

Material and Methods: We conducted a retrospective multicenter cohort study spanning nine years from 2011 to 2019, involving 153 eligible AR-DLBCL patients. We assessed factors related to overall survival (OS) through Kaplan–Meier analyses, univariate and multivariate Cox proportional hazards models. Risk score discrimination was evaluated using the area under the receiver operating characteristic curve.

Results: The median age was 47 years (IQR 39–58), 83.7% were men, the median follow-up was 12.0 months (95% CI, 8.5–15.5), and the OS rate stood at 35.9%. Of the novel inflammatory markers, only the ratio of hemoglobin to red cell distribution width (Hb/RDW) was independent prognostic parameter of OS both in the training (HR = 2.645, 95% CI = 1.267–5.522, P = 0.010) and the validation (HR = 2.645, 95% CI = 1.267–5.522, P = 0.010) cohorts. An inferior Hb/RDW ratio was strongly associated with adverse clinical factors, including advanced Ann Arbor stage, increased extranodal sites, reduced CD4 count, elevated lactate dehydrogenase levels, poorer ECOG PS, and higher International Prognostic Index (IPI) score. When Hb/RDW ratio was added to IPI, the composite score Hb/RDW-IPI showed impressively prognostic discrimination.

Conclusions: The Hb/RDW ratio, an inexpensive and easily accessible inflammatory biomarker,

independently predicts outcomes in AR-DLBCL patients. Incorporating the Hb/RDW ratio into the IPI partially enhances prognostic accuracy.



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The prevalence and risk factors of frailty in Japanese people living with HIV aged over 40 years; A single centre analysis

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Background: Despite a rapid increase in the proportion of senior people living with HIV (PLWH) in Japan, few studies have addressed frailty in this population. The aim of this study was to assess the prevalence of frailty and factors that can negatively interplay.

Method: This was a cross-sectional analysis of male Japanese PLWH (aged ≥ 40 years at enrollment) on ART for at least 12 months, attending a tertiary hospital in Okinawa, Japan. Sociodemographic data were extracted from medical records, while frailty was assessed by the Fried frailty assessment. The following information was collected to evaluate the frailty profile: Short Performance Physical Battery (SPPB), Generalized Anxiety Disorder-7 (GAD-7), Patient Health Questionnaire-9 (PHQ-9), and the Japanese version of the Montreal Cognitive Assessment (MOCA-J).

Results: Among 133 participants (median age, 51), 11 (8.3%) and 93 (70.5%) were frail or prefrail, respectively. 126 (94.7%) participants had an undetectable viral load (< 20 copies/mL) with a median CD4 cell 553 cells/ μ L. Unintentional weight loss (42.4%) and low activity (31.8%) were the main frailty markers. In univariate models, no employment status, diabetes, hypertension, cerebrovascular disease, hemophilia, low skeletal muscle index, and PHQ-9 ≥ 10 were significantly associated with frail and pre-frail phenotype.

Conclusions: The prevalence of frailty in Japanese PLWH seems to be consistent with previous reports from other countries. However, due to the small number of participants precluded multivariate analysis. Further studies are

warranted to understand the impact of frailty in Japanese PLWH.



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Screening and Linkage Coverage for Mental Health and Substance Use among People Living with HIV attending an Outpatient HIV Clinic in Malaysia

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Background: Mental health (MH) and substance use (SU) issues are prevalent among adult people living with HIV (PWH), often resulting in negative health outcomes such as poor ART adherence and disengagement from care. The integration of MH/SU screening into HIV care has been shown to improve MH and SU as well as HIV outcomes. The aim of this study is to ascertain the prevalence of screening and linkage coverage for MH and SU issues among adult PWH undergoing routine HIV care at a tertiary outpatient clinic in Malaysia.

Material and methods: We reviewed the medical records of all adult PWH attending the Infectious Diseases (ID) clinic, University Malaya Medical Centre (UMMC) for HIV care from 1/1/2023-31/12/2023. Screening for MH/SU were defined as any documented formal screening or discussions of MH/SU during healthcare provider consultation and a positive screen defined as the documentation of any signs or symptoms associated with MH/SU by the healthcare provider. We describe the cascade of MH/SU care as follows; number of PWH screened for MH/SU (excluding screening conducted for research), the number screened positive for MH/SU, the number referred to MH specialists (counsellors or psychiatrists) for further assessments and the number attending MH/SU care.

Results: 1448 PWH received outpatient HIV care at the ID clinic, UMMC in 2023. 1282 (89%) were male and the distribution of age (years) were <30-39 (34%), 40-49 (31%), 50-59 (23%), 60-69 (9%), 70-79 (2%) and >80 (1%). The total number of PWH screened for MH was 60 (4%) and 28/60 (47%) screened positive. Of those screened positive, 16/28 (57%) were already engaged in MH care and 12/28 (43%) were new cases. Among new cases, 3/12 (25%) were referred and attended by MH specialists, 7/12 (58%) declined further assessments, 2/12 (17%) did not receive referrals. The total number of PWH screened for SU was 51 (4%) and 13/51 (26%) screened positive. Of those screened positive, 5/13 (38%) were already under active care and 8/13 (62%) were new cases. Among new cases, 3/8 (38%) declined to be referred and 5/8(62%) did not receive referrals. Most clinic attendees were screened for MH or SU in isolation and only a small number received screening for both MH and SU, 18 (1%). Of these, 7/18 (39%) screened positive for both MH and SU and 3/18 (17%) screened positive for MH only. Of those screened positive for MH and SU, 3/7 (43%) were already engaged in care and 4/7 (57%) did not receive referrals. Of those screened positive for MH only (n=3), 1/3 (33%) was referred and attended by MH specialists and 2/3 (67%) were already under MH care.

Conclusions: MH/SU screening is not routine in HIV care in UMMC and when performed, is often assessed in isolation. There was poor follow through in referrals following positive screens but the majority of PWH who received referrals were successfully linked to MH/SU care. Further studies are needed to better understand the barriers to MH/SU screening uptake and successful referrals within the ID clinic.



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Factors associated with the longitudinal trajectories of depression and their impact on mortality among people living with HIV in Guangdong Province, China

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Introduction: Depression may change over time and have different effects on mortality. This study aimed to explore factors associated with longitudinal trajectories of depression among newly reported people living with HIV (PLHIV) in Guangdong Province, and to explore the impact of depression trajectories on mortality.

Methods:

A prospective cohort study was conducted to recruit newly reported PLHIV in six cities in Guangdong Province from May 2018 to June 2019. Data on depression were collected at baseline and one-year follow-up. Participants were followed up until June 2023. Generalized estimating equations were used to explore factors associated with depression trajectories. Cox proportional hazards regression models were used to explore the impact of depression trajectories on mortality after propensity score matching (PSM) weighting.

Results:

Of the 1071 PLHIV enrolled at baseline, 792 (73.9%) completed the one-year follow-up survey and were included in this analysis. Depression trajectories showed that 30.9% of participants had a pattern of remission at one-year follow-up, 6.3% had persistent depression at both baseline and one-year follow-up, and 5.9% had new-onset depression at one-year follow-up. 44 (5.6%)

participants died during the study period. Generalized estimating equations showed that participants with high levels of education (high school: $\beta=0.45$, 95%CI: 0.05 to 0.85, college or above: $\beta=0.79$, 95%CI: 0.35 to 1.23), with HIV-related symptoms ($\beta=0.35$, 95%CI: 0.11 to 0.59) and with high levels of HIV-related stigma ($\beta=0.46$, 95%CI: 0.22 to 0.70) were more likely to have depression. Individuals with high social cohesion were less likely to have depression ($\beta=-0.48$, 95%CI: -0.73 to -0.23). After PSM weighting, Cox regression models showed that the group with new-onset (OR=7.65, 95%CI: 2.70 to 21.70) and persistent (OR=5.98, 95%CI: 1.71 to 20.91) depression had a higher risk of mortality than the non-depressed group.

Conclusion:

Different trajectories of depression were found among PLHIV. Individuals with persistent or new-onset depression have a higher risk of mortality than those without depression. More attention should be paid to individuals with high levels of education and those with HIV-related symptoms. Reducing HIV-related stigma and improving social cohesion may also help to reduce depression among PLHIV.



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Expression and prognostic significance of PD-1/PD-L1 pathway in AIDS-related non-Hodgkin lymphoma

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Background: Immune tolerance and evasion play a critical role in virus-driven malignancies. However, the phenotype and clinical significance of programmed cell death 1 (PD-1) and its ligands, PD-L1 and PD-L2, in aggressive acquired immunodeficiency syndrome (AIDS)-related non-Hodgkin lymphomas (AR-NHLs) remain poorly understood, particularly in the Epstein–Barr virus (EBV)-positive subset.

Material and Methods: We employed EBV-encoded RNA (EBER) in situ hybridization to assess the EBV status. We performed immunohistochemistry and flow cytometry analysis of the PD-1/PD-L1/L2 pathway in a multi-institutional cohort of 58 AR-NHLs and compared EBV-positive and EBV-negative cases.

Results: The prevalence of EBV+ in AR-NHLs was 56.9%, associated with impressively increased PD-1/PD-L1/L2 expression in malignant cells. Patients with AR-NHLs who were positive for both EBER and PD-1 (47.4% vs. 93.8%, $P = 0.004$) or PD-L1 (56.5% vs. 93.8%, $P = 0.043$) showed poorer survival. Importantly, PD-1 tissue-expression demonstrated independent prognostic significance for overall survival in multivariate analysis, correlated to a high plasma HIV-1 viral load ($r = 0.347$, $P = 0.018$), elevated LDH ($r = 0.313$, $P = 0.031$), increased PD-1+ Tregs ($P = 0.006$), and robust EBER ($r = 0.541$, $P < 0.001$) and PD-L1 ($r = 0.354$, $P = 0.014$) expression.

Conclusions: These data emphasize the importance of PD-1-mediated immune evasion in the complex landscape of immune-oncology in EBV co-infected AR-NHLs, contributed to the diagnostic classification and potential immunotherapeutic strategies for this unique subgroup.



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Causes of hospitalization and trends of HIV/AIDS inpatients in a tertiary hospital in Nanjing, China, 2013-2022

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Background: The introduction of Antiretroviral therapy (ART) has led to an increase in life expectancy for People living with HIV (PLWH), which has been accompanied by an increase in the prevalence of PLWH comorbidities. Monitoring the cause of hospitalization for PLWH is important to assess PLWH comorbidities and improve management strategies. Therefore, this study describes the reasons for the hospitalization of PLWH in the Second Hospital of Nanjing in China over the past ten years and its changing trend over time.

Methods: This study was a retrospective analysis of adult inpatient PLWH between January 1, 2013, and December 31, 2022, in Nanjing Second Hospital. Discharge principal diagnoses were categorized according to the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10). We described the distribution of causes of hospitalization for hospitalized PLWH from 2013-2022. Trends in the causes of PLWH hospitalization over time were analyzed using the Joinpoint regression model.

Results: This study included 11706 hospitalized cases, among them, 87.4% were male (87.4%), and the median age was 43 (32-53). During the study period, AIDS-defining illnesses (ADI) was the most common reason for hospitalization (40.5%) which showed a decreasing trend (AAPC=-8.0%; 95% CI: -8.9, -7.1), tuberculosis (9.2%) and Pneumocystis pneumonia (8.9%) were the most common AIDS-defining events. The proportion of admissions for non-AIDS-defining diseases (NADs) increased, with the largest increases in admissions for genitourinary diseases (AAPC=31.1%; 95% CI: 23.9, 84.9), non-HIV-related tumors (AAPC=17.5%; 95%

CI: 13.6, 25.5), and circulatory diseases (AAPC=11.5%; 95% CI: 4.9, 25.9). Disease trends were similar when stratified by age.

Conclusions: During the study period, PLWH had an increased risk of hospitalization for NADs such as non-HIV-related tumors and circulatory disorders, while the risk of hospitalization for ADI decreased. Early diagnosis, treatment, and continuous monitoring may be effective strategies to improve hospitalization rates and quality of life in PLWH.



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Non-communicable disease multimorbidity among adults living with HIV in a tertiary care hospital in Nanjing, China

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Background: As the life expectancy of people living with HIV (PLWH) increases, age-related non-communicable diseases (NCDs) are becoming more common among PLWH, and PLWH often suffer from 2 or more NCDs, that is multimorbidity. There are relatively few studies on multimorbidity in PLWH in China. Therefore, the study described the prevalence of NCDs and multimorbidity among PLWH in the Second Hospital of Nanjing in China from 2017 to 2022 and analyzed the factors affecting them.

Methods: This is a retrospective study of adult PLWH hospitalized in the Second Hospital of Nanjing between January 1, 2017, and December 31, 2022. We described the prevalence of NCDs and multimorbidity in patients. NCDs included non-AIDS-defining cancers (NADC), cardiovascular disease (CVD), hypertension, diabetes, chronic kidney disease (CKD), and cirrhosis. Chronic and multimorbidity were described again after stratifying patients by age (<40, 40-49, 50-59, ≥60 years). The Cochran-Armitage test was used to analyze trends in NCDs and multimorbidity over time and age. Logistic regression was used to analyze factors influencing NCDs and multimorbidity.

Results: Between January 2017 and December 2022, 5480 PLWH were included. The median age was 42(31-54) years, and 86.4% were men. The percentage of PLWH with NCDs showed a trend of increasing with age during the study period (all P trend < 0.001). The percentage of PLWH multimorbidity was 7.8%, and its percentage increased with the age of the patients (P trend < 0.001). Higher age (all P<0.001), other routes of infection (OR=1.72, 95% CI:1.12-2.62), duration of HIV infection >5 years (OR=1.50, 95% CI:1.09-

2.06), and last CD4+ T lymphocyte count ≥200 cells/mL (OR=1.48, 95% CI:1.11 to 1.97) were associated with multimorbidity.

Age was positively associated with the prevalence of all NCDs (all P<0.05). The occurrence of NADC was associated with VL ≥ 50 copies/mL (OR:0.47,95% CI: 0.25 to 0.84). The occurrence of CVD was associated with being married (OR:0.52,95% CI: 0.32 to 0.86), duration of HIV infection ≥10 years (OR:2.06,95% CI:1.35 to 3.11), and CD4+ T lymphocyte count of 200-349/mL (OR:1.38,95% CI:1.01 to 1.88). The occurrence of hypertension was associated with being married (OR:1.82,95% CI:1.13 to 3.04), transmission route other (OR:1.69,95% CI: 1.13 to 2.49), duration of HIV infection for ≥10 years (OR:1.59,95% CI:1.08 to 2.34), and CD4+ T-lymphocyte count of 200-349/mL (OR:2.01,95% CI:1.52 to 2.66) and ≥500/mL (OR:1.82,95% CI:1.25 to 2.64). The occurrence of CKD was associated with a duration of HIV infection of 6-9 years (OR:1.95,95% CI:1.16 to 3.25) and CD4+ T lymphocyte counts of 200-349/mL (OR:2.11,95% CI:1.25 to 3.56) and VL ≥50 copies/mL (OR: 0.44,95% CI:0.23 to 0.81). The occurrence of cirrhosis was associated with the infection route of heterogeneous (OR: 3.09,95%CI:1.11 to 9.93) and other (OR: 22.96,95%CI: 9.08 to 70.55), CD4+/CD8+ T lymphocyte ratio ≥0.8.

Conclusions: NCDs and multimorbidity prevalence has increased among PLWH, which suggests that the screening and treatment of common NCDs should be integrated into routine HIV care, and the monitoring of comorbidities should be strengthened, and the management of comorbidities should be optimized.



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Cognitive performance disparities between sexes among aging people living with and without HIV in Thailand: A cross-sectional study

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Background: Given potential variations in cognitive reserve influenced by diverse biopsychosocial factors among men and women, the impact of HIV on cognitive performance may differ between sexes. We aimed to determine the disparities in cognitive performance between sexes among aging people living with (PWH) and without HIV (PWoH).

Material and Methods: Thai PWH and age-matched PWoH aged ≥ 50 years were enrolled from 2015 to 2017 to assess cognitive performance using the Thai-validated Montreal Cognitive Assessment (MoCA) in the HIV-NAT 207 cross-sectional study. Age was categorized into four groups for descriptive analysis: 50-54, 55-59, 60-64, ≥ 65 years. Generalized linear models (GLM) and multivariable logistic regression models were utilized to predict adjusted MoCA scores and the probability of cognitive impairment, respectively.

Results: Among 357 PWH (mean [SD] age 56.2 [5.5] years, 134 [37.5%] female, and 262 [73.4%] with >6 years of education) and 148 PWoH (mean [SD] age 58.8 [6.0] years, 57 [38.5%] female, and 74 [50.0%] with >6 years of education) enrolled, 216 (60.5%) and 97 (65.5%) had cognitive impairment, respectively. There were no significant differences in the proportion of cognitive impairment between sexes among PWoH. However, female living with HIV had a significantly higher proportion of cognitive

impairment compared to male counterparts (70.9% vs. 54.3%, $p=0.002$).

Among PWoH, males showed a higher prevalence of cognitive impairment than females in the 50-54 (men, 76.9%; female, 62.5%) and 55-59 (men, 55.9%; female, 42.1%) age groups, while females had a higher prevalence of cognitive impairment than males in the 60-64 (men, 64.3%; female, 75.0%) and ≥ 65 (men, 76.5%; female, 100%) age groups. In contrast, females consistently exhibited a higher proportion of cognitive impairment than males across all age groups among PWH.

These findings align with the constant decline of adjusted predicted MoCA scores from the GLM (from 24.1 [95%CI 23.3–24.8] to 21.9 [95%CI 20.6–23.2] in men living with HIV and from 22.6 [95%CI 21.6–23.6] to 19.9 [95%CI 18.1–21.8] in women living with HIV between the ages of 50 to 70 years) and a constant increase in the probability of cognitive impairment from the multivariable logistic regression model in PWH for both sexes (from 0.50 [95%CI 0.40–0.60] to 0.76 [95%CI 0.62–0.90] in men living with HIV and from 0.61 [95%CI 0.48–0.75] to 0.86 [95%CI 0.69–1.00] in women living with HIV between the ages of 50 to 70 years).

Conclusions: Our study revealed consistent sex differences in cognitive performance across age groups among PWH. These findings underscore the necessity of further investigation in diverse populations and exploration of sex-specific timelines for cognitive decline in aging PWH.



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CTO in People Living with HIV: Navigating Complexities in Interventional Challenges.

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Background: Coronary chronic total occlusions (CTOs) present a unique challenge in coronary artery disease, particularly among People living with HIV (PLWH). Successful percutaneous coronary intervention (PCI) for CTOs is essential for improving angina and left ventricular function. People living with HIV face an increased risk of adverse cardiovascular events due to complex interactions between traditional risk factors and the ongoing endothelial dysfunction, immune activation, inflammation, and heightened thrombosis risk associated with HIV infection.

Objective: This prospective observational study aimed to evaluate the procedural success and complications of PCI for CTOs in People living with HIV.

Methods: From August 2015, we enrolled 25 consecutive People living with HIV with CTOs in a comprehensive study. Each patient underwent coronary angiography, and clinical presentations were meticulously evaluated. All participants underwent PCI, with clinical follow-up for 5 years.

Results: The study demonstrated a 100% procedural success rate with an uneventful in-hospital course. The mean age was 48 years, and HIV duration was 4.1 years. CTO distribution included 15 patients with 100% LAD occlusion, 5 with 100% RCA occlusion, 1 with 100% LMCA and LAD occlusion, and 4 with 100% LCX occlusion. Various vessels were targeted during PCI, with an average stent size of 3x30mm and the fluoroscopy time averaged 2-3 hours. Three deaths occurred during the 5-year follow-up, unrelated to PCI. No major adverse cardiovascular events were reported, and patients experienced significant symptom relief post-PCI.

Conclusion: People living with HIV face an increased risk of coronary CTO lesions at a younger age, predominantly during the initial HIV infection phase. PCI emerges as an effective and safe coronary revascularization strategy, providing sustained symptomatic and prognostic benefits. HIV status and highly active antiretroviral therapy did not hinder procedural success or impact clinical outcomes.



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Oral semaglutide demonstrates comparable effectiveness to conventional injectable GLP1 receptor agonists in Asian HIV-positive patients with type 2 diabetes mellitus.

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Background: Weight gain in HIV-positive participants is of significant concern worldwide. The impact of GLP1 receptor agonists on HbA1c and weight control in HIV-positive diabetic participants is a drug of interest. In general, the weight loss effect of GLP1 receptor agonists depends on the characteristics of each drug. Oral semaglutide offers a better weight loss approach than other GLP1 receptor agonists. However, data for HIV-positive participants are limited. This study aimed to determine whether oral semaglutide is more valuable than conventional GLP1 receptor agonists in HIV-positive participants with diabetes mellitus.

Material and Methods: A retrospective study investigated HIV-positive participants with diabetes mellitus at two hospitals in Japan. Inclusion criteria are no change in ART for one year before initiating GLP1 receptor agonists. Initially, the study enrolled 40 HIV-positive participants undergoing treatment with GLP1 receptor agonists. However, 10 participants were subsequently excluded due to various reasons, including type 1 diabetes (n=1), undergoing dialysis (n=2), interrupted clinic visits (n=3), and changes (n=2) or discontinuation (n=2) of GLP1 receptor agonists. The study comprised 16 participants in the oral semaglutide group and 14 in other GLP1 receptor agonist groups (dulaglutide and liraglutide).

Results: All HIV-positive participants were Asian males. Age was 57.0 (± 10.4) years in the oral semaglutide group and 63.5 (± 10.4) years in the other GLP1 receptor agonist group. The mean body weight of the oral semaglutide group was 82 kg (± 16.8 kg), and that of the other GLP1 receptor agonist group was 76.2 kg (± 14 kg). In the oral Semaglutide group, three participants were treated with 3 mg/day, eight with 7 mg/day, and five with 14 mg/day. Sixteen participants in the oral Semaglutide group were treated with RAL in three patients, eight with DTG, and five with BIC. Ten patients were treated with TAF. In the other GLP1 receptor agonist groups, RAL was in 7 cases, DTG in 3 cases, EVG in 1 case, BIC in 4 cases, and TAF in 6 cases.

HbA1c at the start of GLP1 receptor agonist treatment was 7.8% (± 1.21) and 8.15% (± 0.99) in the oral Semaglutide group. At six months, the mean HbA1c decreased by -0.35 (± 0.727)% in the oral semaglutide group and by -1% (± 1.24) in the other GLP1 receptor agonist groups, with no significant difference (P=0.10). Weight change averaged -1.8 kg (± 3.14) in the oral semaglutide group and -1.7 kg (± 2.69) in the other GLP1 receptor agonist group, not significantly different (P=0.759).

Conclusions: In Asian HIV-positive participants, oral semaglutide use was non-inferior to conventional injectable GLP1 receptor agonists in terms of HbA1c and weight loss. These real-world results in Asians make oral semaglutide a helpful option in the management of type 2 diabetes in HIV care.



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Safety and Efficacy of Anti-PD-1/Anti-PD-L1 Therapy in Cancer Patients Living With HIV: A Systematic Review and Meta-Analysis

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Background: Many studies have confirmed the good efficacy of anti-programmed death receptor or ligand 1 (anti-PD-(L)1) therapy. However, because people living with HIV (PLWH) have impaired autoimmunity and may cause more adverse events after receiving the therapy, they are often excluded from studies. To systematically conduct the safety and efficacy of anti-PD-(L)1 therapy for PLWH.

Methods: PubMed, Web of Science, and Cochrane Library were systematically searched from inception to May 7, 2023 for studies reported the data, including the objective response rate (ORR) and the incidence of immune-related adverse events (irAEs). Either the fixed-effect model or the random-effect model was selected based on the heterogeneity. StataMP 14.0 was utilized to compute the 95% confidence intervals (CIs) for the effect sizes.

Results: There were 7 prospective clinical trials and 11 retrospective case series involving 254 PLWH with cancer. Anti-PD-(L)1 therapy had an ORR of 0.25 ([95% CI 0.19, 0.31]; $I^2=0\%$). PLWH \leq 50 years old [0.58 (95% CI 0.38, 0.78)] responded better than elderly PLWH [0.20 (95% CI 0.09, 0.30)]. AIDS-defining cancers (ADCs), such as NHL [0.63 (95% CI 0.40, 0.86); $I^2=36.7\%$] and KS [0.46 (95% CI 0.27, 0.65); $I^2=64.4\%$], demonstrated a relatively high level of efficacy when treated with anti-PD-(L)1 therapy. PLWH with cancer seemed to respond better to pembrolizumab [0.25 (95% CI 0.13, 0.36); $I^2=34.6\%$] in monotherapy.

Pembrolizumab+pomalidomide and nivolumab+ipilimumab have also demonstrated positive outcomes. The incidence of irAEs was 0.37 (95% CI 0.28, 0.47; $I^2=0\%$) and grade 3 or higher

irAEs was 0.11 (95% CI 0.03, 0.19; $I^2=0\%$) in PLWH similar to general patients. No immune reactivation of the inflammatory syndrome was seen during anti-PD-(L)1 therapy. Baseline CD4+T cell counts and CD4/CD8 ratios did not affect the efficacy or safety. The majority of treated patients exhibited stable CD4+T cell counts.

Conclusions: Anti-PD-(L)1 therapy can be a safe and effective treatment for PLWH with cancer, regardless of CD4+T cell counts and CD4/CD8 ratios. Pembrolizumab may be a promising treatment for PLWH with cancer. ADCs show better response to anti-PD-(L)1 therapy. More suitable immunosuppressive treatment strategies are needed for the elderly PLWH to enhance their efficacy.



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Incidence and risk factors regarding atherosclerotic cardiovascular disease in middle-aged and elderly people with HIV treated in Chongqing, China

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Background: Antiretroviral therapy (ART) has tremendously improved the survival of people living with HIV (PLHIV) and provided a nearly normal lifespan. However, this improvement in longevity has resulted in an increase in the number of PLHIV living in middle-aged and older age groups. There is a shift in the prevalence of HIV-associated disorders from opportunistic infection manifestations to other complex comorbid disorders, such as atherosclerotic cardiovascular disease (ASCVD). ASCVD is a common cause of morbidity and mortality among PLHIV, and compared with the general population, PLHIV are twice as likely to develop ASCVD. In Chongqing, approximately half of the PLHIV were middle-aged or elderly, and their diets were mainly high in salt, spices and oil; however, there is still a lack of relevant research on the risk factors and whether the disease burden of ASCVD is greater in these areas. This study was to investigate the risk of ASCVD in middle-aged and elderly PLHIV receiving ART and analyze the factors influencing high risk.

Methods: A retrospective study was conducted at Chongqing Public Health Medical Center. Questionnaire surveys, physical examinations and laboratory examinations were used to collect information from PLHIV aged ≥ 45 years. Pooled cohort equations (PCEs) were used to calculate the 10-year ASCVD risk and analyze the influencing factors. The 10-year ASCVD risk score was used to define patients in the low-risk subgroup ($<7.5\%$) and high-risk subgroup ($\geq 7.5\%$), and the risk factors were compared between the two groups.

Results: In total, 463 PLHIV (median age 55.0 years, male 68.5%) were included, and the median duration of ART was 45.0 (15.0, 70.3) months. Of

the 463 PLHIV, 13 (2.8%) had a known history of ASCVD. In the present study, 153 PLHIV (33.0%) were classified into the high-risk group, and 310 PLHIV (67.0%) were classified into the low-risk group. Compared with the low-risk group, the high-risk group was more likely to be female, older age, live in urban areas, be unemployed, have poor sleep quality, have higher low-density lipoprotein cholesterol (LDL-c), have higher total cholesterol (TC), and have diabetes and hypertension; however, coffee consumption was associated with a low risk of ASCVD. In addition, there were no differences in HIV viral load, CD4+ T-cell count, or duration on ART, or ART regimes between the two groups. According to multiple logistic regression, older age [odds ratio (OR) =62.469, 95% CI=27.456, 142.134], female sex [OR =9.635, 95% CI =4.384, 21.179], higher LDL-c levels [OR =1.018, 95% CI =1.000, 1.036], accompanied hypertension [OR =8.642, 95% CI =3.373, 22.143] and diabetes [OR =10.806, 95% CI =3.787, 30.834] were found to be independent risk factors for the 10-year risk of ASCVD.

Conclusions: The overall 10-year ASCVD risk is greater for middle-aged and elderly PLHIV in Chongqing, China. The risk factors for the 10-year risk of ASCVD were older age, female sex, elevated LDL-c level, and coexisting hypertension and diabetes.



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Mental Health-seeking Behaviour and Literacy among Women Living with HIV: An Exploratory Qualitative Study at a Tertiary Teaching Centre

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Background: Mental health (MH) disorders are more prevalent amongst women living with HIV (WWH) compared to women without HIV. Addressing MH issues is imperative for improving WWH's overall wellbeing and HIV-related outcomes. People with HIV tend to have poorer health-seeking behaviour, especially for MH care, often due to stigma. This study aimed to explore MH literacy and MH care-seeking behaviour among WWH receiving HIV care at a tertiary care hospital in Malaysia.

Material and Methods: We conducted in-depth interviews with twenty WWH at the Infectious Diseases (ID) Clinic, University Malaya Medical Centre (UMMC) between December 2022 and February 2024. Purposive sampling ensured diversity in age, race, and levels of previous engagement with MH services. Interviews were conducted in local languages, Malay, English and Mandarin by trained study staff. Content analysis was used to analyse qualitative data. Mental health literacy was explored through sequential open-ended questions. Initially, participants were asked if they had heard of MH. Those who acknowledged awareness were further asked about their understanding of various MH conditions, available MH treatment options, their personal mental state and what MH means to them. MH care-seeking behaviour was then assessed by asking participants about their actions taken when affected by a disturbed personal mental state.

Results: Interviews were conducted with 20 WWH, including 18 Malaysians of Malay, Chinese, or

Indian descent, and one Indonesian and one British citizen. Median age was 50 years, and median years after HIV diagnosis was 11 years. All were on antiretroviral therapy with 18/20 (90%) having suppressed viral loads. Study participants demonstrated a fundamental understanding of MH, linking it to stress, anxiety, and depression, and were aware of non-pharmacological methods of MH treatment, including talk therapy and developing coping strategies. Participant knowledge on pharmacological treatment for MH conditions was limited. All participants had experienced a disturbed personal mental state, especially during HIV diagnosis, and recognized when they felt "more stressed or had a troubled heart". Financial struggles and social prejudice due to HIV status were among factors indicated as having a detrimental impact on their mental health. Regarding MH care-seeking behaviour, most women preferred discussing their emotions with loved ones over interacting with healthcare personnel. Instead of seeking assistance, many WWH chose to manage MH challenges by being "self-reliant", "avoiding the problem", and "completely isolating from society". Women expressed a willingness to discuss their MH with their ID doctors rather than seeking assistance from a mental healthcare professional, citing concerns regarding HIV status confidentiality, HIV stigma, and a desire to avoid discussions pertaining to the acquisition of HIV or their HIV status. However, some women were open to consulting a mental healthcare professional if recommended by their ID doctors.

Conclusions: While WWH in our sample did indicate MH literacy, MH literacy alone was not reflected in MH care-seeking behaviour among WWH in our setting. While WWH preferred MH self-management or seeking support from family, they did describe being open to discussing MH with ID doctors, suggesting they may play a pivotal role in linking WWH to mental healthcare. Addressing these barriers are critical to ensuring that WWH receive the treatment required.



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Late HIV diagnosis among people with HIV in Thailand in the era of same-day ART initiation

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Background: The scaling-up of HIV testing has continually increased for detecting early HIV diagnosis along with the recommendation of same-day antiretroviral therapy (ART) for people newly diagnosed with HIV infection (PLHIV) in Thailand since 2021. This study aimed to assess the rate of late HIV diagnosis among PLHIV and their associated factors under the Universal Health Coverage (UHC) system in the era of starting ART on the same day of HIV diagnosis.

Methods: The HIV testing database from the UHC program was retrieved for individuals aged ≥ 15 years who were diagnosed HIV positive with CD4 result at positive test between 2021-2022. The baseline was defined as the date of the first HIV-positive test. CD4 count at HIV diagnosis was defined as the closest result within a window 3 months before, or up to 1 month after the date of HIV testing. Late HIV diagnosis was defined as CD4 count at HIV diagnosis < 200 cells/mm³. The rate of late HIV diagnosis was calculated as a percentage with a 95% confidence interval (CI). Logistic regression was used to identify factors associated with late HIV diagnosis.

Results: Of a total of 40,921 individuals, 72% were male with the median age at HIV diagnosis of 33 (interquartile range (IQR) 25-44). Most PLHIV (26%) were from the Northern region and 17% from Bangkok. Overall, 43% had a late HIV diagnosis. PLHIV at age ≥ 50 years (55%, 95%CI 51-59%) were the highest rate of late HIV diagnosis followed by 53% (95%CI 50-55%) in PLHIV at age 35-49 years, 41% (95%CI 39-43) at age 25-34 years and 23% (95%CI 21-25) in PLHIV at age 15-24

years. Overall, the median CD4 count at HIV diagnosis was 250 (IQR 85-446) cells/mm³, and the median CD4 was lower than 200 cells/mm³ among PLHIV at age ≥ 50 years [172 (IQR 55-355) cells/mm³] and age 35-49 years [183 (IQR 56-375) cells/mm³]. In multivariate logistic regression analyses assessing late HIV diagnosis, males had 21% (aOR 0.79, 95% CI 0.76 to 0.83) higher odds of late HIV diagnosis than females. PLHIV aged ≥ 50 years at HIV positive (aOR 4.34, 95% CI 4.04 to 4.67) had the highest risk of late HIV diagnosis than those aged 15 to 24 years at HIV positive. The odds of having a late diagnosis increased by 40% (aOR 1.40, 95% CI 1.34 to 1.46) in PLHIV who were diagnosed in year 2022 versus those diagnosed with HIV in year 2021. PLHIV living in the Bangkok Metropolitan area had lower odds of having late HIV diagnosis than in other country regions.

Conclusions: Late diagnosis are important to describe the effects of HIV testing and treatment programs. The median CD4 cell count at diagnosis is low among older aging PLHIV indicating a higher proportion of late diagnosis in the era of same-day ART treatment. New interventions to promote early HIV diagnosis in Thailand should include a focus on the older age population.



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Growing sustainable HIVST self-test (HIVST) markets: Fostering community leadership and private sector engagement to facilitate market entry for commercial HIVST kits in Vietnam.

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Background: HIVST has been included in Vietnam's health guidelines since 2018. However, kits available in the market for purchase have been limited. Increasing supply by registering new products while enhancing client demand through awareness-raising and greater choice of test kits is critical for improving HIVST uptake. The USAID/PATH Support for Technical Excellence and Private-Sector Sustainability in Vietnam (STEPS) project engaged private sector and community leadership to facilitate market entry and led the "Self-test easily with CheckNOW™ HIVST" campaign to grow a viable commercial market for Abbott's CheckNOW™ HIVST in Vietnam.

Description: STEPS provided technical assistance to Abbott Laboratories Vietnam to guide CheckNOW™ HIVST through product registration and market entry, with regulatory clearance received in March 2023 and CheckNOW™ available in the market in April 2023. STEPS and Glink Academy, a key population (KP)-led social enterprise (SE) collaborated with men who have sex with men (MSM) and transgender alliances and KP influencers to co-create and launch the "Self-test easily with CheckNOW™ HIVST" campaign, aimed at encouraging the use of HIVST. The campaign was launched in December 2023 across six provinces, and comprised offline events accompanied by social media posts with sales livestreams led by 20 community influencers/leaders.

Lessons learned: From December 2023-January 2024, campaign posts had more than 224,000

views and more than 400 individuals participated in seven offline events, resulting in the commercial sale of 1,586 CheckNOW™ kits at KP-led SEs and clinics. Fostering collaboration between Abbott Laboratories Vietnam and Glink Academy to implement the campaign was critical for a sustainable private sector partnerships in Vietnam's HIV response. Community leadership in designing and driving the campaign coupled with the active participation of influencers in events was key to developing compelling campaign materials that resonated with key population communities and encouraged uptake and sales of commercial HIVST services.

Conclusions/Next steps: Strong engagement between the private sector and community stakeholders and community leadership in driving awareness-raising efforts led to the successful market entry of CheckNOW™ HIVST. Continued efforts to grow private sector and community partnerships are needed to advance a sustainable HIVST market in support of Vietnam's efforts to end AIDS by 2030.



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Comparative analysis of people living with HIV identified by community-based organizations and health care facilities in Bishkek and Osh, Kyrgyzstan

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Background: Community-based organizations (CBOs) have been essential to the HIV response, but as countries near epidemic control, CBO support is diminishing. Launched in 2019 and funded by the U.S. President's Emergency Plan for AIDS Relief, EpiC Kyrgyzstan aims to maintain epidemic control by focusing on innovative testing approaches. The study examined the characteristics of people living with HIV (PLHIV) receiving care from health care facilities (HCFs) and CBOs in Bishkek and Osh cities, Kyrgyzstan. The analysis aimed to uncover the contribution of CBOs to HIV case identification, explore differences in age distribution, identification of high-risk populations, and demographic factors between CBOs and HCFs.

Methods: Using the electronic databases of EpiC and the Republican AIDS Center (RAC), we generated a dataset with sociodemographic and risk characteristics of all clients diagnosed between October 1, 2020, and September 31, 2023, in Bishkek and Osh. We divided the sample into two groups: those identified by HCFs and by CBOs. Using descriptive statistics and logistic regression, we explored client characteristics and organizational settings.

Results: CBOs contributed to the identification of 18.8% of PLHIV in Bishkek and Osh. The average age of PLHIV identified in CBOs was significantly lower than in HCFs (34.5 vs. 37.9, $p < 0.001$). CBOs also reached a higher proportion of men (76% vs 60%, $p < 0.001$), homeless people (6.7% vs 2.7%, $p = 0.001$), single individuals (71.8% vs 54.6%, $p < 0.001$), and drug users (9.0% vs 4.3%, $p = 0.002$).

CBOs covered more people with previous HIV tests (51.4% vs 42.8%, $p = 0.02$), and those identified in CBOs were more likely to be initiated on ART within 30 days (97.0 vs 95.1, $p = 0.06$).

In the multivariate model, CBOs showed a specific identification profile with significantly more homeless people (OR=2.9, CI=1.3-6.4), individuals from key populations (OR=4.3, CI=3.0-6.0), and PLHIV in earlier stages of infection (OR=0.5, CI=0.3-0.8).

Conclusions: This analysis highlights the significant contribution of CBOs in identifying PLHIV from high-risk groups, especially homeless people, and key populations. The findings underscore the need for collaborative strategies between CBOs and HCFs that emphasize an individualized approach to addressing risk factors among PLHIV and expand coverage of testing and treatment services among women.



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Incidence, predictors and health outcomes associated with cognitive frailty in people ageing with HIV

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Background: Cognitive frailty (CF) is associated with an increased risk of dementia, disability and mortality but little is known about this construct among people with HIV (PWH). We explored the incidence, predictors and health outcomes associated with CF in ageing PWH.

Methods: 180 PWH under routine HIV care in University Malaya Medical Centre, Malaysia and 81 controls (all ≥ 25 years) were prospectively assessed for frailty, cognitive function and health outcomes at two time-points; 2014-2016 (baseline) and 2020-2023 (follow-up). All PWH received ART for at least 12 months. Incident CF was defined as the new onset of frailty (≥ 2 Fried's criteria) and impaired Montreal cognitive assessment (MoCA) scores (global deficit score ≥ 0.5) at follow-up in participants without clinical dementia at baseline. Stepwise logistic regression was performed to assess baseline factors predicting the simultaneous worsening of MoCA and frailty scores during follow-up. Logistic regression adjusted for age, sex and ethnicity was performed to assess the association between CF with outcomes of quality of life (CASP-19), mortality risk scores (VACS 1.0) and disability (WHODAS 2.0).

Results: All 261 participants were followed-up and the median (interquartile range, IQR) duration between visits was 7 (6-7) years. Median age at baseline among PWH and controls were 43(36-50) and 45(31-53) years, respectively. 83% of PWH and 56% of controls were males. CF incidence was higher in PWH vs controls (4.53 vs 2.22 per 100 person-years). Male sex (OR 8.18, 95%CI 1.41-47.54, $p=0.019$), lower stress scores (OR 0.86,

95%CI 0.75-0.99, $p=0.030$), lower HDL (OR 0.16, 95%CI 0.03-0.89, $p=0.036$), lower grip strength (OR 0.92, 95%CI 0.85-0.99, $p=0.022$) and lower haemoglobin levels (OR 0.94, 95%CI 0.90-0.98, $p=0.002$) independently predicted declines in both physical and cognitive health in PWH at follow-up. CF in PWH was associated with greater disability (OR 1.03, 95%CI 1.01-1.06, $p=0.017$) but not poorer QoL (OR 0.97, 95%CI 0.93-1.01, $p=0.140$) and increased mortality risks (OR 1.03, 95%CI 1.00-1.06, $p=0.065$).

Conclusion: Ageing PWH on stable ART experience an increased risk of CF which negatively impacts their functional ability. Modifiable factors, potentially amenable to lifestyle interventions, predicted declines in physical and cognitive health among PWH. The unexpected protective role of stress against CF needs further investigation.



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Health outcomes among ageing women living with HIV on antiretroviral therapy in Malaysia

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Background: Despite increase in life expectancy in people with HIV (PWH), they have poorer health outcomes compared to individuals without HIV. To date, few studies in Asia-Pacific region have explored this issue specifically among women with HIV (WWH+) who may experience ageing differently from women without HIV (WVOH-) and men with HIV (MWH+). We aimed to explore various health-related outcomes in WWH+ in comparison to WVOH- and MWH+ to identify unique phenotypes of ageing among WWH+ in Malaysia.

Materials and Methods: This was a secondary analysis from the Malaysia HIV and Aging cohort 2021-2023 (MHIVA, PWH=200, HIV-=101). Participants included PWH on antiretroviral therapy, ≥35 years old and attending routine HIV care in Universiti Malaya Medical Centre, Malaysia and community controls. All 46 WWH+ recruited in the cohort were matched for age (± 1 year) and ethnicity with WVOH-(n=46) and MWH+ (n=46). All participants underwent performance based-assessments, standard questionnaires and provided blood samples for biochemical analysis. In addition to socio-demographics and lifestyle factors, the health outcomes measured included psychosocial, physical health, and quality of life. Pearson Chi-square and Mann Whitney U tests were performed to compare differences in characteristics and health outcomes across WWH+, WVOH- and MWH+.

Results: The median age in all groups was 50 years. Duration of living with HIV was comparable

in WWH+ and MWH+ (15 vs 14 years, respectively) as was the proportion with CD4 counts ≥500 cells/ul (76% vs 63%, respectively) and undetectable viral load, HIV RNA <50 copies/ml (93% vs 85, respectively). WWH+ had significantly lower household income and education levels compared to WVOH- but comparable to MWH+. While the median number of chronic comorbidities were comparable in all groups, the proportion with metabolic syndrome (WHO 1998 criteria) was significantly higher in WWH+ (20%) compared to WVOH- (4%) but similar to MWH+ (17%). WWH+ had significantly higher mortality risk scores (VACS 2.0) and systemic inflammation (hsCRP) compared to both WVOH- (VACS, p=0.005; hsCRP, p=0.029) and MWH+ (VACS, p=0.009; hsCRP, p=0.004). WWH+ were also frailer (Frailty Phenotype) compared to MWH+ (13% vs 4%, p=0.012) but similar to WVOH- (13% vs 7%, p=0.253). In terms of quality of life, WWH+ performed worse compared to WVOH- in domains of control (p=0.044), autonomy (p=0.003) and pleasure (p=0.042) (CASP-19) as well as psychological (p=0.034) and environmental (p=0.013) aspects (WHOQOL). WWH+ were also at greater risk of social isolation (Lubben scale, p=0.002) and loneliness (De Jong Loneliness Scale, p=0.04) compared to WVOH- but comparable to MWH+. Higher prevalence of polypharmacy (p<0.001) and neurocognitive but not different compared to MWH+. No significant difference was observed in depression, anxiety and stress (DASS-21) among WWH+, WVOH- and MWH+ in our sample.

Conclusions: Despite well controlled HIV, ageing WWH+ experienced worse physical and cognitive health, social connectedness and poorer quality of life compared to age- and ethnic matched WVOH-. WWH+ also had higher mortality risk scores compared to MWH+ despite few differences in their ageing phenotype. Follow-up studies in larger cohorts are needed to identify factors associated with these poor health outcomes observed among WWH+.



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Coronary Artery Calcium and Abnormal Arteries for Predicting Death and Cardiovascular Outcome in Older People Living with HIV: A cohort Study

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Background: Older PLWH bear a higher CVD burden due to traditional and HIV-specific factors. This study explored the use of non-invasive tools like ABI, CAVI, and CAC to improve CVD prediction and mortality assessment in this population.

Methods: A prospective cohort study of 358 PLWH aged 50+ from the HIV-NAT aging study was conducted. Participants underwent ABI/CAVI and CAC scoring (0 = no risk, 1-99 = low risk, etc.). CVD events (myocardial infarction, stroke, revascularization) and deaths were recorded during follow-up (2015-2023). Survival outcomes were analyzed using Kaplan-Meier curves and Fine-Gray models, accounting for competing risks.

Results: For baseline characteristics statistically significant differences in age, gender and underlying disease like diabetes or hypertension were observed between CAC categories. Overall, 16 CVD events and 26 deaths occurred during follow-up. Fine-Gray analysis identified smoking (SHR 8.78, 95%CI [.7-45.41], $p < 0.05$) as significant risk factors for both CVD and mortality. While for mortality laboratory testing like triglyceride and IL-6 were associated (SHR 4.36, 95%CI [1.59-11.95], $p < 0.05$). While positive ABI and CAVI did not significantly influence CVD survival, PAD patients exhibited a higher death risk. Interestingly, participants with a CAC score of 0 had the lowest event rates, suggesting potential low-risk identification.

Conclusions: Traditional risk factors, particularly smoking, remain crucial for PLWH. While ABI/CAVI may not be optimal for standalone CVD risk

stratification, CAVI shows promise for mortality prediction. The relationship between higher CAC scores and events requires further investigation with larger samples. Exploring inflammatory markers like IL-6 as alternative predictors is warranted.



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Risk factors associated with progression to or persistence of sarcopenia over time in people living with HIV

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Background: Sarcopenia is more prevalent among people living with HIV (PLWH), and is associated with disability. This study aimed to determine the proportion and risk factors of PLWH progressing to or persistently having sarcopenia over time.

Methods: We performed a prospective longitudinal study evaluating clinical parameters of aging among PLWH from 2017 to 2023. PLWH aged ≥ 18 and with two Dual-energy X-ray absorptiometry (DXA) done ≥ 1 year apart were included in this study. Socio-demographic and clinical information were collected. Physical function was assessed. DXA was performed for appendicular skeletal muscle mass. Sarcopenia was defined by Asian Working Group Sarcopenia 2019 consensus. Study endpoint was progression to sarcopenia during follow-up visit in participants without sarcopenia at baseline, or persistent sarcopenia at both visits. Baseline parameters that were associated with study endpoint were identified using multivariate binary logistic regression model.

Results: 280 PLWH were included, and followed for a median of 114 (interquartile range, IQR 76-193) weeks. The median (IQR) age was 54.3 (43.9-62.0) years, and 33 (11.8%) were female. 218 (77.9%) had no sarcopenia at baseline, and 57 (20.4%) reached study endpoint.

Those with study endpoint were older (61.8 years, IQR 55.0 – 68.2 vs. 53.3 years, IQR 43.2 – 60.3, $p < 0.001$), had lower education level (secondary education or above: 67.3% vs. 86.8%, $p = 0.001$), longer duration of HIV diagnosis (12.3 years, IQR 1.6 – 19.7, vs. 7.4 years, IQR 1.2 – 14.3, $p = 0.018$), higher Charlson comorbidity index (CCI) (3, IQR 1-4 vs. 1 IQR 0-2, $p < 0.001$), lower body mass index (BMI) (21.5kg/m², IQR 19.4 – 22.6 vs. 24.7kg/m²,

IQR 22.3 – 28.3, $p < 0.001$), worse nutrition (Mini nutritional assessment: 12, IQR 11-13 vs. 13, IQR 12-14, $p = 0.001$), lower level of physical activity (International physical activity questionnaire: 1323 MET minutes per week, IQR 580 – 2068, vs. 1506 IQR, 693-2994, $p = 0.034$), and poorer social support (Lubben social network scale: 9.0 IQR, 5.0 – 14.0 vs. 11.0 IQR 6.5 – 15.0, $p = 0.043$).

Study endpoint was independently associated with higher CCI (adjusted odds ratio, aOR 2.189, 95% confidence interval, CI, 1.593-3.007, $p < 0.001$), lower BMI (aOR 0.555, 95% CI 0.448-0.686, $p < 0.001$), and poorer social support (Lubben social network scale: aOR 0.923, 95% CI 0.854-0.997, $p = 0.042$).

Conclusions: Progression or persistence of sarcopenia over time among PLWH was associated with multimorbidity, lower BMI and poorer social support. These results enable identification of at-risk PLWH and future studies should be performed to evaluate interventions, including socio-behavioural, in improving sarcopenia.



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Efficacy, safety and patient reported outcome of Dolutegravir/Lamivudine in Antiretroviral-experienced Adults in Yunnan, China

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Background: Two-drug regimens decrease lifetime cumulative drug exposure and long-term toxicities associated with the use of multiple antiretrovirals. Dolutegravir/lamivudine (DTG/3TC) Phase III studies have demonstrated non-inferiority of DTG + 3TC to 3/4-drug regimens in virologically suppressed individuals. However, real-world observational studies are lacking.

We aimed to assess the real-world use of DTG/3TC in virologically suppressed Chinese patients with HIV. This was a retrospective study. Patients were included based on the following criteria: age ≥ 18 years, using DTG/3TC for any reason. The primary objective was the rate of virological suppression. Changes in laboratory parameters were evaluated. Participant fear of disclosure of their HIV status, adherence anxiety, and daily reminder of HIV status was evaluated at baseline by means of the Patient Emotional Well-being and Adherence Considerations questionnaire. Treatment satisfaction was measured in HIV Treatment Satisfaction Questionnaire status version (HIVTSQs).

One hundred thirty-one patients were eligible for analysis. Their mean age was 47.5 (19.5–78.9) years, and 88 (67.2%) patients were male. At 48 weeks, Of these 131 patients switched to DTG/3TC with informed consent due to drug intolerance (42.9%), drug interactions (35.7%), or chronic renal impairment (21.4%). At 48 weeks after switching, 98.47% of patients maintained virological suppression and their CD4+/CD8+ ratios increased, whereas triglyceride and total and high/low-density lipoprotein cholesterol levels were not significantly altered. The DTG + 3TC regimen resulted in a 1.09kg gain in weight. 14 patients receiving DTG + 3TC with historical M184V/I, the proportion of participants with VL < 50 copies/ mL

was 90.2%(13/14). 85 PLHIV completed questionnaires and Treatment satisfaction score was high among participants in DTG/3TC cohort(median55,30-60.) However, 38 (44.7%) of 85 participants reported (“always” or “often”) having a fear of disclosure, adherence anxiety, or a daily reminder of HIV status.

Conclusions: In conclusion, dual DTG/3TC therapy effectively induced viral suppression in virologically suppressed patients with HIV. Long-term follow-up is required to monitor changes in lipids and renal indicators. The virological inhibition rate of this treatment was high even in patients with pre-existing M184V resistance after switching; therefore, it is useful as an optimal regimen for the treatment of HIV infection. Despite switching DTG/3TC with high treatment satisfaction scores (approximately 55 of a possible maximum of 60), however 44.7% of participants reported psychological challenges with their daily therapy at 48weeks. We clinicians need pay attention to more about with good health-related quality of life beyond viral load suppression.



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Depression, Anxiety, Stress, Self-Esteem, and HIV-related Stigma in Adolescents and Young Adults Living with Perinatal HIV in Northern Thailand.

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Background: One of the health determinants of adolescents with perinatal HIV (APHIV) in Thailand is mental health problems. It can be challenging for health care providers to detect adolescents who develop these signs and symptoms. This study investigates the incidence of HIV-related stigma, anxiety, stress, depression, and low self-esteem in APHIV receiving antiretroviral medication (ART) in Northern Thailand.

Methods: This cross-sectional study was conducted at the Research Institute of Health Sciences, Chiang Mai University from July 2023, to March 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, Lamphun, and Lampang provinces. The Depression Anxiety Stress Scale (DASS-21), Rosenberg Self-Esteem Scale (RSES), and Thai Internalized HIV-related Stigma Scale (Thai-IHSS) questionnaires were used to assess depression, anxiety, and stress, self-esteem, and HIV-related Stigma, respectively.

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). Virologic suppression (HIV RNA level < 50 copies/mL) was documented in 24 participants (42.11%). We found that 21.05%, 31.58% and 7.02% of participants had mild to severe depressive symptoms, anxiety, and stress, respectively. Low self-esteem was evidenced in 42 (73.68%), while a high level of HIV-related Stigma was seen in 36 APHIV (63.16%). APHIV with HIV

RNA level > 50 copies/mL had a significantly higher mean HIV-related stigma score than those with virologic suppression (6.63 vs. 34.82, $p < 0.001$), while no difference in the demographic characteristics, depression, anxiety, stress, and self-esteem scores were observed.

Conclusions: In this study, we found that around one-fifth had depressive symptoms, more than a quarter had anxiety, and more than two-third of APHIV had low self-esteem. Integrating mental health screening in routine HIV services and collaborative care would be beneficial to promote their quality of life of APHIV. The high rate of HIV-related stigma, particularly among those without virologic suppression, indicates the need for more research to identify contributing causes and associated factors. Designing internalized stigma reduction intervention for those APHIV would enable them to improve treatment adherence and achieve virologic suppression.



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Late HIV diagnosis and the unrealised benefit of regular testing: findings from a study on people with newly diagnosed HIV infection

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Background: Late HIV diagnosis leads to poor prognoses and incurs additional healthcare costs. With detectable viral load, an untreated person could also generate onward transmissions in the community. With late diagnosis continuing to be reported worldwide, this study evaluates the risk factors and assesses the role of regular testing for minimising late diagnosis in Hong Kong, where the HIV epidemic is concentrated among men who have sex with men (MSM).

Methods and Materials: Since 2016, individuals diagnosed with HIV in one of the major specialist services in Hong Kong were invited to participate in a cross-sectional survey, enquiring about their pre-diagnosis HIV testing practices, sexual behaviours, and reasons for the most recent testing. With consent, participants' baseline CD4 count and AIDS-defining illness (ADI) were retrieved from clinical database. In this study, a CD4 count <350 at baseline or ADI presentation within 3 months of diagnosis was classified as "late diagnosis". The proportion of late diagnosis was examined in participants reporting different HIV testing patterns, while the associated factors were determined using logistic regression. The population attributable risk for late diagnosis associated with non-regular testing was measured.

Results: Between 2016 and 2023, totally 766 individuals diagnosed with HIV participated in this study. With 89%, 8% and 3% being MSM, heterosexual male and female respectively, only 4% reported a history of drug injection. With a median age of 31 years at HIV diagnosis (interquartile range 26-40 years), 61% were classified as "late diagnosis". Such proportion differed from 71% in participants who had never tested for HIV, 59% in irregular testers, to 53% in regular testers. The main reason(s) for taking the most recent test were: "experience of high-risk sexual contact" (30%) and "signs of illness" (30%), followed by "regular testing" (23%) and "management of other sexually transmitted infection (STI)" (10%). An older age at diagnosis (odds ratio [OR] 1.04), heterosexual female compared to MSM (OR 6.41) and primary education level (OR 7.95) were significant risk factors for late diagnosis. Conversely, participants who reported an STI history (OR 0.56), engagement in chemsex (OR 0.73) and group sex (OR 0.67) in the year prior to infection resulted in a significantly lower odds of late diagnosis. Adjusted for significant factors and variations by clinic sites in a backward stepwise model, regular testing (adjusted OR 0.60) was associated with a lower risk of late diagnosis compared to never-tested.

Among regular testers, the likelihood of late diagnosis was also found to be significantly linearly associated with the HIV testing frequency (OR 1.56). Noting 67% participants having not performed HIV tests regularly, it was estimated that 23% of the late diagnosis was attributed to this suboptimal testing practice.

Conclusions: Regular HIV testing reduces the risk of late diagnosis. Public health interventions should be designed with an aim to scale up testing for minimising late diagnosis in non-key populations, while innovations in testing strategies are needed to enable otherwise silent infections to be detected without delay.



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Linkage to care and prevention after HIV self-testing: A systematic review and meta-analysis

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Background: Effective linkage to prevention and care is a crucial step following HIV testing services. This systematic review aimed to determine the proportion of individuals who are linked to prevention and care after HIV self-testing (HIVST) and describe factors associated with linkage.

Methods: An initial search was conducted across eight databases, including conference abstracts, up to October 2023. Linkage to care after HIVST was defined as getting a confirmatory test or antiretroviral therapy (ART) if the self-test was reactive, and/or pre-exposure prophylaxis (PrEP) if the self-test was non-reactive. A random-effects meta-analysis was performed to summarise the linkage to prevention and care.

Results: Overall, 10,071 studies were screened, of which, 174 were included in this meta-analysis. Most studies examining linkage to confirmatory testing or ART initiation were conducted in the African region among key populations who used oral fluid-based HIVST kits without assistance. Overall, 92% (95% confidence interval (CI): 89–96) of those whose HIVST was reactive were linked to confirmatory testing, and 89% (95% CI: 84–93) of those newly diagnosed with HIV initiated ART. Eighty-four percent (95% CI: 74–93) of self-testers were linked to care. Of the individuals whose HIVST was non-reactive, 9% (95% CI: 2–19) were linked to PrEP services. Studies utilising assisted HIVST demonstrated a higher linkage to confirmatory testing, and ART initiation compared to unassisted HIVST. Our meta-regression analysis

found that the type of delivery model for the HIVST kits influenced linkage and that individuals who obtained their HIVST kits through a social network-based approach (SNA) were more likely to be linked to confirmatory testing (adjusted odds ratio (aOR)=1.28 (95% CI: 1.10–1.50), p= 0.001) compared to non-SNA service delivery model.

Conclusions: In the context of expanding HIVST services globally, we found that linkage to confirmatory testing and ART initiation after HIVST is generally high, particularly with assisted HIVST and when SNA was used to obtain the HIVST kits.



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Enhancing Communication but Falling Short on Timely Visits: A Case Study of the Medical Appointment Notification Assistance (MANA) Application in HIV Patient Care, Bangkok

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Background: In 2020, the Medical Appointment Notification Assistance (MANA) application was developed to improve on-time patient visits by sending appointment reminders. We analyzed the frequency of on-time and late clinic visits among persons living with HIV who enrolled in MANA at a large tertiary hospital in Bangkok from May 2020 through October 2023.

Methods: MANA was offered to every client visiting the clinic for ARV or viral load services, with electronic consent obtained through the application at time of registration. Reminders were sent three times before drug refill and viral load test appointments (7, 3, and 1 day before), and two times after missed appointments (5 and 7 days). Demographic and visit data were stored using the hospital information system. Median and chi-square tests were performed to assess statistical significance using STATA.

Results: Of 4,537 patients, 1,653 (36.4%) accepted MANA reminders (73.7% male, 89.2% Thai nationality) while 2,884 (63.6%) did not (69.6% male, 87.4% Thai nationality). No significant difference in median age found between the two groups. MANA users accounted for 6,901 (40.7%) of visits while non-MANA users accounted for 10,055 (59.3%) of visits ($p < 0.001$). Both groups had a median visit count of 5. For visit timeliness, 38.0% of visits by non-MANA users were early or on time compared to 32.0% for MANA users, with

a significant difference ($p < 0.001$). Late visits (1-7 days) were 11.8% for non-MANA users and 8.7% for MANA users. Late visits by 8-28 days constituted 18.3% for non-MANA users and 20.3% for MANA users, while late visits by more than 28 days were 32.0% for non-MANA users compared to 38.9% for MANA users, indicating a higher proportion of late visits among MANA users.

Conclusion: While MANA successfully enhances communication between ARV staff and clients, it falls short of improving on-time clinic visits as initially proposed. The findings highlight the limitation of relying solely on message alerts and suggest the need for additional interventions. Bi-directional messages between ARV staff and clients may prove to be a more efficient strategy for encouraging timely clinic visits. Our results emphasize the importance of ongoing learning and adaptation in the development and implementation of healthcare management tools, particularly in the context of HIV client care.



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Attrition and viral suppression rates among children with perinatally acquired HIV in the Thai National AIDS Program

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Background: Early initiation of antiretroviral therapy (ART) can reduce HIV-related morbidity and mortality. We have implemented a nationwide Active Case Management Network since August 2014 to identify HIV-positive infants and accelerate ART initiation. Data on HIV early infant diagnosis (EID) and ART initiation are monitored using the Thai National AIDS Program (NAP). We describe treatment initiation and long-term treatment outcomes of infants living with HIV diagnosed during 2014-2018 in the Thai NAP database.

Material and Methods: A retrospective review of a national cohort of infants diagnosed through Thailand's EID program between August 2014 and July 2018 was performed using NAP data with a censor date of 31 December 2023. HIV infection was diagnosed using HIV DNA polymerase chain reaction at birth, 1-2, and 4 months of age, following national guidelines. The recommended regimen at ART initiation was zidovudine/lamivudine and lopinavir/ritonavir twice daily before pediatric dolutegravir (pDTG) was made available in April 2023. Current national HIV treatment and care guidelines recommend pDTG as the first-line regimen for all children living with HIV weighing <20 kg. HIV treatment monitoring included plasma HIV RNA annually and CD4 cell count every 6 months. Outcomes included mortality rate, attrition rate, and proportion of

favorable treatment outcomes, defined as virological suppression (plasma HIV RNA <200 copies/ml) after >6 months of ART.

Results: Between August 2014 and July 2018, 267 infants were diagnosed with HIV infection at a median age of 60 days. Of these, 230 infants (86.1%) were registered for ART initiation and linked to care in NAP and 209 (78.3%) were on ART >6 months. Median Interquartile Range (IQR) age at ART initiation was 3.3 (2.2-6) months. Initial ART regimens were lopinavir/ritonavir-based (87.0%) or nevirapine-based regimens (12.6%) among others (0.4%).

As of December 2023, 20/230 (8.7%) infants linked to care had died at a median (IQR) age of 12.6 (7.3-35.8) months. Loss to follow-up (LTFU) was 19.1% (44/230) (95% CI 14.3-24.8). Median (IQR) age at LTFU was 43.4 (23.8-66.9) months.

Among 166 children retained on ART, the median (IQR) age at the last visit was 7.0 (5.6-8.6) years. Of these, 108 (65.1%) children received DTG-based, 37 (22.3%) lopinavir/ritonavir-based, 14 (8.4%) efavirenz-based, and 8 (4.8%) other regimens at last visit. A total of 144/166 (86.7%) children achieved virological suppression at the last visit, 87 (52.4%) maintained virological suppression throughout the data analysis period, and 57 (34.3%) experienced virological rebound (VL >200 copies/mL). Median (IQR) last CD4 cell count was 912 (704-1166) cells/mm³.

Among the 108 children who switched to DTG-based regimens, 71 (66.4%) did so while virologically suppressed, 20 (18.7%) children achieved virological suppression after switching, and 17 (15.9%) failed to achieve virological suppression.

Conclusions: With a network promoting early ART initiation, the majority of HIV-infected infants were able to promptly initiate ART and achieve virologic suppression. However, nearly one-third of the cohort died or were lost to follow-up. Case linkage to ART initiation and retention in the HIV cascade of care are critical in ensuring favorable outcomes in pediatric HIV prevention programs.



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Rapid initiation of antiretroviral therapy under the Treat-All policy reduces loss to follow-up and virological failure in routine HIV care settings in China: A retrospective cohort study (2016-2022)

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Background: Following the World Health Organization's guidelines for rapid antiretroviral therapy (ART) initiation [≤ 7 days after human immunodeficiency virus (HIV) diagnosis], China implemented Treat-All in 2016 and has made significant efforts to provide timely ART since 2017. The purpose of this study was to evaluate the effects of rapid ART on loss to follow-up (LTFU) and virological failure compared to those of delayed ART.

Methods: This research included newly diagnosed HIV-infected adults from Tianjin, China between June 2016 and December 2022. Our primary outcome was LTFU (more than 90 days after the prior drug pick-up or clinical visit) at 12 months following enrollment. The secondary outcome was 12-month virological failure after treatment initiation. Furthermore, Kaplan-Meier estimators were utilized to examine the LTFU time for rapid and delayed ART initiation. Moreover, the correlation between rapid ART initiation and LTFU was evaluated using univariate and multivariable Cox regression, whereas the relationship between rapid ART and 12-month virological failure was investigated via logistic regression.

Results: A total of 896 (19.1%) of 4688 participants received ART ≤ 7 days post-HIV diagnosis. The rate of rapid ART initiation has increased from 7.5% in 2016 to 33.3% by 2022. Rapid ART was less common in persons with baseline CD4 counts of 350 - 499 and ≥ 500 compared to those < 200 . Furthermore, it was also less prevalent in individuals who were diagnosed with tuberculosis

or had an unknown route of HIV infection, while was more common in people who used Medicare/self-paid medications. The rapid ART group had an LTFU rate of 3.3%, as opposed to 5.0% in the delayed initiation group. Moreover, the rapid ART group had a much reduced virological failure rate (0.6% vs. 1.8%). Rapid ART individuals had a reduced likelihood of LTFU (adjusted hazard ratio: 0.65, 95% CI: 0.44 - 0.96) and virological failure (adjusted odd ratio: 0.35, 95% CI: 0.12 - 0.80).

Conclusions: Under China's Treat-All policy, rapid ART initiation reduced the risk of LTFU and virological failure. The real-world data indicated that rapid ART initiation is practicable and beneficial for Chinese people with HIV, providing evidence and guide for its widespread implementation and scaling up.



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HIV continuum among key populations through the Universal Health Coverage program in Thailand in the era of treat all

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Background: HIV testing among key populations in Thailand has increased since 2015 corresponding to the establishment of the “key population-led health services” (KPLHS). We assessed the cascade of HIV care among key populations and identified predictors of accessing ART and viral suppression (VS) using national database which records HIV test results, antiretroviral therapy (ART) status, and viral load (VL) of all citizens documented under Thailand Universal Health Coverage (UHC) system.

Methods: We included individuals diagnosed with HIV at age ≥ 15 years who were enrolled to start ART between 2015-2022. Individuals were recorded HIV risk group as men who have sex with men (MSM), people who inject drugs (PWID), female sex workers or transgender women. ART initiation at any CD4 count and VL testing within 6 to 12 months were offered to all per national guidelines. Estimates were calculated as proportion of participants i) linked to care/starting ART, ii) with VL testing, and iii) with VS (VL <200 copies/mL). We used logistic regression to investigate characteristics associated with accessing ART and VS.

Results: A total of 6,110 individuals were diagnosed with HIV and enrolled in care, comprising 5,587 (91%) MSM, 203 (3%) PWID, 193 (3%) female sex workers and 127 (2%) transgender women. Of those, 5,601 (92%) started ART. Among participants who started treatment, 4,420 (79%) had a VL test within 6 to 12 months of starting ART, with 3,985 (90%) of those tested (71% of the

original cohort after starting ART) achieving VS. MSM (adjusted odds ratio (aOR) 1.88 (95% confidence interval (CI) 1.18-3.01; versus PWID), age 15-24 years (aOR 1.71, 95%CI 1.27-2.33; versus age 34-49 years) and CD4 \geq 500 cells/mm³ (OR=5.34, 95%CI 3.77-7.57; versus CD4 < 200 cells/mm³) were associated with higher odds of starting ART after HIV diagnosis. MSM with high pre-ART CD4 and no HIV symptoms at diagnosis were more likely to achieve VS within one year of ART initiation.

Conclusion: HIV care cascades varied by key populations in Thailand. Interventions need to be tailored by population and sub-population contexts. Earlier diagnosis at higher CD4 count could benefit both ART initiation and VS among key populations.



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Longitudinal Health-Related Quality of Life in Hospitalized Patients with Advanced HIV Disease - A Multi-Center Cohort Study in Vietnam

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Background: Tuberculosis (TB), non-tuberculous mycobacteria (NTM), and invasive mycoses account for 50% of opportunistic infections (OIs) and are a leading cause of death in patients with advanced HIV disease (AHD). Morbidity is historically expressed from a (one-sided) healthcare perspective. Here we investigate morbidity focusing on patients' perception of health-related quality of life (HrQoL) and investigate determinants of poor HrQoL.

Methods: A prospective longitudinal study was conducted among 901 patients with AHD hospitalized at three hospitals in Vietnam. Patients ≥ 18 years with a CD4 count ≤ 100 cells/ μ L or WHO stage III / IV disease; not ART or ≤ 3 months on ART were eligible for enrolment. Participants were followed in hospital and monthly as outpatients for 6 months. HrQoL was assessed at baseline, week 12, and 24 using the validated EQ-5D-5L (five domains: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression, range: -0.5115 to 1) Visual Analogue Scale (EQ-VAS, range: 0 to 100). Multivariate linear regression and

logistic regression were used to identify associated variables.

Results: Among 901 patients 747 (83%) were male. Median age was 36 years (IQR 30,44). The patients with microbiologically confirmed TB/NTM infections was 28%, 21% had either talaromycosis, cryptococcosis, or histoplasmosis, 3.3% had mycobacterial and fungal co-infections, and 48% had other OIs. The median EQ-5D-5L utility and EQ-VAS scores at baseline were 0.49 (IQR: 0.12-0.70) and 50 (IQR: 40-60), respectively. At 24 weeks, the median HrQoL EQ-5D-5L utility score was 1.00 (IQR 0.92-1.00), and the median EQ-VAS score remained at 85 (IQR: 80-90). Participants with TB / NTM had lower EQ-5D-5L utility compared to those with fungal infections and other OIs at week 24. In the multivariate linear regression models, lower education level, CD4 < 50 cells/ μ L, TB/NTM infections, and TB/NTM and fungal co-infections were significantly associated with lower EQ-5D-5L utility at baseline (coef. = -0.09, 95% CI: -0.15, -0.02, -0.07, 95% CI: -0.14, -0.01, -0.06, 95% CI: -0.12, 0.00, and -0.13, 95% CI: -0.28, 0.01, respectively). Patients with fungal infections, TB/NTM, and TB/NTM and fungal coinfections were significantly associated with lower EQ-VAS scores (coef. = -5.9, 95% CI: -9.3, -2.6, -6.3, 95% CI: -9.3, -3.2, and -11, 95% CI: -18, -3.5, respectively). However, only lower education level and TB/NTM infections predicted lower EQ-5D-5L utility at week 24 (coef. = -0.05, 95% CI: -0.09, -0.01, coef. = -0.09, 95% CI: -0.13, -0.06, respectively). In the logistic regression analyses, participants with fungal infections were 1.75 times more likely to experience pain/discomfort than those with other OIs (OR = 1.75, 95% CI: 1.18, 2.63). Male participants tended to have less pain and discomfort (OR = 0.66, 95% CI: 0.43, 0.99) and anxiety and depression (OR = 0.45, 95% CI: 0.30, 0.67).

Conclusion: Our study HrQoL perception of hospitalized patients with ADH. HrQoL improves over time, but remains sub-optimal for patients with lower educational levels and with TB or NTM infection. We present a patient-oriented perspective of health outcomes beyond traditional doctor-oriented perspective. This highlights the need to incorporate HrQoL assessment in morbidity estimates and health outcome assessment in HIV care.



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Testing for Neisseria gonorrhoeae infections and performing test-of-cure within a HIV pre-exposure prophylaxis program in Hanoi, Vietnam

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Background: Patients on HIV pre-exposure prophylaxis (PrEP) have high rates of bacterial sexually transmitted infections (STIs), like Chlamydia trachomatis and Neisseria gonorrhoeae, thus routine testing is recommended. Antimicrobial resistance (AMR) in N. gonorrhoeae is an urgent issue, particularly in the Asia-Pacific region. Performing test-of-cure (TOC) for N. gonorrhoeae infections is recommended by some guidelines to monitor for treatment failures. In this study, we assessed the prevalence of N. gonorrhoeae at multiple anatomic sites and performed TOC following treatment of N. gonorrhoeae infections among participants in a HIV PrEP program in Hanoi, Vietnam.

Methods: From January through December 2022, participants in the PrEP program at the Sexual Health Promotion Clinic in Hanoi, Vietnam were recruited into the study. Participants completed a survey collecting demographic, behavioral, and clinical data. Participants self-collected urine, rectal, and pharyngeal specimens for nucleic-acid amplification testing (NAAT) using either cobas CT/NG 4800 (Roche Molecular Diagnostics, USA) or Alinity m STI (Abbott Molecular, USA) assays. Participants with symptoms, or found to have N. gonorrhoeae infections, had an additional specimen collected for culture and antibiotic

susceptibility. TOC for NG was performed by culture and NAAT 10-21 days following treatment.

Results: In total, 529 participants were enrolled, the median age was 25.1 years (interquartile range [IQR]: 21.7-29.5). All were male and reported having sex with men in the prior 12 months. The median number of sex partners in the prior month was 1 (IQR: 1 – 2). In the prior week, 16.3% (86/529) reported rectal symptoms, 13.2% (70/529) reported urethral symptoms, and 23.8% (126/529) reported pharyngeal symptoms. The prevalence of N. gonorrhoeae by NAAT was 14.3% (76/529); there were 57 (10.7%) with pharyngeal, 37 (7.0%) with rectal, and 23 (4.3%) with urethral infections; 36 (6.8%) had infections at multiple anatomic sites. There were 12 participants with culture-positive N. gonorrhoeae infections, 4 from urethral, 6 from rectal, and 3 from oral sites. Among those with N. gonorrhoeae infections, 73 (96.1%) received treatment and 61 (80.3%) returned for TOC with a median of 15 (IQR: 12-19) days after treatment. At the TOC visit, 31.7% (19/60) were positive by NAAT and among those, 19 were positive at pharyngeal site and 1 was also positive at the rectal site. All TOC cultures were negative. There was no difference in NAAT positivity comparing those presenting for TOC <14 days and ≥14 days (p=0.25).

Conclusions: The prevalence of N. gonorrhoeae was significant within this population of MSM in a PrEP program in Hanoi, Vietnam and a high proportion were positive by NAAT at the TOC visit. Interestingly, among those positive at TOC, all were detected by NAAT only and were positive in pharyngeal specimens. While pharyngeal infections tend to be more difficult to eradicate, increasing risk for treatment failures due to AMR, in our study, all TOC cultures were negative, suggesting detection of remnant nucleic acids following treatment is a more likely explanation. The development of an assay to determine bacterial viability at TOC would help distinguish remnant nucleic acids from true infections and is needed.



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Masked by Mildness: Differentiating Mpox from Common STIs in a Bangkok OPD Clinic

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Background: The global Mpox outbreak presents diagnostic challenges in STD clinics, particularly when manifesting in mild forms mimicking other STIs. This study at the Thai Red Cross Anonymous Clinic, Bangkok, focuses on identifying Mpox presentations and distinguishing them from other STIs, providing crucial clinical data on the manifestation of Mpox in Asia.

Material and Methods: An observational study was conducted, collecting data from 77 individuals with suspected Mpox symptoms between January and December 2023. Evaluations included physical examinations, Mpox PCR testing from skin lesions, and STD screenings (NAT PCR for Gonorrhea and Chlamydia, blood testing for anti-HIV, NAT-HIV, and Treponema or RPR). Sociodemographic data, skin manifestations, systemic signs, and lesion sites were observed. Confirmed cases were compared between PLWH and non-PLWH groups. Prevalence of between-group differences was measured with 95% confidence intervals, and descriptive statistics were used for analysis.

Results: Among the 77 suspects, 72 (93.5%) were confirmed for Mpox via PCR. Of the confirmed cases, 22 (30.5%) were PLWH with an average CD4 count of 537 cells/mm³. The majority of individuals were MSM (97.2%) and Thai nationals (87.5%). Skin manifestations in PLWH and non-PLWH included umbilicated papules/pustules (27.3% vs. 44.0%; p=0.202), ulcers (40.9% vs. 28.0%; p=0.289), vesicles (4.5% vs. 8.0%; p=1.000), pustules (18.2% vs. 36.0%; p=0.170), multistage lesions (36.4% vs. 14.0%; p=0.056), and rash

(13.6% vs. 20.0%; p=0.742). Lesions were found on the genitalia (45.5% vs. 76.0%; p=0.016), anus (36.4% vs. 16.0%; p=0.070), trunk (50.0% vs. 42.0%; p=0.208), limbs (50.0% vs. 40.0%; p=0.451), and face (9.1% vs. 26.0%; p=0.127). Concomitant STIs included *N. gonorrhoeae* (16.7% vs. 6.3%; p=0.333), *C. trachomatis* (16.7% vs. 8.3%; p=0.380), and syphilis (9.5% vs. 17.0%; p=0.712).

Conclusions: This study emphasizes the importance of careful evaluation in STD clinics during the Mpox epidemic. The early mild skin manifestations of Mpox, often mimicking other STIs, particularly umbilicated papules and ulcers in the anogenital area, underscore the need for meticulous differential diagnosis to prevent misdiagnosis and transmission. Screening for other STIs in suspected Mpox cases is helpful for diagnosis and appropriate treatment, including co-diagnosis with Mpox. A significant statistical difference was found in the lesion site at genitalia between PLWH and non-PLWH groups. While individuals with higher CD4 counts show mild symptoms, the potential for severe manifestations in immunocompromised individuals calls for a vigilant approach to diagnosis and management. The predominant Mpox clade identified was IIb B.1.3.1.



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Incidence of Gonorrhoea, Chlamydia and Syphilis Infection among Asymptomatic Women in a HIV Clinic in Hong Kong

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Background: Sexually transmitted infection (STI) in women causes health problem as well as debilitating effect on the reproductive tract. It is prudent to prevent, diagnose and treat any STI in women, in particular women of child-bearing age. However, there is a lack of data locally in Hong Kong on the epidemiology of STI among women living with HIV who, with the use of antiretroviral treatment, have near normal life expectancy while enjoying good health.

Method: STI screening has been enhanced among HIV-infected male-having-sex-with male (MSM) who were asymptomatic for STI, at the clinic of HIV Clinical Service, Queen Elizabeth Hospital Hong Kong since October 2022. In year 2023, asymptomatic STI screening has been extended to female patients who were scheduled to have regular cervical smear surveillance. Depending on the sexual behavior, endocervical / oral / rectal swabs are taken for nucleic acid amplification test (NAAT) for Neisseria gonorrhoea (NG) and Chlamydia trachomatis (CT), and blood test is taken for Syphilis serology. Patients were also surveyed for any risk factor for STI. Here we present the outcomes of the screening program performed from 1 June 2023 to 29 Feb 2024 among HIV-infected women of the clinic.

Results: A total of 327 women were being followed up at the clinic, and 104 women who were asymptomatic for STI were screened during the period. Women who received STI screening had a median age of 50 years, and 44% (46/104) were sexually active (last sex within one year).

96.2% (100/104) of women were on antiretroviral treatment for HIV, with median CD4 cell count 519 cells/uL, and four were newly diagnosed of HIV infection. All women were screened for cervical infection, while 13% were screened for additional sites according to sexual behavior. Endocervical swab positivity were 2.9% (3/104) for CT and 0.96% (1/104) for NG. Eight women were screened for oral infection, while five were screened for rectal infection, all of which were negative for NG and CT. Two other women (1.9%) were diagnosed syphilis on serology screening. Among women who were sexually active, 6.5% (3/46) had casual / multiple sex partners, 80.4% (37/46) used barrier method for prevention of STI but only 60.9% (28/46) reported to have consistent use. None of the women in this cohort was substance user. Among the six women who were screened positive for STI, five were sexually active with four reporting inconsistent use of barrier method for STI prevention, and the last woman was sexually inactive reportedly.

Conclusion: In this cohort of HIV-infected women mostly receiving antiretroviral treatment, detection of chlamydia, gonorrhoea and syphilis infection were infrequent and mostly in women who were sexually active having risk factors for STI. Regular STI screening and sexual health education should be offered to sexually active women despite being asymptomatic for STI.



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High Incidence of Chlamydial and Gonorrhoeal Infection Among Asymptomatic MSM in a HIV Clinic in Hong Kong

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Background: Sexually transmitted infections (STIs) result in substantial health problems and major challenges globally in men who have sex with men (MSM) with or without HIV infection. Locally in Hong Kong, the epidemiology of STIs among HIV-infected MSM remains unclear, which may hinder the formulation of measures to battle against this important public health problem.

Method: Yearly asymptomatic screening of STIs, including Neisseria gonorrhoea (NG) and Chlamydia trachomatis (CT), has been offered to HIV-infected MSM under the care of HIV Clinical Service, Queen Elizabeth Hospital Hong Kong since October 2022. Rectal, urethral and oral swabs are taken to perform nucleic acid amplification test (NAAT) for NG and CT. Risk factors for STIs are also surveyed, including inconsistent use of condom, multiple sexual partners (> 1) and substance abuse. Here we present the outcomes of the asymptomatic STI screening program performed from 1/1/2023 to 31/12/2023, together with relevant demographics, among HIV-infected MSM of the clinic. Chi-square test was used to compare the STI risk factors between those positive versus those negative on screening.

Results: A total of 553 STI screening tests were done among 515 asymptomatic MSM whose median age was 42 years (range 22 to 80). Test positivity rate for either NG or CT was 23.9% (132/553), and the rate of co-infection of both NG and CT was 5.1% (28/553). Positive results for NG and CT at any of the three anatomical sites were 10% (55/553) and 19% (105/553) respectively. CT infection was most common in rectum (17.9%) as compared with throat (2.4%) and urethra (1.1%). NG infection was most common in rectum (6.2%)

as compared with throat (5.4%) and urethra (1.3%). Among those positive for either NG or CT, 31.8% (42/132) was also found to have syphilis co-infection on serology test.

Concerning risk factors of acquiring STI, when comparing to those negative at all sites, those who were positive at any site have higher rates of STI risk factors, including inconsistent use of condom (70.9% vs 60.1%, $p=0.037$), multiple sex partners (82% vs 59.8%, $p<0.001$) and use of substance (23.6% vs 15.5%, $p=0.051$).

Conclusion: The high rate of STI, in particular rectal CT, highlights the importance of annual STI screening test in HIV-infected MSM despite being asymptomatic. Risk factors for STI including multiple sexual partners, inconsistent use of condoms and substance use were prevalent among HIV-infected MSM, more so in those positive on STI screening. Sexual health counseling and STI preventive interventions should be strengthened in this population.



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Mpox vaccination uptake and inclination to vaccinate among men who have sex with men

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Background: In Hong Kong, a free mpox vaccination programme has been launched since October 2022, targeting people at higher risk of infection including men who have sex with men (MSM). This study aimed to identify the gap in vaccination uptake among MSM.

Methods: A cross-sectional self-administered online questionnaire study was conducted. Survey items included sociodemographics, sexual behaviours in the past six months, travel history and plan in the past and future six months respectively, sexually transmitted infections (STI) risk perceptions, mpox vaccination history and inclination, and beliefs about mpox and the vaccine. Eligible participants were locally residing adults who self-identified as male and had had sex with another male in the past six months. Bivariate analysis was conducted to assess factors associated with vaccination and inclination to vaccinate among those unvaccinated using chi-squared and Mann-Whitney U test.

Results: Between 15 February and 20 March 2024, a total of 148 complete responses from eligible participants were collected. Some 88 (59%) received at least one dose of mpox vaccine, of whom 78 (89%) completed the vaccination series according to the recommendations regarding age. MSM receiving mpox vaccines were older ($p<0.001$), had a higher perceived risk of mpox ($p<0.001$) and other STI ($p<0.001$), and higher odds of outbound travel in the past ($p=0.002$) and coming ($p=0.02$) six months. They were also more likely to have sought male sex partners locally ($p=0.07$) and during travel ($p=0.002$), and engaged in chemsex ($p=0.01$). Among those unvaccinated, less than half (45%) were inclined to receive the vaccine in the coming year. They gave a higher

agreement score for encouraging their peers to get vaccinated as well ($p=0.004$), and a lower one for being worried about coming out after vaccination ($p=0.003$). Inclination to receive vaccination was not associated with concerns about its safety ($p=0.14$), effectiveness ($p=0.28$), or side effects ($p=0.33$), nor time and location of the vaccination sites ($p=0.15$).

Conclusion: MSM with a higher perceived and actual risk of mpox acquisition were more likely to have been vaccinated. Those unvaccinated and unwilling to be vaccinated were concerned about social stigma rather than the vaccine's safety profile. While structural barriers played a minimal role, peer influence could be a driver to boost vaccination uptake for those having a higher mpox risk.



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Doxycycline prophylaxis for sexually transmitted infection prevention in Vietnam: Awareness, attitudes, and willingness to use among men who have sex with men using HIV PrEP

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Background: Doxycycline prophylaxis is a promising tool for the prevention of sexually transmitted infections (STIs) among groups at increased risk for infection. Research on the use of doxycycline as prophylaxis mostly has been conducted in high-income countries. We assessed awareness of and willingness to use doxycycline pre-exposure and post-exposure prophylaxis (PrEP/PEP) for STI prevention among men who have sex with men (MSM) using HIV PrEP in Vietnam.

Methods: From January 29- February 4, 2024, males, aged ≥ 18 years, reporting sex with men in the prior 12 months were recruited from 11 PrEP clinics in Hanoi and Ho Chi Minh Cities. Demographic and behavioral data were collected using self-administered surveys. STI perceived risk was scored between 0 and 10. Multivariable logistic regression models were constructed to assess factors associated with willingness to use doxycycline PrEP/PEP for STI prevention.

Results: Among 350 participants (45.7% Hanoi, 54.3% Ho Chi Minh), median age was 25 years (interquartile range [IQR]: 21-30), 75.4% (n=264) achieved high school or higher degree. In the previous 6 months, median number of sex partners was 2 (IQR: 1-4), 53.1% reported condomless anal sex with male partners. A high percent of participants reported lifetime alcohol

(85.7%) and popper (69.1%) use; 28.3% (n=99) reported popper use during sex in the previous 6 months. In the previous 12 months, 8.3% (n=29) were diagnosed with syphilis, 2.6% (n=9) *Neisseria gonorrhoea*, 0.6% (n=2) *Chlamydia trachomatis* by self-report. Median score (range 0-10) of participants' self-perceived risk of STIs was 6 (IQR: 3-9). There were 6.9% (n=24) of participants who reported Doxycycline use previously for acne control (n=16), treatment of chlamydia (n=5) and syphilis (n=2), and one reported Doxycycline for STI prevention. There were 20.2% (n=65) who heard of doxycycline PrEP/PEP before the survey.

In total, 75.4% (n=264) reported they would use doxycycline if it were recommended, among those, 63.6% (n=168) would prefer PrEP. A concern about cost of the medicine was reported by 34.9% of participants and 60.9% reported mostly/very concerned about the medicine side effect, including tolerance and the risk of antimicrobial resistance. The logistic model adjusted for age, education, city of survey, and STI history indicated that participants who reported lifetime alcohol use (adjusted odds ratio [aOR]= 3.0; 95% confidence interval [95%CI]: 1.5-5.7), recent popper use during sex (aOR, 2.0; 95% CI, 1.0-4.0) and increased score of perceived STI risk (aOR, 1.1; 95% CI: 1.0-1.2) were more willing to use doxycycline PrEP/PEP.

Conclusions: We found low prior knowledge of doxycycline PrEP/PEP among MSM on HIV PrEP in Vietnam. While the majority reported willingness to use, almost twice as many preferred PrEP to PEP. Our findings suggest directions for doxycycline PrEP/PEP implementation in Vietnam, including wider dissemination of doxycycline prophylaxis for STI prevention in target populations, providing both PrEP/PEP options, and screening associated factors for enrollment of MSM willing to initiate doxycycline PrEP/PEP to ensure high uptake.



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A pilot study of the Internet of Things (IoT) medication-assisted system to improve HIV antiretroviral therapy adherence and treatment response

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Introduction: Encouraging the utilization of and adherence to Antiretroviral therapy (ART) is widely regarded as the most important intervention for HIV-positive patients. This pilot study aims to assess the effectiveness of the Internet of Things (IoT) medication-assisted system in enhancing ART adherence and treatment response.

Method: Between June 2022 and October 2023, we conducted a study involving adult HIV patients (≥19 years) who prescribed Bictegravir/Emtricitabine/Tenofovir Alafenamide (Biktarvy, Gilead Science Inc., Canada) and agreed to use the InPHRPILL system (Softnet Inc., Seoul, South Korea), IoT medication-assisted devices, and related application (Coledy Inc., Seoul, South Korea). This study assessed viral suppression and CD4 cell counts both before and after the implementation of the device. Additionally, it evaluated ART adherence based the timing of device usage within 12 months. Monthly ART adherence was measured through self-reported compliance and the InPHRPILL system, along with device error rates.

Results: A total of 12 patients were enrolled. All of them were male, with a median age of 30 years, and the median duration of device usage was 10.5 months. The median self-reported compliance rate was 99%, while the median device compliance rate was 87.4%, showing a difference between patient-reported adherence and device-measured adherence. The median device error rate was 4.4%. Patients who used the device within 1 year of HIV diagnosis (n=5) were statistically

significantly younger (P=0.038). Additionally, although not statistically significant, the group that used the device within 1 year of HIV diagnosis had a higher device-based compliance rate compared to the group that did not [n=5 (90.6%) vs. n=7 (85%), P=0.801]. Furthermore, device utilization was associated with significant viral suppression (P=0.009) and increases in CD4 cell counts (P<0.001). In Poisson regression model with random intercepts, the coefficients associated with error rates for each month were statistically significant ($\beta=-0.06493$, P=0.003). Notably, we observed a negative effect during specific months, suggesting that error rates had a more pronounced impact on the outcome during those periods.

Conclusion: In conclusion, our findings suggest the use of an IoT-based medication-assisted system, which demonstrates a reduction in error rates, as a strategy to enhance ART adherence among patients initiating HIV treatment.



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Behavioral Survey of HIV-Infected Cases with Delayed Diagnosis in Taoyuan District, Taiwan

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Background: In Taiwan, the number of newly diagnosed HIV cases has been declining since 2018, but about 30% of cases are delayed diagnosis. This study aims to explore the behavioral causes of delayed diagnosis of HIV infections in Taiwan and understand their specific needs in order to improve prevention measures.

Methods: This study adopts a mixed methods approach, combining qualitative and quantitative research methodologies. The study conducted a quantitative survey with 31 individuals who were diagnosed late with HIV at the Taoyuan Hospital of the Ministry of Health and Welfare. Additionally, qualitative interviews recruited 5 interviewees of these participants."

Results: The majority of respondents were men who have sex with men (MSM), age from 25 to 34 years old. Among the respondents, 48.39% had never been screened for HIV before testing positive; over 60% were unclear about the available resources for HIV screening, and 33.33% believed that they were not at risk of HIV infection.

In terms of HIV awareness, 51.61% of respondents thought HIV infection and AIDS were the same, 80.65% had engaged in unsafe sexual behavior, and 61.29% had a history of sexually transmitted infections (STIs). Among STIs, syphilis had the highest infection rate.

Regarding the use of medicines, 77.42% of the respondents stated that they had not used pre-exposure prophylaxis (PrEP) before being diagnosed with HIV, and 74.19% had not used post-exposure prophylaxis (PEP) prior to their HIV diagnosis.

Reasons for delayed diagnosis include misconceptions about HIV screening, lack of awareness, and underestimating the importance of screening and follow-up care. The study recommends enhancing public awareness of screening and providing patients with time for personal reflection.

Conclusion: This study, through qualitative interviews and quantitative surveys, found that only 51.61% of individuals had undergone HIV screening prior to their diagnosis, indicating a low rate of screening before infection. Many of those infected patients had not received HIV screening before being infected. This study offers five specific recommendations for medical and health policy: early education and HIV advocacy, review of various educational training materials for accuracy, improvement of notification procedures and elimination of discrimination, optimization of health education content with an emphasis on consequences of delay diagnosis, and increasing awareness and convenience of screening to better support HIV patients, thereby reducing the impact of HIV on society.

Keywords: Delayed Diagnosis, HIV testing, HIV treatment



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Potential Acceptability, Feasibility, and Effectiveness of Point of Care HIV Syphilis Testing (POCT) by Community Health Workers (CHW) in Indonesia from Multiple Perspectives: A Formative Research

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Background: Indonesia has one of the most rapidly growing HIV epidemics in Asia. Even though Indonesia has various services and programs, the latest national HIV / AIDS report shows that Indonesia failed to achieve the UNAIDS targets. Since 2015, the World Health Organization (WHO) has recommended expanding HIV testing outside the clinical setting. Community-based HIV service (CBS) with point-of-care HIV Syphilis testing (POCT) by community health workers (CHWs) is one approach of the recommendation. Recently, Indonesia has not adopted this modality as its national program. More research is needed to determine this approach's acceptability, feasibility, and effectiveness among key populations.

Methods: This qualitative formative research was conducted from December 2022 to January 2023. Eight focus group discussions (FGDs) and 22 interviews were conducted with the HIV service beneficiaries, HIV CHWs, community-based organizations, HIV health providers, Ministry of Health stakeholders, and academicians. We collected the data on the informant's perspectives regarding the acceptability, feasibility, and effectiveness of POCT of HIV Syphilis by CHWs among the key population in South Sulawesi, Indonesia, by implementing HIV CBS. FGDs and interviews were audio-recorded with permission from the informants, transcribed verbatim, and analyzed deductively following the thematic framework approach.

Results: Sixty-three informants (49 men and 14 women) aged 21-57 participated in the FGDs and interviews. POCT HIV Syphilis was potentially acceptable and feasible to implement across the groups of informants. The service beneficiaries expressed their willingness to be tested by trained CHWs using POCT HIV Syphilis. The CHWs felt that they could conduct capillary-based rapid HIV and syphilis testing. Health workers mentioned that rapid tests are not a problem for the community if they have been trained because they are simple to perform. Stakeholders stated that it is feasible for non-health professionals to implement this approach. The academicians mentioned that capillary blood tests are easy to implement, even by community members. Regarding the effectiveness of this method, all the informants expressed that it could overcome the HIV service constraints in health facilities and support the Indonesia national HIV program.

Conclusion: The point-of-care testing (POCT) of HIV Syphilis is potentially acceptable and feasible to perform by community health workers by implementing community-based services and effectively supporting the HIV program in Indonesia.



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Increasing access to SelfCare: Employing a online-based demand generation strategy to increase uptake of peer-led unassisted HIV self-testing among key populations in the Philippines

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Background: Ease of access is one factor in getting tested for HIV. The imposed limited mobility due to COVID-19 limited this access even further. Since its introduction in 2020, unassisted HIV self-testing has been established as a choice for key populations to access HIV testing in the Philippines. Aiming to bring HIV testing awareness to key populations, a program designed to generate demand is introduced in SelfCare (LoveYourself's unassisted HIV self-testing program).

Description: Guided by the AIDA model (Figure 1), this program aimed to create awareness and demand generation by creating a massive number of leads of potential clients accessing SelfCare. A communications plan was designed by members of key populations to determine the campaign architecture, keeping in mind the target market: gay, bisexual, and other men who have sex with men (GBMSM) and transgender people. The key messages focused on testing information, access, and its impact on the lifestyle of clients. The visual theme and the messages developed include a motivational tone of espousing self-empowerment. These campaigns are promoted on various social media platforms.

Lessons Learned: The communications plan was implemented starting in October 2020. The continuous posting of content has increased uptake by 1,012% compared to data from July-September 2020. During the campaign, a total of 513,024 clients were reached (as of Dec 2022).

These campaigns have generated 20,043 clients accessing SelfCare, with a reactivity rate of 6% among those who reported results. 39.13% of the clients tested for HIV for the first time. Among those reactive, 75.33% of clients have been enrolled in treatment.

Conclusions: It was seen that demand generation campaigns powered by the community are effective in bringing awareness of HIV self-testing. Community consultations are essential in creating these programs for key communities. This momentum will be maintained with offline community engagement activities and campaigns promoted on other online platforms.



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Implementation of the first quality control program for HIV recent infection testing using dried tube specimens in Lao People's Democratic Republic, 2022

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Background: Quality assurance programs are critical to ensure consistency and reliability of test results. We established the first implementation of quality control (QC) and external quality assessment (EQA) for the national rollout of HIV recent infection surveillance using Asante HIV-1 Rapid Test for Recent Infection (HIV-1 RTRI) in the Lao People's Democratic Republic in 2022.

Method: We developed an ambient temperature shipment using plasma specimens from the Thai Red Cross Society to prepare dried tube specimens (DTS) for quality control of HIV-1 RTRI testing. Twenty microliters of the HIV negative, recent, and long-term samples were aliquoted into individual tubes and dried at room temperature in a biosafety cabinet overnight. DTS QC/EQA panel for HIV-1 RTRI were tested for homogeneity and stability according to ISO 13528:2022 statistical standard. The sample panels, including 72 recent, 72 long-term, and 60 negative samples, were sent from the Thai National Institute of Health (NIH) to the Lao National Center for Laboratory and Epidemiology (NCLE) at ambient temperature in June, July, and August 2022. NCLE further distributed the sample panels to all 12 treatment laboratories. Laboratories examined QC negative, recent, and long-term samples using HIV-1 RTRI and investigated causes of <100% satisfactory

performance. EQA results were submitted to Thai NIH electronically 15 days after receiving panel.

Result: Almost all laboratories demonstrated satisfactory results during all three rounds of QC: 11/12 (92%) in June, 10/12 (83%) in July, and 11/12 (91%) in August. The two rounds of EQA performed in June and August 2022 were satisfied by 8/11 (72%) and 5/10 (50%) laboratories, respectively. The most common cause of error was not following HIV-1 RTRI testing instructions and not allowing the DTS sample panel to completely dissolve prior to testing.

Conclusion: The DTS QC/EQA sample panel was conveniently transported at room temperature and did not require infectious substances regulation for shipping, an important consideration for EQA programs in rural and remote areas. The QC/EQA program for HIV-1 RTRI identified further areas to strengthen the quality of HIV recency testing. Ongoing review of laboratory performance will ensure that identified problems are addressed to prevent consistent problems from recurring.



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Revolutionizing HIV Viral Load Testing: A Leap Towards Non-Infectious, Stable Quality Control Materials

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Background: Quality control (QC) materials are indispensable in HIV Viral Load testing, serving as benchmarks for accuracy and effectiveness in monitoring antiretroviral therapy. Traditional QC materials are sourced from infectious HIV plasma. Challenges include inherent infectiousness, safety concerns, low stability, and the requirement for cold chain logistics. We addressed these challenges by developing a method for preparing QC material for HIV Viral load that is non-infectious, stable at ambient temperature, and scalable, particularly in resource-limited areas.

Methods: The project focused on cultivating 8E5 cells (ATCC® CRL-8993), a lymphoblastoid cell line with integrated HIV DNA, to harvest noninfectious HIV RNA from the cell culture supernatant. A protocol was developed where 50 microliters of supernatant were aliquoted into individual tubes and dried at room temperature within a biosafety cabinet, followed by testing for homogeneity and stability per ISO 13528:2022 standards. In collaboration with the Thai National Institute of Health (Thai NIH), Department of Medical Sciences, Ministry of Public Health, Thailand, and the National Center for Laboratory and Epidemiology (NCLE), Ministry of Health, Lao People's Democratic Republic (Lao PDR), the dried QC material was distributed to 12 hospitals for QC and proficiency testing from February to August 2022 in the Lao People's Democratic Republic. QC samples, sent monthly at two levels (4 log copies/ml and 5 log copies/ml) over 6 months, met the evaluation criteria of mean \pm 2 standard

deviations (SD). Proficiency testing, conducted in three rounds with four samples each, assessed performance using z-scores, meeting criteria when $|z\text{-score}| \leq 2.00$ compared to consensus from 12 member laboratories. Laboratories reporting discrepancies identified and rectified sources of error.

Results: The developed QC material exhibited a high concentration of non-infectious HIV RNA, reaching levels up to 8 log copies/ml, a significant achievement in terms of quantity. Moreover, this non-infectious QC material demonstrated excellent homogeneity and maintained stability at room temperature (20-30°C) for at least 22 days, representing a notable improvement over the existing serum/plasma infectious materials. This feature particularly enhances its utility in areas lacking cold chain facilities. Over 83% of the laboratories reported accurate results, with 71% exceeding precision within the acceptable Z-score criteria (≤ 2.00). This high rate is indicative of the QC material's reliability. The cause of discrepant results was attributed to both the testing procedure and the reconstitution of the dried QC/EQA sample.

Conclusion: The non-infectious, room-temperature-stable QC material for HIV Viral Load testing represents a significant improvement in the quality and reliability of diagnostics and treatment monitoring. The production process of this dried QC material was registered for intellectual property at the Thai NIH. This methodology not only enhances safety but also expands the accessibility and feasibility of accurate HIV viral load testing, especially in resource-limited settings.



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Lessons learned from implementing multilingual HIV and syphilis testing events for international migrants in Japan

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Background: As of 2023, about 3.2 million international migrants lived in Japan, with 80% from neighboring Asian countries. Nearly 50% of the migrants are in their 20s and 30s. In 2022, about 28% of international migrants in Japan were not aware of their HIV status until they developed HIV-related advanced symptoms.

Description: We organized 21 free and anonymous multilingual HIV and syphilis testing events across multiple prefectures in Japan, including Tokyo (since 2021), Okinawa (since 2022), Sendai (since 2023), and Saitama (since 2023). The project is funded by the Health Labour Sciences Research Grant, aiming to improve access to HIV testing and medical services among international migrants. We advertised the testing events in multiple languages (e.g., English, Chinese, Vietnamese, and Nepali) via international social media platforms (e.g., Facebook), migrant communities, and dating apps with direct links to the testing booking site in respective languages. At testing sites, participants could ask for online medical interpretation free of charge. A total of 247 people made reservations, of whom 67.7% (n=167, from 22 nationalities) came to the event and received tests. About 81.0% were male, 85.9% were in their 20s or 30s, and 35.9% tested for HIV for the first time. One HIV-positive case (0.6%) and two new syphilis cases (1.2%) were identified and referred to medical facilities accordingly. Nearly 50% of the participants opted for PrEP consultation.

Lessons learned: Our HIV/syphilis testing project demonstrated the feasibility of expanding HIV testing among international migrants in Japan through multilingual outreach efforts and testing services. Although PrEP has not been officially approved in Japan, there is a substantial interest in using PrEP as regular HIV prevention among international migrants. The high non-attendance rate among those who made online appointments suggests the potential barriers from the intention of testing to actual testing uptake. More research in diversifying HIV testing provision - especially in non-clinical settings is highly needed.

Next steps: We want to explore the possibilities of (1) adding our multilingual testing model to HIV testing services at public health centers and medical facilities, (2) engaging international communities in organizing the testing events, and (3) providing mail HIV testing in multilingual formats.



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Do young people prefer to use HIVST? Evidence from a choice experiment in northeastern Thailand

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Background: HIV testing represents the initial stage of linkage to the HIV care continuum. However, in Thailand, as well as in many other countries, many younger people are hesitant to undergo testing due to concerns attached to stigma from healthcare workers and have a reluctance to be observed by others at HIV testing venues. Although the Thai government recently sanctioned the commercial use of HIV self-test kits (HIVST), their adoption among young people, particularly those in provincial areas, remains limited. The factors conducive to promoting and improving the uptake rates of HIVST among youth have yet to be fully understood. Such insights could prove invaluable in devising strategies for the dissemination of HIVST. This study explored youth preferences regarding the utilization of HIVST.

Materials and Methods: A generic discrete choice experiment (DCE) was conducted among individuals aged between 15 and 24 residing in a province in northeast Thailand. DCE is a survey method based on attributes designed to measure preferences. Participants who reported engaging in sexual activity within the previous six months were recruited through social networking sites (SNS) and a non-governmental organization (NGO) focused on advocating HIV and STI prevention at high schools in the province. They were presented with the choice between HIVST provision scenario 1, scenario 2, or neither. The HIVST provisions varied across six attributes: (1) location for receiving the test kit (public hospital/NGO/private hospital/convenience store/pharmacy/home delivery), (2) pretest support (none/in-person/phone/online), (3) posttest support

(none/online/phone/in-person), (4) anonymity (yes/no), (5) type of test (blood-based/saliva-based), and (6) out-of-pocket payment amount. Data analysis was conducted using a conditional logistic regression model.

Results: Of 438 respondents, 42.7% were male, with an average age of 17.1±1.5 years; 80.8% resided outside the capital district; 95.2% had never undergone HIV testing previously, and 2.7% had used HIVST. All attributes, except for the type of test, significantly influenced the decision to opt for HIVST. Among them, 79.2% preferred a scenario similar to the existing situation, where they could obtain the free HIVST kit anonymously from a public hospital, with in-person counseling for both pre- and post-test procedures.

Conclusions: This study revealed that young people in the province exhibit a preference for obtaining HIVST kits from public hospitals. Given that the majority of participants had never undergone an HIV test before, they may have felt more assured and at ease accessing testing services at public hospitals with in-person counseling, rather than at locations such as convenience stores. Additionally, individuals residing outside the capital district may encounter challenges accessing pharmacies and convenience stores. Further research is warranted to ascertain whether individuals with prior HIV testing experience and those residing in urban areas share similar preferences.



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Introducing Social and Sexual Network Testing in the Philippines through Pilot Capacitation of HIV Service Delivery Sites in Greater Manila: A Novel Step in Expanding HIV Testing in the Philippines

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Background: In 2019, the WHO recommended Social and Sexual Network Testing (SSNT) as an additional service for expanding HIV testing services (HTS). SSNT is based on the idea that individuals belonging to the same social network carry similar risks and behaviors. It is conducted by identifying people living with HIV or those with ongoing risk of HIV, and engaging them to encourage those in their network to avail HTS. Since 2022, the Philippines has recommended SSNT in its guidelines for differentiated HTS. However, SSNT has since remained unsystematically practiced in the country. To bridge this gap, the USAID-supported Meeting Targets and Maintaining Epidemic Control (EpiC) project in the Philippines selected 3 HIV service delivery sites as targets to operationalize SSNT.

Description / Methods: Three sites were selected for SSNT capacitation in the Greater Manila Area. Given the network-based strategy of SSNT, the Regional TB and HIV Support Network (RTHSN) was selected as it was the HTS community-based organization with the lowest reported reactivity rate. In addition, the two facility-based HTS sites with the most limited staffing for community outreach were identified for capacitation, namely the General Trias Social Hygiene Clinic (GenTri SHC) and the Laguna Medical Center (LMC).

Capacitation was provided since October 2022 on the following themes: (1) SSNT framework creation; (2) community engagement; and (3) data analysis. SSNT framework creation included co-development of the workflow and staff training for online HIV service booking (QuickRes.org). Community engagement included network mapping, recruiter enrollment, and focus group discussions on SSNT. Meanwhile, data analysis spanned deep dive sessions and optimization of the SSNT pipeline based on real-time findings. Following the sessions, RTHSN observed incentivized SSNT, whereas GenTri SHC and LMC followed a non-incentivized mode.

Lessons Learnt / Results: Since the first quarter of SSNT capacitation (October to December 2022), an uptick in HIV tests reached through SSNT was reported for all sites (RTHSN: Δ65; GenTri SHC: Δ5; LMC: Δ20). RTHSN displayed an expanding network based on increasing SSNT-reached HIV tests (R=0.81), tapping 90 individuals by Q4 2023. Meanwhile, a weakly positive enrollment growth in GenTri RHC (R=0.47) and static enrollment in LMC (R=-0.05) were reported. The average share of SSNT-reached tests over total HIV tests conducted was determined (RTHSN: 3.31%, GenTri SHC: 0.94%, LMC: 16.88%), peaking at Oct-Dec 2023 for RTHSN (4.72%) and GenTri SHC (1.29%), and immediately following capacitation for LMC (35.71%).

Conclusion: The introduction of SSNT in the Philippines has provided a valuable tool for expanding HIV testing, with SSNT accounting for up to 35.71% of total HTS referrals immediately after capacitation in LMC. However, SSNT generally tapered, suggesting saturation of networks or greater resource requirements. RTHSN, which followed an incentivized SSNT pipeline, displayed consistent expansion in referrals, suggesting that incentivization may help sustain SSNT networks. The implementation of SSNT could be replicated in other regions. Further studies could likewise be conducted to (1) determine the factors leading to potential decline in SSNT recruitment over time; and (2) evaluate the resources and monitoring needed to preserve expansion of SSNT networks.



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Scaling-up Index Testing Services through Qualitative Evaluation and Capacity Building for a Non-Profit Organization for PLHIV in Metro Manila, Philippines

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Background: Positive Action Foundation Philippines Incorporated (PAFPI) is a non-profit organization of people living with HIV (PLHIV) that provides a comprehensive HIV service package from prevention, testing, and treatment to care and support. As part of its HIV testing services, PAFPI implements partner notification or Index Testing (IT) as one of its case-finding strategies. However, despite having a strong PLHIV staff and volunteer network, there needed to be a faster uptake of IT among clients, with only 4 PLHIV enrolled in the service between October 2022 and January 2023—the 13 referrals tested with an average reactivity rate of 15%.

Description: To scale up IT services, the USAID-supported Meeting Targets and Maintaining Epidemic Control project (EpiC) in the Philippines worked with PAFPI between December 2022 to January 2023 to evaluate the IT process. The evaluation entailed collecting qualitative data through key informant interviews (KII) and focused group discussions (FGD) to identify barriers hindering IT participation. EpiC co-developed with PAFPI capacity-building sessions that addressed the identified barriers. PAFPI staff conducting IT services from three sites in Manila, Navotas, and Valenzuela (all in Metro Manila) attended these capacity-building sessions.

Lessons Learned: KIIs were conducted with 10 HIV service providers attending, while 6 case managers participated in the FGDs. During these consultations, the following barriers were identified: 1) gaps in the IT guidelines workflow, 2) the need for job aids in conducting the IT service,

3) lack of knowledge of providers in IT, and 4) hesitancy of both PLHIV and their referrals to participate in due to low confidence in the IT process. To address these barriers, EpiC worked hand in hand with PAFPI to align the government-provided workflow of IT with international standards, which included an extensive consent process, encoding and monitoring of IT data, and inclusion of Intimate Partner Violence (IPV) services in the workflow. EpiC also helped develop job aids localized in Filipino to be more accessible to providers. Likewise, the developed capacity-building session that integrates IT, IPV, and Motivational Counseling aimed to increase providers' knowledge and improve the confidence of clients and their elicited contacts to participate in IT services. The capacity building session held on January 23, 2023, was attended by 23 providers across the 3 PAFPI sites. As of February 2024, 153 PLHIV availed the improved IT services, and of the 144 elicited contacts, 89 referrals (61%) proceeded with testing, contributing to an average reactivity rate of 25%.

Conclusion: IT service uptake can be increased by identifying barriers through an extensive evaluation of the process, aligning the conduct of the service based on the evaluation results, and providing tailored capacity-building sessions to address concerns. From the lessons learned in this initiative, other facilities conducting IT services can replicate the process to improve participation and increase case finding.



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Lessons Learned from Cambodia's Integrated Point-of-Care Testing for Prevention of Mother-to-Child Transmission (PMTCT) of HIV

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Background: Cambodia has achieved significant progress in reducing Mother-to-Child Transmission (MTCT) of HIV from rates of transmission dropping from 32% to 9.9% from 2007 to 2022. However, centralized testing and long wait times for HIV viral load (VL) results in mothers and early infant diagnosis (EID) remain a bottleneck as we try to move towards elimination goals. Point-of-Care Testing (PoCT) using GeneXpert devices, currently used for tuberculosis (TB) diagnosis, offer a potential solution to improve access and provide rapid test result at the point of care.

Pilot Design and Objectives: A PoCT pilot program was initiated in 2023. This initiative involved collaboration between the National Centre for HIV/AIDS, Dermatology and STD (NCHADS), the National Centre for Tuberculosis and Leprosy Control (CENAT), and the National Maternal Child Health Centre (NMCHC) with an aim to integrate HIV VL testing for HIV-positive mothers and exposed infants using GeneXpert devices in existing health facilities. The pilot assessed feasibility, effectiveness, impact on service delivery, patient outcomes, and programmatic complexities. Key lessons learned during pilot implementation are valuable for Cambodia's planned national scale-up.

Lessons Learned:

- **Demonstrating Feasibility of Integrated Testing:** The pilot underscored the viability of utilizing GeneXpert for integrated testing of HIV VL, EID, and TB. This highlights the potential for repurposing existing infrastructure and technology

to conduct multi-disease testing, in turn enhancing efficiency and optimizing resources.

- **Effective Stakeholder Engagement:** Recognizing the importance of strong coordination, communication, and shared accountability among stakeholders at all levels. Clearly defining roles and responsibilities among programs is pivotal for successful implementation.
- **Early Involvement of Clinicians and Laboratory Staff:** Acknowledge the significance of involving Anti-retroviral therapy (ART) clinic and laboratory staff from the outset. Their involvement ensures optimal patient flow, accessibility of tests, and fosters demand for integrated testing, promoting ownership and accountability.
- **Emphasize Regular Monitoring and Supportive Supervision:** Highlight the necessity of proactive monitoring and supervision to address challenges promptly. This approach supports clinic and lab staff in delivering integrated services and enhances documentation for informed decision-making and process improvement.
- **Ensure Consistent Supply Chain:** Understand the critical importance of maintaining timely and consistent supplies of cartridges and commodities to prevent service disruptions due to stockouts or expiry.
- **Promoting High User Satisfaction:** Feedback obtained via a phone survey from healthcare staff revealed a high level of satisfaction and trust in the availability and results of PoCT. This positive perception among healthcare providers is crucial for fostering program adoption and ensuring sustainability.

Challenges and Future Directions: Despite the pilot's success, challenges remain. The program acknowledges the need to address relevant programmatic complexities, such as ensuring sustainable financing, integrating PoCT into existing data management systems, and establishing robust quality assurance mechanisms.

Conclusion: Cambodia's GeneXpert PMTCT PoCT pilot proves integrated testing is feasible, leveraging existing resources for multi-disease diagnosis. Success hinged on stakeholder engagement, clinician/lab involvement, monitoring, and supply chain stability. High user satisfaction suggests Point-of-Care Testing's (PoCT) potential for wider adoption and sustainable healthcare improvements in resource-limited settings. These learnings are crucial for scaling up integrated testing in similar contexts.



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Real-world experience of providing HIV pre-exposure prophylaxis for female sex workers in Hong Kong

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Background: Real-world experience on the use of HIV pre-exposure (PrEP) prophylaxis for female sex workers (FSW) in high-income countries is limited. As part of a wider PrEP implementation study, PrEP were offered to FSW in Hong Kong after several presumably locally-acquired HIV infections were detected among the FSW. This study described the participants' profile, their tolerability and compliance of PrEP and attitudes towards PrEP.

Materials and Methods: The study was conducted in August 2022 - June 2023. Medications and all associated investigations were offered free-of-charge at a local community organization. Female aged 18 years old or above, tested anti-HIV negative, had commercial sex and associated high risk sexual behaviours in the past 6 months and intended to continue doing so in the following 6 months were eligible to participate. Exclusion criteria were chronic HBV infection, impaired renal function, pregnancy or planning a pregnancy. Consented participants completed a baseline survey, a doctor's assessment and provided blood samples for anti-HIV, HIV RNA, HBsAg and creatinine. Pregnancy tests were offered if necessary. Co-formulated Tenofovir Disoproxil Fumarate 300mg / Emtricitabine 200mg (TDF/FTC) was prescribed as a once-daily dose for 2 weeks then subsequently for up to 4 weeks unless contraindicated. At each subsequent visit, participants underwent a doctor's assessment, rapid tests for HIV and syphilis and completed a

follow-up questionnaire and the baseline blood tests were repeated every 3 months.

Results: Out of the 122 potentially eligible FSW, 14 were recruited and completed the baseline assessment. All participants were Chinese with median age 44 (interquartile range [IQR] 29.5, 51) and 33% received only primary education. The median duration of commercial sex work was 2.5 years (IQR 1, 4). The commonest reasons for using PrEP were protecting themselves from HIV (86%), perceived high HIV risk (43%) and following advice from others (25%). One participant had taken PrEP before the study. Median monthly number of regular clients were 8 (IQR 4, 19) and median monthly new clients were 10 (IQR 3, 20). Over half (57%) reported 100% condom use for vaginal sex with all clients at baseline. Four were not prescribed PrEP after baseline assessment because of medical problems, concerns about side effects and pill count, and equivocal HBsAg result. Ten participants received PrEP and each had an average of 3.3 follow-up visit. Four discontinued PrEP because of gastrointestinal upset (3) or perceived low HIV risk (1). Reported PrEP intake over 25 days in the past month was reported in 66% of all visits and most participants reported no condomless vaginal sex unprotected by PrEP (70%). The commonest symptoms reported during PrEP were lethargy (60%) and nausea (50%). Most participants reported 'confident in preventing HIV infection' (80%), 'reduced worry about HIV' (70%), and two reported increased sexual pleasure while on PrEP. Two reported ever having condomless sex because of PrEP. No HIV incidence was recorded.

Conclusion: Provision of PrEP for FSW at a community organization was feasible. The uptake of PrEP was low despite recent local infections and the service being totally free-of-charge.



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Efficacy and Safety of Switching to Dolutegravir plus Lamivudine in HIV-1 infected adults with virological suppression and evidence of TDF toxicity: interim analysis through week 24

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Purpose: 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.

Method: 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 at least 6 months prior to screening and exhibited TDF-related renal toxicities. Participants switched to DTG+3TC. The end point included the proportion of patients with virologic failure (HIV-1- RNA \geq 40 copies/mL), CD4+ cell counts, lipid profile and renal biomarkers etc.

Results: A total of the 36 participants with a median age 44 years were included in this interim analysis. Overall, 34 (94.4%) participants were maintained HIV-1- RNA < 40 copies/mL ($p = 0.5$). One subject had HIV-1 RNA 47.5 copies/mL at week 24 but resuppressed thereafter, while another subject had HIV-1 RNA 76.6 copies/mL at week 24, requiring further follow-up. Neither subject met confirmed virologic withdrawal criteria nor needed regimen modification through week 24. The mean of CD4+ cell count changed from 568.75 cells/mm³ at baseline to 582.90 cells/mm³ at week 24. For renal biomarkers, through week 24, serum creatinine increased from 89.05 μ mol/L to 105.09 μ mol/L ($p < 0.05$) and eGFR decreased from 87.36 ml/min*1.73m² to

71.58 ml/min*1.73m² (calculated by serum creatinine, $p < 0.05$). No change in serum cystatin c (0.88 mg/L to 0.87 mg/L, $p = 0.663$) was observed. Urine microalbumin/creatinine ratio significantly decreased from 37.99 μ g/mg to 12.19 μ g/mg ($p = 0.042$) and urine β 2-microglobulin obviously decreased from 1163.39 μ g/L to 360.60 μ g/L ($p = 0.002$), both indicating improvement in renal function. For lipid parameters, through week 24, HDL-C, TC and LDL-C increased from 1.14 mmol/L to 1.19 mmol/L ($p = 0.013$), from 4.73 mmol/L to 4.75 mmol/L ($p = 0.924$) and from 2.70 mmol/L to 2.99 mmol/L ($p = 0.04$), respectively. TG decreased from 2.07 mmol/L to 1.41 mmol/L ($p = 0.002$).

Conclusion: In virologically suppressed adults with exhibited TDF-related toxicity, switching to DTG+3TC demonstrated durable efficacy, good tolerability and favorable recovery of renal function through 24 weeks. Mild changes in creatinine consistent with previous studies, were due to the nonpathologic inhibition of the organic cation transporter 2 in the proximal renal tubules. The impact on lipid profile was neutral and lacked clinical significance. The study results further bolster confidence in the clinical benefits of switching to DTG+3TC for patients experiencing TDF-related renal toxicity.



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Enhancing HIV Care: Rapid Antiretroviral Therapy Initiation in a Community-Based Organization Clinic in Kuala Lumpur, Malaysia

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Background: Rapid initiation of antiretroviral therapy (ART) has shown to improve clinical outcomes for people living with HIV (PLWH). However, effectively implementing this vital intervention, especially in resource-constrained environments utilizing decentralized methods like community-based organization (CBO) services, poses a pressing challenge. In Malaysia, the Community Health Care Clinic (CHCC) operated by the PT Foundation stands out as a prominent CBO, offering HIV care and sexual health services through a socially entrepreneurial service delivery model since late 2018. The potential of CBO-led services to expand HIV care delivery in our nation remains largely untapped. Thus, our study aimed to evaluate the feasibility of rapid ART initiation for newly diagnosed patients within this CBO-operated clinic.

Methods: CHCC serves as a comprehensive center for STI/HIV screening, treatment, and prevention, offering near-patient diagnostics like the PIMA CD4 analyzer and GeneXpert for HIV viral load determination to facilitate rapid ART initiation. This descriptive single-center study encompassed all newly diagnosed HIV patients seen at CHCC or referred to the clinic from January 2019 to December 2023. Data on socio-demographics, clinical characteristics, and ART initiation outcomes were gathered. Rapid ART initiation was defined as ART initiation within 7 days of the first clinic visit upon the diagnosis.

Results: Among 293 newly diagnosed HIV patients, 92.8% were men (70.1% MSM), 5.1% were women, and 2% were transgender. The median

age at diagnosis was 32 (IQR 27-39) years, with a median nadir CD4 count of 304 (IQR 201 – 430) cell/mm³. The median time from the first clinic visit to ART initiation was 7 (IQR 2 – 15) days. The majority, 96.9% initiated TDF/FTC/EFV, in line with our national guideline. Of the patients, 16.0% started ART at same day, 19.5% had rapid ART initiation, 41.6% experienced delayed ART initiation while 22.9% were referred to government facilities without ART initiated, primarily due to cost and logistic issues (51.6%). Delayed initiation was mainly attributed to clinic structural barriers (63.3%) such as delayed appointment following confirmatory tests; followed by trimethoprim-sulfamethoxazole (TMP-SMX) initiation before ART (19.3%), and patient-related factors (8.3%), including denial and unreadiness to start ART.

Conclusion: This study underscores the feasibility of rapid ART initiation within a CBO-led clinic in Malaysia. Enhancements in clinic services are crucial to ensuring timely ART initiation, in line with updated WHO guidelines advocating for TMP-SMX and ART initiation concurrently. Financial support for rapid ART initiation before referral to government facilities is recommended to streamline the process and optimize patient outcomes.



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Roles and experiences of community action workers in a community-based antiretroviral therapy delivery model for people living with HIV in Cambodia: A mixed-methods cross-sectional study

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Background: The Community-Based Antiretroviral Therapy (ART) Delivery (CAD) model incorporates Community Action Workers (CAWs) to enhance care engagement for people living with HIV (PLHIV), thereby alleviating the burden on ART clinics. This study delves into the roles and experiences of CAWs in implementing CAD among stable PLHIV in Cambodia.

Methods: This study utilized both quantitative and qualitative data collected in May 2023 to evaluate the effectiveness of the CAD intervention within a quasi-experimental framework. The research spanned the capital city and nine provinces of Cambodia. CAW-related data, encompassing incurred expenses, time allocation, support and satisfaction levels, and perspectives on their roles in program implementation, were analyzed. Descriptive statistics assessed proportional differences in categorical responses, while qualitative data underwent coding and analysis using a thematic analysis framework.

Results: Among the 76 participants, 52.6% were male, and 61.8% were married. The mean age was 48.0 years, ranging from 18 to 72 years, with a mean education completion of 8.4 years (ranging from 0 to 16 years). Most participants (96.1%) utilized motorcycles for travel, spending an

average of 5.8 times per month (ranging from 1 to 66) to meet people living with HIV. Participants engaged with about 10 people living with HIV monthly (ranging from 1 to 35). The majority reported incurring expenses (84.2%), primarily related to food (median 1.35 USD; IQR 0.37-2.45) and travel costs (median 2.45 USD; IQR 1.96-4.90). Participants expressed confidence in their knowledge and resources to support their members (93.4%), and 80.3% perceived their relationship with personnel at the ART clinics as good. Their reported responsibilities included distributing medicines, counseling, and organizing meetings. They deemed their work essential, citing significant contributions to community support, assistance with ART medication accessibility, and patient monitoring.

Conclusions: This study highlights the multifaceted responsibilities undertaken by CAWs and emphasizes the significance of recognizing their roles in augmenting the effectiveness of the CAD model. As the CAD model assumes a pivotal role in community-based HIV care delivery, these insights make valuable contributions to better understanding and enhancing support for CAWs in Cambodia and similar settings.



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Construction and validation of prognostic scoring models to risk stratify patients with acquired immune deficiency syndrome-related diffuse large B cell lymphoma

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Objective: AIDS-related diffuse large B cell lymphoma (AR-DLBCL) is one of the most common ARL subtypes, accounting for approximately 45% of these tumors. AR-DLBCL often presents at an advanced disease stage, with extra-nodal (EN) involvement, high risk of infection and the overall prognosis remains unsatisfactory. Early diagnosis and treatment of AR-DLBCL is critical. However, there is no specific prognostic model for patients with AR-DLBCL. Thus, we aimed to construct new clinical prognostic models.

Methods: Clinical features and prognostic factors for OS and PFS were evaluated by univariate and multivariate analyses. Variables identified as significant factors in the univariate Cox analysis were selected into the multivariate Cox proportional hazards regression analysis to identify the independent prognostic factors using the Forward Stepwise (Conditional LR) method; The screened factors were introduced into the logistic regression equation to calculate the prediction probability of an outcome and to draw the receiver operating characteristic curve (ROC). The area under the curve (AUC) and Harrell's concordance index (C-index) were compared. The Hosmer-Lemeshow test was used to assess the goodness of fit of the model. The decision curve analysis (DCA) was used to reflect the net benefit of the model.

Results: CNS involvement, OI at lymphoma diagnosis and elevated LDH were selected to construct the OS model, namely GZMU OS model; CNS involvement, OI at lymphoma diagnosis,

elevated LDH and over 4 chemotherapy cycles were selected to construct the PFS model, namely GZMU PFS model. In the training cohort, the predictive accuracy of prognostic model for OS, as measured by AUC was 0.786, compared with 0.555 of risk stratified by IPI, 0.638 of risk stratified by aalPI and 0.597 of risk stratified by NCCN-IPI. The C-index values based on GZMU OS model, IPI, aalPI and NCCN-IPI were 0.712, 0.577, 0.649 and 0.587, respectively. The predictive accuracy of prognostic model for PFS, as measured by AUC was 0.829, compared with 0.519 of risk stratified by IPI, 0.609 of the risk stratified by aalPI and 0.572 of risk stratified by NCCN-IPI. The C-index values based on GZMU PFS model, IPI, aalPI and NCCN-IPI were 0.733, 0.536, 0.591 and 0.563, respectively. The models we constructed showed better risk stratification than IPI, aalPI, and NCCN-IPI. In the validation cohort, the predictive accuracy of prognostic model for OS, as measured by AUC and C-index, GZMU models were the highest. Furthermore, in combined cohort, the Hosmer-Lemeshow test showed that the models were good fits (OS: P = 0.8244; PFS: P = 0.9968) and the DCA demonstrated a significantly better net benefit. The prognostic efficacy of the proposed models was validated independently and outperformed the currently available prognostic tools.

Conclusion: In this study, novel prognostic models with AR-DLBCL patients were constructed and validated, namely GZMU OS model and GZMU PFS model, which showed better prognosis prediction efficiency and risk stratification ability than IPI, aalPI and NCCN-IPI scoring systems. These novel prognostic models will help to tackle a clinically relevant unmet need.



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How well does a tailored approach work for the implementation of an evidence-based intervention: qualitative findings from a hybrid type III trial of a systems navigation and psychosocial counseling intervention (SNaP) for people who inject drugs living with HIV in Vietnam

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Background: People who inject drugs (PWID) bear a disproportionate burden of HIV infection. SNaP is an evidence-based integrated systems navigation and psychosocial counseling intervention for PWID living with HIV. We conducted a hybrid type III implementation science trial to test two approaches to SNaP implementation: a standard multifaceted approach and a tailored approach that involved the identification of site-specific barriers combined with implementation facilitation. We conducted a qualitative study to explore HIV testing site staff and facilitators from the central research team's perceptions of the tailored approach and how it affected their implementation of SNaP.

Methods: HIV testing sites across Vietnam were randomized 1:1 to either a standard or tailored arm (n=42). A standard package of implementation strategies was implemented by a central team in both arms. For the tailored arm, a set of tailored strategies was chosen by each site based on their own barriers, and the central team met monthly with sites to facilitate the implementation of the strategies over time. At 24 months, we purposively sampled six high-performing and six low-performing sites in the tailored arm based on the

primary outcome of fidelity to SNaP. We conducted in-depth interviews with counselors, clinic directors, and other staff at these clinics (n=36) as well as additional informal meetings with the central team to explore their experience with and perceptions of the tailored approach. Interviews were coded and analyzed using thematic analysis.

Results: Participants discussed three important components in the tailored approach that were beneficial for SNaP implementation: working with the central team to create an implementation plan, having implementation strategies tailored to their site's specific barriers and monthly meetings with the central team to review the strategies. Creating their own implementation plan at the beginning of the study was perceived to not only help site staff plan ahead and be more active in the implementation of SNaP, but also made them feel more empowered and motivated. Site staff emphasized the necessity of having tailored strategies because each site had different barriers and facilitators to SNaP implementation due to their available resources, organizational characteristics and locations. It was also noted that sites in the same provinces might have similar characteristics, and learning across sites might be useful. Participants reported that a few identified strategies were inappropriate, or less helpful than expected because of the lack of resources, overestimation of the strategy's efficiency or unanticipated barriers. Monthly meetings were perceived as equally important in providing continuous support, monitoring and reminders to implement SNaP and the strategies. The central team expressed some concerns about the utility of monthly meetings for sites with very low recruitment rates, suggesting some modifications to make this approach more sustainable, such as reduced frequency of meetings and integration with existing meetings.

Conclusions: The tailored approach was considered important and useful for the implementation of the SNaP intervention for PWID with HIV in various ways. Some modifications to this approach might be necessary to make it more feasible and acceptable when being used in other low-resource settings.



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Clinical Characteristics and Outcomes of AIDS-Related Burkitt Lymphoma in China: A Retrospective Single-Center Study

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Objective: The epidemiology of acquired immunodeficiency syndrome (AIDS)-defining cancer has changed as a result of combined antiretroviral therapy (cART), which reduced the incidence of primary central nervous system lymphoma (PCNSL) and diffuse large B-cell lymphoma (DLBCL), but showed no significant effect on Burkitt lymphoma (BL), which remained largely stable or even increased over time. However, there is still a lack of specific prognostic model for AR-BL patients. Therefore, we analyzed the clinical characteristics and outcomes of patients with AR-BL from our center and conducted a novel risk stratification model to predict prognosis.

Methods: To improve risk assessment, the clinical data of 34 patients with AR-BL were collected and the factors associated with progression free survival (PFS) and overall survival (OS) were evaluated in univariate and multivariate Cox models. Variables with a P value of < 0.05 in the univariate analysis were all selected for the multivariate analysis, and the screened factors were used with assignment method to calculate the prediction probability of an outcome and to draw the receiver operating characteristic curve (ROC). The area under the curve (AUC) and C-index were compared. The nomogram and calibration curve were drawn to predict the probability and accuracy.

Results: With 37-month median follow-up, the median PFS and OS for AR-BL patients were 14 months and 15 months, respectively. The overall 2-year PFS and OS rates were 40.50% and 36.18%, respectively. The OS of patients received

chemotherapy was better compared with those without chemotherapy (P= 0.0012). Treatment with an EPOCH-based regimen was associated with longer OS and PFS compared with a CHOP-based regimen (OS, P = 0.0002; PFS, P = 0.0158). Then we established a novel prognostic risk stratification model named AR-BL model with chemotherapy and ECOG PS, which showed better stratification ability than international prognostic index (IPI) or Burkitt lymphoma international prognostic index (BL-IPI). The predictive accuracy of the here proposed prognostic model for OS, as measured by AUC was 0.713 (95%CI 0.535–0.89), compared with 0.741 (95%CI 0.566–0.916) of risk stratified by IPI, and 0.700 (95%CI 0.517–0.883) of risk stratified by BL-IPI. The C-index values based on the present AR-BL model, IPI and BL-IPI were 0.76, 0.696 and 0.714, respectively. Furthermore, the C-index of the nomogram used to predict OS was 0.884 in the entire cohort and the calibration curve showed excellent agreement between the predicted and actual results of OS. No HIV-related factors were found to be associated with OS and PFS of AR-BL patients in our study.

Conclusion: Overall, the clinical characteristics and outcomes in AR-BL were showed and prognostic factors for OS and PFS were identified. In conclusion, we analyzed the clinical characteristics of a series of patients with AR-BL and designed a novel risk stratification model that could be easily used in clinical research after validation in an independent cohort.



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Amphotericin B Colloidal Dispersion is efficacious and safe for the management of talaromycosis in HIV-infected patients: Results of a retrospective cohort study in China

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Background: Talaromycosis (formerly known as penicilliosis) is an invasive fungal disease caused by the dimorphic *Talaromyces marneffeii* (TM) fungal organism. Currently, amphotericin B deoxycholate (AmB-D) is recommended as the initial antifungal treatment for TM infection, and is generally an effective therapeutic option. However, the clinical applications of AmB-D are greatly limited due to its high toxicity and the occurrence of frequent adverse effects, and non-generic liposomal AmB (L-AMB) is inaccessible in China. In 2021, Amphotericin B Colloidal Dispersion (ABCD) was approved as an antifungal medicine for patients with invasive fungal infections in China, and is particularly suitable for those who fail to tolerate or respond to AmB-D. In vitro and in vivo studies have demonstrated that ABCD is as effective as AmB-D for treatment of disease caused by a wide range of fungal species, including *Aspergillus*, *Candida*, *Cryptococcus*, and *Fusarium*. However, there is a scarcity of data with regards to the efficacy and safety of ABCD use in patients with talaromycosis. In the present study, we aimed to compare the efficacy and safety of ABCD and AmB-D for the treatment of talaromycosis in HIV-infected patients.

Methods: From January 2018 to December 2022, the data of HIV-infected patients with talaromycosis who received ABCD or AmB-D were retrospectively collected, and its efficacy and safety were compared.

Results: 38 patients receiving ABCD and 33 patients receiving AmB-D were included, the conversion rates to fungal negativity at one week

post-treatment were 86.84% (33/38) in the ABCD group and 90.09% (30/33) and in the AmB-D group, and reached 100.0% in both groups at two weeks post-treatment. A higher symptom remission rate at two weeks in the ABCD group compared with the AmB-D group (94.74% vs. 75.76%; $p=0.003$). At week two, the serum creatinine level in the AmB-D group was significantly higher compared to baseline, whereas did not increase significantly in the ABCD group. Significantly fewer patients discontinued antifungal treatment due to drug intolerance in the ABCD group, and the incidence of leukopenia and elevated creatinine levels was lower in the ABCD group than in the AmB-D group.

Conclusion: ABCD has a clinical efficacy comparable to AmB-D, with higher symptom remission rate, lower nephrotoxicity, and lower bone marrow suppression, indicating that ABCD may be an appropriate alternative option for the clinical management of talaromycosis.



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Evidence of peer-led demedicalized delivery of same-day PrEP in various community centers in the Philippines

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Background: LoveYourself (LYS) serves a large number of clients for HIV screening and PrEP access through this peer-led approach in its network of community centers in the Philippines. Observed challenges were delay of PrEP initiation due to long queues for medical consultation, long turnaround time of ancillary tests and hesitancy of clients who are on gender-affirming hormone therapy or body-building supplements. To address these causes for delay, we explored the program that shifted most PrEP operations to PrEPY Peers, and proceeded with PrEP dispensing even in the absence of baseline creatinine and hepatitis B results.

Methodology: An algorithm (Figure 1) was developed to guide PrEPY peers to provide same-day PrEP, for those who tested negative at rapid screening, without any symptom of acute retroviral syndrome (ARS) within 30 days, age between 18 to 50, body weight of between 35 and 90 kg, without kidney-related comorbidity, and if without any medication or supplementation. They were also trained how to compute creatinine clearance with the use of a mobile application, and health teaching with regards to adherence and follow up care. All charts were submitted to the medical team for review and quality check.

For those who tested negative for HIV but had remarkable findings during counseling, they are urgently referred to the medical doctor either on-duty or on-call. They were assessed face-to-face or via telemedicine prior to being prescribed with PrEP. All PrEP-naïve were advised daily PrEP regimen for at least 3 months before considering event-driven PrEP to closely monitor for their recent exposure within 3 months, and for early

linkage to care if with seroconversion. A follow up of 0-1-3-6-9-12 monthly interval was done with repeat HIV screening at every visit, and other laboratory tests as prescribed every 6-12 months.

Results: Clients presenting with remarkable history were properly endorsed by PrEPY Peers to the medical doctor or nurse and were mostly still started on the same day. Some were deferred only with further probing of ARS or other high risk exposures. Less queuing for medical consultation regarding PrEP was observed, and medical doctors were able to cater more STI symptomatic clients or those needing HIV primary care services. Upon demedicalizing PrEP, enrolled clients increased from a moving average of 568 since Q3 2021 to 1256 from Q2 2022 (Figure-2). The facility had a total of 7,134 enrolled at the end of December 2022.

Conclusion: This study presents evidence that peer-led demedicalized delivery is possible. This mechanism promotes task-shifting, showing that peers can provide PrEP at scale to high-priority populations. This evidence also empowers nonmedical providers through a medically-guided approach.



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HIV self-testing as an entry point to HIV status-neutral approach services for transgender women: Experiences from real-world implementation at the Tangerine Clinic in Thailand

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Background: HIV self-testing (HIVST) has become available through Thailand's Universal Health Coverage since October 2022 as one key strategy in controlling HIV epidemic. There was limited experience on how to integrate HIVST into existing sexual health services for transgender women. We described HIVST service uptake and linkages to antiretroviral treatment (ART) or pre-exposure prophylaxis (PrEP) among transgender women clients of the Tangerine Clinic, a transgender-led gender-affirming sexual health clinic in Thailand.

Methods: From May 2022-September 2023, HIVST kits were offered to transgender women at the Tangerine Clinic and via Tangerine's telehealth instant-messaging (IM) service. Clinic-based HIVST clients received HIVST kits, pre-test counseling and a demonstration video provided by transgender peer counselors prior to performing self-test at home. Telehealth HIVST clients received HIVST kits via postal delivery. Pre-test counseling, demonstration video and self-administered behavioral risk assessment were provided via IM by transgender peer counselors. Test-result follow-up contacts were made at one week after the clients received the kits. Clients had an option to share visual HIVST result with IM administrators for further support and linkage. Non-reactive testers were offered PrEP via telehealth service. Reactive testers were offered HIV confirmatory

testing and ART initiation at the Tangerine Clinic or referrals to their nearest community-led clinics or registered health facilities.

Results: Of 262 transgender women who received HIVST kits (16% clinic-based, 84% telehealth), median (IQR) age was 26 (15-53) years, 35% were HIV first-time testers, 24% engaged in sex work. Among those receiving kits, 185 (71%) shared their test results and 22/185(12%) reporting reactive results. Among those with reactive results, 17(77%) received HIV confirmatory testing, and 12 (77%) had HIV infection confirmed. All 12 initiated ART, five within the same day of diagnosis. Median (IQR) CD4 count was 223 (203-330) cells/ul. Of 163/185 (88%) non-reactive testers, 46/163 (28%) received PrEP via telehealth (80% PrEP initiation, 15% PrEP restart, and 5% PrEP continuation).

Conclusions: HIVST is an effective entry point to HIV status-neutral approach services for transgender women. HIVST could facilitate not only new HIV diagnosis and ART initiation but also PrEP uptake, restart, and continuation among transgender women, including those who were HIV first-time testers.



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Improving Treatment Outcomes in Medication for Opioid Use Disorder through Low-Cost Contingency Management: Insights and Recommendations from a qualitative study in Vietnam

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Background: Nearly half of people receiving medications for opioid use disorder (MOUD) drop out within the first year of treatment globally. Contingency management, referring to the use of rewards to reinforce health-promoting behaviors, is effective in improving treatment outcomes for MOUD participants. But it is often criticized for its perceived as too costly when integrated with MOUD treatment programs. Furthermore, variations in implementation protocols could be a challenge for the practitioners. Using a case from a methadone program in Vietnam, we aimed to provide the MOUD practitioners suggestions on i) key factors for contingency management implementation protocols to improve treatment outcomes, and ii) low-cost contingency management schemes.

Methods: We conducted 12 focus group discussions (n=80) among methadone providers (n=40) and clients (n=40) in 6 methadone program sites in Hanoi, Vietnam. During these discussions, we combined a Delphi technique for study participants to rank the most important target behaviors and the preferred rewards from July to August 2023. Qualitative data were analyzed by thematic analysis, using Atlas.ti software; while quantitative data were undergone descriptive analysis and managed by the Excel-based tool.

Results: Visiting methadone clinics daily was identified as the most important target behavior to be rewarded by both providers and clients. Methadone take-home privileges were the

preferred reward by clients, followed by cash or a discount voucher for the monthly treatment fee. Most clients indicated that the value of cash or discount vouchers need not be high (ranging from 4 to 8 US dollars per year for cash or a discount voucher for 1 month after 12 consecutive months) to be motivating. Clients indicated that receiving the reward from methadone clinic leaders would be the most impactful. They also suggested receiving the reward on special occasions, such as in June for World Drug Day (26th June) and during Lunar New Year (usually in late January).

Conclusion: Our study identified solutions for non-monetary or low-cost reward schemes to motivate clients to engage in treatment, including take-home privileges, low-cost cash vouchers, or discounted treatment fee vouchers. To maximize the benefits of contingency management at a low cost, the authority and timing of reward distribution must be aligned with clients' preferences.



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Strategy for implementation of long acting cabotegravir as PrEP in Australia - a perspective from general practice

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Introduction: Injectable long acting cabotegravir (ILA-CAB) at 2-monthly intervals (after initiation of 2 injections 1 month apart) has been shown to be effective as HIV Pre-Exposure Prophylaxis (PrEP) across studies. In Australia, ILA-CAB PrEP was approved for use by the Therapeutics Goods Administration (TGA) in 2022. In 2023, the Pharmaceutical Benefits Advisory Committee (PBAC) recommended funding ILA-CAB PrEP on the Pharmaceutical Benefits Scheme (PBS) and it is expected to be available at a Government-subsidised price for general use in 2024. (Priced at AUD30 per prescription, and AUD7 for low-income individuals).

We will discuss the implementation challenges of ILA-CAB PrEP, applying lessons learnt from the implementation of ILA-CAB and rilpivirine (ILA-CAB/RPV) for HIV treatment at two large high caseload HIV General Practice (GP) clinics in two Australian capital cities (Melbourne and Brisbane).

Discussion: ILA-CAB/RPV for HIV treatment in Australia has taken some time to achieve significant uptake. Workforce capacity issues resulting from more frequent contact with health services presented initial implementation challenges, along with the need to increase the ILA-CAB/RPV knowledge among health workers, including training in the administration of these injections, were common barriers.

HIV treatment, including ILA-CAB/RPV for HIV treatment, is generally managed in hospital-based centres and specialised community-based (GP) centres. However, as PrEP is more widely managed outside of these HIV specialist community-based

GP settings, a broader range of community-based GP centres will need to plan ahead for the implementation of ILA-CAB PrEP.

Implementation solutions may vary for different health services, and between community-based general practice (GP) and hospital-based centres but some transferable lessons learnt from implementing ILA-CAB/RPV include:

Education: Additional, and wider, education is required on ILA-CAB PrEP, its' indications/restrictions and use. Health Practitioners' concerns about follow up and management of missed injections must be addressed, specifically the risk of developing acquired resistance to cabotegravir, and resource consumption to manage missed injections.

Administration: Injection methods have been addressed in health services where ILA-CAB/RPV for HIV treatment is used. However, as PrEP for HIV is managed in more community-based GP clinics, further training will be required in injection methods for ILA-CAB PrEP in these clinics.

Follow up: Clinics that have used ILA-CAB/RPV for HIV treatment have appropriate reminder protocols for follow up; they can utilise the same systems for ILA-CAB PrEP. Other clinics will need to have this in place but would be able to build on the experience of existing clinics.

Workforce capacity: Additional demands will be placed on health services to provide 2 monthly injections versus 3 monthly reviews as is current practice for oral PrEP. The extent of additional demand is unknown at this time, this will need to be monitored.

Conclusion: Implementation of ILA-CAB PrEP presents some challenges for success. Some have already been addressed in health services using ILA-CAB/RPV for HIV treatment. However as there will be more health services offering ILA-CAB PrEP; additional education will be needed. Workforce capacity will need to be addressed as they arise, depending on the uptake of ILA-CAB PrEP at each service.



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The role of private sector engagement in scaling up and sustaining access to pre-exposure prophylaxis (PrEP) in Vietnam.

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Background: To achieve UNAIDS prevention targets by 2030, accelerating PrEP scale-up is crucial. PrEP was introduced in Vietnam in 2017 and is now available in 210 clinics across 29 provinces. The private sector accounts for one-fifth of these clinics, serving approximately 50% of clients. We assessed the impact of private sector engagement in scaling up PrEP in Vietnam through the USAID/PATH Healthy Markets (HM) and STEPS projects, supported by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR).

Description: We engaged 23 public outpatient clinics and 17 private KP-led clinics offering free or commercial oral PrEP. Using data from the national HMed PrEP system, we assessed PrEP initiation, retention, return, and dropout rates in Hanoi, Ho Chi Minh City, and Dong Nai. We also identified factors associated with PrEP continuation.

Lessons learned: Between October 2017 and September 2023, 32,064 individuals enrolled in PrEP. Private clinics accounted for 80.1% of PrEP uptake, while public clinics made up 19.9%. PrEP initiations were at private clinics, ranging from 71.2% to 95.9% annually. Private clinic clients represented a longer median duration of PrEP use (268 days) compared to public clinics (148 days). The HIV sero-conversion rate among PrEP users was lower in private clinics (0.03%) compared to public clinics (0.13%). Multiple linear regression analysis indicated that longer PrEP continuation was associated with being enrolled in private sector services (Coef = 116; 95%CI: 108-123; P<0.001), enrollment in tele PrEP (Coef =92; 95%CI: 60-125; P<0.001), paying for PrEP/commercial PrEP (Coef = 84; 95%CI: 75-93;

P<0.001), and among transgender women (Coef = 49; 95%CI: 32-65; P<0.001).

Conclusions: Engaging the private sector in PrEP delivery is critical for accelerating PrEP scale-up and sustainability in Vietnam. Private clinics have played a pivotal role in initiating and retaining individuals on PrEP, ensuring its effective utilization. These findings highlight the importance of continued private sector engagement in achieving the Vietnam's 2030 goal of ending AIDS.



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Barriers and facilitators to implementing a pharmacy-based HIV pre-exposure prophylaxis (PrEP) service delivery model among key populations, PrEP prescribers and community pharmacists in the Klang Valley, Malaysia.

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Background: HIV pre-exposure prophylaxis (PrEP) uptake remains inadequate in Malaysia, with an estimate of less than 5,000 people taking PrEP. As community pharmacists are recognized as widely accessible and trusted healthcare professionals, there is potential to expand PrEP access through a simplified, demedicalised service delivery model in the community pharmacy setting. This study aimed to understand the barriers and facilitators to implementing a pharmacy-based PrEP service delivery model among key populations, PrEP prescribers and community pharmacists in the Klang Valley, Malaysia.

Methods: A qualitative study involving 38 semi-structured in-depth interviews was conducted with 18 key population members, 10 PrEP prescribers and 10 community pharmacists in the Klang Valley from January till April 2023. Key population members included 6 men who have sex with men (MSM), 5 transgender women (TGW), 3 female sex workers (FSW), and 4 people who inject

drugs (PWID); among these members, 1 MSM and 4 TGW also engaged in sex work while 1 FSW reported injection drug use. Participants were recruited using purposive sampling. All interviews were conducted online in English or Malay for about an hour, audio-recorded, and transcribed verbatim. Thematic analysis was performed using NVIVO.

Results: All groups identified common barriers: privacy, confidentiality, affordability, and poor awareness about the pharmacy-based PrEP service. Additional barriers identified among key population members were poor awareness about PrEP and the role of community pharmacists; while PrEP prescribers highlighted barriers related to unavailability of laboratory testing service and client medical record documentation. Community pharmacists reported other barriers such as lack of training, staff, time, and private space for consultation, counselling, and testing. Most participants expressed strong support for implementing the service and perceived these aspects as facilitators: availability of private space, assurance of confidentiality, affordable pricing, adequate training, effective advertising, digitalized assessment, user-friendly appointment scheduling, and collaboration with physicians and non-government organisation community health workers for seamless referrals.

Conclusions: This study provided valuable insights on the barriers and facilitators to implementing a pharmacy-based PrEP service in the Klang Valley. The findings indicate there is a need and demand for an additional choice of accessing PrEP. Future research should focus on developing an implementation plan with key stakeholders addressing identified barriers and capitalizing on facilitators, followed by implementation of service and evaluation of implementation outcomes to inform the viability of pharmacy-based PrEP service delivery model as a novel implementation strategy to increase PrEP uptake in Malaysia.



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Barriers and facilitators of implementation of a pay-it-forward gonorrhoea and chlamydia testing program among Chinese men

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Background: Pay-it-forward (PIF) in healthcare services promotion is an intervention where individuals are offered free health care services (testing) as gifts paid by community members, and can subsequently choose to donate to support future health services end-users. We previously used the PIF approach to increase gonorrhoea (NG) and chlamydia (CT) testing uptake among men in China. However, implementation and scale-up of such programs have not been studied. This study aimed to explore barriers and facilitators of implementation of a PIF NG/CT testing program among Chinese men in South China.

Methods: This study was a parallel, mixed-methods study nested in the PIONEER study (trial ID NCT05723263), a cluster randomized control trial to promote NG/CT testing among MSM and male STD patients in 12 clinics (6 public STD clinics and 6 community-based organizations (CBO)) across six cities in Guangdong province, China. We used constructs from the Consolidated Framework for Implementation Research (CFIR) to identify factors relevant to implementation. Quantitative data was collected through participant surveys and site feasibility checks through site visits. We assessed the relationship between individual and inner setting level factors with donation using multivariable logistic regression, with covariates of age group, education level, monthly income. Qualitative data were collected from a total of 13 co-creation focus group discussions that took place between February 2023 to February 2024. Data were analysed using a framework of barriers

and facilitators of implementation using rapid content analysis with coding according to the CFIR constructs.

Results: A total of 455 participants (public STD clinic=181, CBOs=274) were offered PIF NG/CT testing from October 2023 to February 2024 with 114 (25.1%) participants donated. We identified 1 potential individual-level barrier and 2 separate inner-setting-level facilitators for CBOs and public STI clinics.

1. Participants were lack of knowledge to the PIF intervention, with only 31.7% (118/372, public STD clinic=30, CBOs=88) participants had correctly recognized (a) who paid for their tests and (b) where their donations went. Participants who did not know where their donations went were less likely to support other's testing (aOR 0.51, 95% CI 0.31-0.84).
2. For community-based sites, CBO representatives emphasized the need of funding support to maintain service delivery. Quantitative data suggested that participants recruited from the sites who received higher CDC supports of venue financing and hospital collaboration were more willing to support other's testing (aOR 15.44, 95% CI 1.88 -126.80).
3. In public STD clinics, lower patient volume and involving fulltime physicians into recruitment helped facilitate the implementation. Lower patient volume enabled physicians enough time to go through implementation procedures with each participant, and positively associated with donation decision (aOR 3.82, 95% CI 1.87-7.79). Involving fulltime physicians helped to ensure the procedures were followed steadily and comprehensively compared to part-time volunteer implementors, and also associated with higher donation rate(aOR 5.75, 95% CI 2.53-13.04).

Conclusion: Barriers and facilitators of implementation were associated with donation, which further determines the sustainable upscaling of PIF intervention. These results can inform how and in which settings to implement future PIF programs.



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Empowering communities to optimise uptake and use of HIV pre-exposure prophylaxis (PrEP): Crowdsourcing open calls in Australia, the Philippines, Thailand and China

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Background: Crowdsourcing involves crowds participating in a collaborative problem and sharing solutions. By facilitating collaboration between community members and experts from diverse fields, these approaches have been increasingly used to address complex health challenges. Scaling up HIV pre-exposure prophylaxis (PrEP) has been slow in Asia. Tailored strategies to increase PrEP uptake are needed. We used crowdsourcing to seek ideas to increase awareness and uptake and optimise the use of PrEP by describing and analysing PrEP-related crowdsourcing projects in Australia, the Philippines, Thailand, and China.

Description: Crowdsourcing open calls were conducted between 2021 and 2023 in Australia, the Philippines, Thailand, and China to solicit strategies to increase PrEP uptake among key and general populations. Based on The World Health Organization (WHO) crowdsourcing in health research practical guide, our open calls entailed: problem identification; committee formation with

local groups; community engagement for idea submission; evaluation of submissions; awarding incentives to finalists; and solution dissemination via web and social media.

Lesson learned: Our crowdsourcing meaningfully engaged communities to address persistent challenges (e.g., stigma and discrimination) encountered by socially marginalised populations, such as trans and gender-diverse people, and men who have sex with men. The Australia, Philippines, Thailand and China teams received 9, 22, 9, and 19 eligible submissions, respectively. Three themes shared by the finalist ideas from all countries included: 1) enhancing service delivery; 2) optimising promotional campaigns; and 3) generating person-centered promotional materials. The final ideas from the Australian, Filipino, Thai, and Chinese teams were an anonymous online PrEP service, a printed ready-to-wear garment to create awareness about PrEP, PrEP kiosk, and posters on PrEP effectiveness, respectively.

Conclusions/next steps: Crowdsourcing is useful for generating solutions across countries that account for cultural differences, health systems, and HIV epidemics. Further implementation research is needed to assess the effectiveness of the final solutions. This empirical evidence can accelerate the adoption of these co-designed innovations. The Australia team will conduct a trial to utilise interventions from their crowdsourcing open call (ACTRN12623001361695).



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Association between attitudes towards PrEP and its adherence pattern: findings from an implementation study

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Background: The attitude towards PrEP was associated with PrEP uptake. In this study, we aim to examine the association between reported PrEP attitude and pre-identified adherence pattern in PrEP users.

Material and Methods: Monthly online survey data of MSM who participated in a PrEP implementation study in Hong Kong were collected. In the study, participants were provided with free PrEP (tenofovir disoproxil fumarate/emtricitabine tablets) for 1 year following medical consultations. Participants were asked to actively make PrEP-refill appointments online and self-arrange HIV testing before each 3-monthly follow-up visit. Three latent classes of PrEP users were pre-identified based on their PrEP use pattern and sexual activity: Class 1 - daily dominant PrEP, Class 2 - episodic PrEP, and Class 3 - mixed PrEP schedule. Class 1 and Class 3 MSM had similarly high PrEP executed adherence, expressed as the proportion of days with HIV risk that were protected PrEP and/or condom. However, Class 2 MSM were less sexually active and had lower executed adherence level. PrEP attitude was retrieved from the monthly surveys, which included binary items of feeling worried about PrEP dependency for HIV prevention, PrEP use disclosure for sex partner networking, and hiding PrEP tablets; 4 point Likert scale items of feeling less anxious of acquiring HIV with PrEP, feeling relieved with HIV/STI regular testing, increased sexual pleasure with PrEP; and item of frequency of condomless sex while on PrEP. The association of each item summarised across the monthly surveys with the 3 latent classes were examined using multinomial logistic regression.

Results: The monthly survey data (February 2020 - July 2022) of 213 MSM participants whose PrEP

use pattern have been classified were analysed. Among them, 87% had ever actively scheduled PrEP appointment, 89% had reported condomless sex while on PrEP. More than half totally agreed that they had increased sexual pleasure with PrEP (65%), felt less anxious about HIV acquisition with PrEP (78%), and felt relieved with HIV/STI regular testing (88%). Comparing with MSM in Class 2 (n=76), MSM in Class 1 (n=113) had been more actively scheduling their appointments for PrEP refill (p=0.001), and felt PrEP made them less anxious about acquiring HIV (p=0.01). Comparing with MSM in Class 2, MSM in Class 3 (n=26) had also been more actively scheduling their PrEP refill appointments (p=0.03) and reporting higher frequency of having condomless sex while on PrEP (p=0.001). There were no differences in terms of worrying about PrEP dependency for HIV prevention, PrEP use disclosure, increased sexual pleasure, and feeling relieved to have HIV/STI regular testing.

Conclusions: The findings suggested that MSM with more positive attitudes towards PrEP were more likely to be on daily dominant regimen or mixed schedule, both classes being associated with higher PrEP executive adherence. Even when PrEP access was at zero cost, MSM with less positive attitudes towards PrEP might minimise their usage, resulting in a suboptimal executive adherence. Interventions in instilling positive attitudes towards PrEP in episodic users are needed to increase executive adherence level.



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WILLINGNESS AND COMFORT TO COUNSEL HIV PRE-EXPOSURE PROPHYLAXIS TO CLIENTS AMONG PHARMACISTS IN SELANGOR, MALAYSIA

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Introduction: Tenofovir/Emtricitabine (Truvada) is a US Food and Drugs Administration (US-FDA)-approved prescription medication for preventing HIV infection. Adhering to Pre-Exposure Prophylaxis (PrEP) has been shown to reduce the risk of human immunodeficiency virus (HIV) infection by 18% among high-risk individuals. Daily intake of PrEP has demonstrated a 99% risk reduction from sexual transmission and a 74% reduction from injection drug use. Pharmacists are crucial in promoting and educating key populations about HIV pre-exposure prophylaxis (PrEP), identifying the need for PrEP, and providing consultation to clients. Studies have shown that people find pharmacists' advice on medications trustworthy and convenient.

Objective: This study aims to determine the willingness and comfort of pharmacists in Selangor to counsel clients on HIV Pre-Exposure Prophylaxis (PrEP).

Methodology: A cross-sectional study was conducted from March to May 2023, involving 323 pharmacists working at public health clinics in Selangor. Data was collected through a self-administered online questionnaire distributed via email and WhatsApp. The collected data was analysed using JASP version 0.16.2.0. Descriptive and inferential analyses were performed, and crude analysis was conducted using Pearson's chi-squared test. Multiple logistic regression was used to determine the association between demographic characteristics, knowledge of HIV PrEP medications, experience with HIV PrEP medications, barriers, and the willingness and comfort to counsel HIV PrEP to clients.

Results: The majority of respondents were female (82.4%), aged 21-35 years old (75.5%), Malay (59.8%), Muslim (62.9%), held a bachelor's degree (87%), and had less than 10 years of working experience (64.1%). Regarding knowledge, 52.9% of respondents had inadequate knowledge, and 47.1% had adequate knowledge of HIV PrEP medication. Regarding the experience dealing with HIV PrEP medication, 67.5% of respondents had high experience dealing with HIV PrEP medications. Regarding barriers, 57.9% reported low barriers to counselling clients on HIV PrEP. Multiple logistic regression revealed factors associated with the willingness and comfort to counsel HIV PrEP. For the willingness to counsel HIV PrEP, individuals with high experience dealing with HIV PrEP medications were significantly more likely to counsel clients (AOR= 4.08; 95% CI 2.34, 7.10; $p < 0.001$). For comfort to counsel HIV PrEP, four factors were found significant: respondents aged 21-35 (AOR= 2.30; 95% CI 1.14, 4.64; $p = 0.020$), Non-Malay (AOR= 2.07; 95% CI 1.15, 3.70; $p = 0.015$), high experience dealing with HIV PrEP medications (AOR= 3.39; 95% CI 1.88, 6.11; $p < 0.001$), and low barriers affect pharmacists' comfort to counsel HIV PrEP (AOR= 1.93; 95% CI 1.11, 3.37; $p = 0.020$).

Conclusion: This study examined the willingness and comfort levels of pharmacists in Selangor to counsel clients on HIV Pre-Exposure Prophylaxis (PrEP). Most pharmacists indicated high comfort and willingness to provide PrEP counselling, demonstrating their readiness to play a vital role in HIV prevention efforts. However, a significant proportion of pharmacists still exhibited low willingness or comfort, emphasising the need for targeted interventions and training to improve their knowledge and skills in PrEP counselling.



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Easy way to level up your strength of prevention. One retrospective study at one HIV-care designated hospital since 2017-2023

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Objective: The study aims to analyze the "HIV Screening and Pre-exposure Preventive Drug Administration Program" in Taiwan, focusing on improving continuous participation rates among high-risk individuals. Additionally, it questions the need for a catch-up vaccine for individuals who might lack permanent immunity against hepatitis B despite neonatal vaccination.

Methods: Study participants from 2018 to 2023 were individuals enrolled in the HIV prevention program. They underwent HIV screening and assessment for high-risk behaviors before receiving medical services including PrEP evaluation and consultations. Additionally, hepatitis B antibody testing was conducted, with catch-up vaccination recommended for those lacking immunity.

Results: Between 2018 and 2023, 776 participants were enrolled, primarily males (98.2%) and predominantly homosexual (96.9%). Notably, 1.28% of subjects contracted HIV during the study period, but PrEP demonstrated potential in reducing infection rates. Withdrawals decreased from 36% in 2021 to 19.3% in 2023, with new-enrolled number from 111 increased to 264 at same period of time.

In the 2022-2023 public PrEP program, there are a total of 212 patients, 85 subject (40%) tested negative for HBsAg or <10 mIU/ml and completed hepatitis B vaccine vaccination according to the CDC recommended administration schedule (0, 1, 6), 44 subjects (20%) tested positive for Anti-body and its value between 10-100, and 69 people (32.5%) tested positive for Anti-body, and its value is greater than 100, 9 people tested positive for HBsAg, and the other 5 people were unwilling to receive hepatitis B vaccine.

Conclusions: Currently, PrEP can be obtained at public expense or at your own expense. If you are not eligible for public funding, you can also consult a doctor about the Patient Assistance Program (PAP) to reduce the financial burden. Provide PrEP integrated services, including drugs, HIV prevention and health education, consultation, STD screening, drug addiction and mental status assessment, and provide timely treatment or referral services, etc. In 2023, Taiwan delivered the number of new HIV infections fell below 1,000 for the first time. PrEP indeed made a huge contribution to the epidemic.

Overall, the number of hepatitis B antibodies in patients participating in the public PrEP program has increased, but it can still be maintained after a few years, still should set a plan to track the number of hepatitis B antibodies.



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Restarting pre-exposure prophylaxis (PrEP) for HIV: A systematic review and meta-analysis

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Background: High coverage of pre-exposure prophylaxis (PrEP) will reduce HIV transmission and help end the HIV/AIDS pandemic. However, PrEP users face various challenges, including long-term adherence. This study aimed to document the proportions of individuals who restart HIV PrEP after they stop and the reasons for restarting PrEP.

Material and Methods: This study is a systematic review and meta-analysis. We systematically searched CINAHL, Embase, Emcare, Global Health, Medline, Scopus, and PsychINFO for peer-reviewed with no date restrictions. A grey literature search was conducted through Google search, a search of abstract books of AIDS conferences and the websites of WHO and UNAIDS. We extracted data on the proportion of people who stopped and then restarted PrEP, reasons for restarting and strategies to support people restarting PrEP. We used a random-effects meta-analysis to pool estimates of restarting. We conducted meta-regression to determine potential sources of heterogeneity. However, we deviated from our original plan as we did not identify enough publications for strategies to support restarting PrEP (primary objective). Subsequently, we revised our plan to strengthen our secondary objective to quantify the proportion of people who stopped and restarted PrEP, and explore possible reasons for its heterogeneity. This study is registered with PROSPERO, CRD42023416777.

Results: Of 988 publications, 30 unique publications were included: 27 reported the proportion restarting PrEP, and of these, 7 also reported reasons for restarting PrEP, while 3 publications reported only on the reasons for restarting PrEP. No publication evaluated interventions for restarting PrEP. For the meta-analysis, we included 27 publications. Most publications were from high-income countries (17/27, 63%) or the Americas region (15/27, 56%). Overall, 23.8% (95% CI: 15.9-32.7, I²=99.8%, N=85,683) of people who stopped PrEP restarted PrEP. There was a lower proportion of restarting in publications from middle-income countries compared to high-income countries (adjusted odds ratio (aOR) 0.6, 95% CI: 0.50 - 0.73, p <0.001). There was higher restarting in publications from Africa compared to the Americas (aOR 1.55, 95% CI: 1.30 – 1.86), heterosexual populations compared to men who have sex with men or transgender women (aOR 1.50, 95% CI: 1.25 – 1.81, p <0.001) and in publications defining restarting as those who had stopped PrEP for >1 month compared to those who stopped <1 month (aOR 1.20, 95% CI: 1.06 – 1.36, p <0.001). Reasons for restarting PrEP included perceived higher risk for HIV acquisition and removal of barriers to access PrEP.

Conclusions: About a quarter of people who stopped PrEP would restart, with substantial variation across countries and populations. There remains a paucity of evidence to understand how individuals who stop PrEP choose to restart PrEP or not. Our review uncovered a low rate of restarting PrEP, which has implications for PrEP programs to ensure those who stop PrEP but remain at risk for HIV can be supported to restart PrEP in a timely manner. It is important to understand the motivations and contextual factors influencing restarting PrEP and the support systems to enable restarting PrEP for those at ongoing risk.



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Missed opportunities of HIV Pre-Exposure Prophylaxis (PrEP) discussion among clients attended for STI-related care at a Community-Based Organization (CBO)- led clinic in Malaysia

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Introduction: Despite the proven effectiveness of HIV Pre-Exposure (PrEP) in preventing HIV transmission, the uptake still remains low in Malaysia. The World Health Organization (WHO) recommends PrEP for individuals at substantial risk of HIV acquisition including sexually-active adults particularly those with recent bacterial sexually transmitted infections (STIs). The Community Health Care Clinic (CHCC) of PT Foundation, stands out as one of the largest Community Based Organization (CBO)-led clinics in Malaysia, offering comprehensive HIV and STI care, prevention and treatment services all under one roof. This audit was conducted to evaluate the PrEP discussion and uptake among clients seeking STI-related care at our clinic, serving as a foundational step towards enhancing service quality within the clinic.

Methods: A retrospective audit covering all clients for STI testing, consultation, and treatment at CHCC from January 1st till December 31st 2023 was conducted. Visits for PrEP or HIV-related services, counselling and other types of clinic appointments were excluded. Clients who had undergone anonymous testing also were excluded. Data on socio-demographics, clinical characteristic and PrEP outcomes were documented for each audited visit.

Results: In 2023, CHCC saw 909 clients, accounting for 1341 STI-related care visits. Among these, 699 (76.9%) were male (37.6% MSM, 19.3%

heterosexual, 43.1% undocumented); 206 (22.7%) were female, and 4 (0.4%) were transwomen. 51.3% of the visits were for STI screening, 38.9% for symptomatic STIs and/or treatment, and 9.8% for various other reasons. Of all clients, 10 were screened HIV positive during their first visit and immediately linked to care except for one client who refused treatment; 66 people living with HIV (PLWH) on treatment, and 84 were already on PrEP. PrEP discussions occurred in only 17.8% of the rest of the visits, with a PrEP uptake rate of 26%. Surprisingly, HIV screening was not conducted in 16.9% of visits. Discussions about PrEP were more prevalent when clients interacted with healthcare workers (34.9%) compared to community workers (0.4%). Male gender was associated with a higher likelihood of PrEP discussion, with an odds ratio, OR of 1.856 (95% CI 1.262 – 2.729). Among MSM, 40.5% were offered PrEP, compared to 26.7% of heterosexual men and 2.2% men with no documented sexual orientation. Clients with more than a visit within the year did not associated with PrEP discussion, OR 1.036 (95% CI 0.755 – 1.422).

Discussion: The audit revealed substantial missed opportunities for PrEP discussion and uptake among clients at CHCC seeking STI-related care. To address these gaps, forthcoming initiatives include conducting a focus group discussion involving stakeholders and clinic staff, in-depth interviews with clients and re-training of the community workers. These strategic actions aim to identify barrier and facilitators for enhancing service quality within the clinic, utilizing this audit as a foundational assessment for ongoing improvement efforts.



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Sexual risk compensation and retention of PrEP: a HIV PrEP Demonstration Study in South Korea

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Background: Pre-exposure prophylaxis (PrEP) with emtricitabine and tenofovir disoproxil fumarate (FTC-TDF) is an effective intervention for HIV prevention. However, the feasibility of PrEP in South Korea has not yet been evaluated. This study aimed to evaluate the retention in PrEP, the safety of daily PrEP, rates of adherence, tenofovir (TFV) concentrations, incidence of other sexually transmitted infections (STIs), and risk compensations when men who have sex with men (MSM) in South Korea are provided open-label FTC-TDF as PrEP.

Material and Methods: In this study, HIV-negative MSM in South Korea were screened. Eligible participants were prescribed a daily FTC-TDF regimen and were followed-up at the outpatient clinic. At each visit, adverse reactions, adherence, and sexual behavior were assessed using a questionnaire, and residual pills were collected, along with regular laboratory tests. TFV concentrations in plasma and urine were analyzed.

Results: A hundred participants were enrolled, with a median follow-up time of 392 days. The retention-in-the-care rate was 77 % from June 2020 to January 2023. The HIV incidence was 0.97 per 100 person-days (95 % CI, 0–0.20), whereas that of other sexually transmitted infections (*Neisseria gonorrhoeae*, *Chlamydia trachomatis*, *Mycoplasma hominis*, *Mycoplasma genitalium*, *Trichomonas vaginalis*, and *Ureaplasma urealyticum*) was 13.67 per 100 person-years (95 % CI, 0–85.05). None of the patients experienced any serious adverse events. Both renal and liver functions remained stable without significant changes. Residual pill count and self-reported adherence were not associated with plasma TFV drug levels. Plasma TFV concentrations > 40 ng/mL were achieved in 55.3 % (47/85) of the

participants at week 28 and 41.7 % (25/60) at week 52. The proportion of condomless receptive anal intercourse decreased progressively from 68.4 % (65/95) at baseline to 49.3 % (31/77) at visit 6. Additionally, the frequency of condomless insertive anal intercourse declined throughout the period of PrEP uptake. Notably, the occurrence of other STIs remained consistent between Visit 4 or 6 (10.47 vs. 14.29 per 100 person-years, $p = 0.48$). A positive test for STIs was associated with a plasma TFV concentration > 40 ng/mL (adjusted odds ratio 3.45, $p = 0.047$).

Conclusion: Daily oral PrEP was safe and effective in MSM in South Korea and demonstrated 77 % retention rate. The phenomenon of risk compensation was not observed, with affirming the role of PrEP in the prevention of HIV transmission. Counselling and early testing of STIs in PrEP clinics could contribute to the control of HIV and other STIs.



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Community-led same day antiretroviral therapy initiation successfully closes linkage to treatment gaps at a sex worker-led clinic in Bangkok, Thailand

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Background: To address low linkage to antiretroviral therapy (ART) services among key populations diagnosed with HIV in community-led clinics in Bangkok, Thailand, the Service Worker in Group (SWING) Foundation, a sex worker-led organization in Bangkok implemented community-led and delivered same day ART (SDART). Here we report the ART-initiation cascade of the first year.

Description: Thai nationals who test HIV-positive at SWING, are at least 13 years and have never received ART, are eligible for and offered SDART. If accepted, clients are screened for opportunistic infections (OIs), and referred for OI treatment if indicated, or initiated on ART. After follow-up of 45 days, clients are referred to their long-term ART maintenance facilities. All procedures, including HIV testing, OI screening and ART initiation, are conducted by trained key population lay providers. Data from clients presenting between April 2022-April 2023 were analysed to depict an HIV treatment cascade for this period.

Lessons learned: A total of 13,747 clients received HIV testing, 475/13,747 (3.5%) were confirmed positive: 440 (92.6%) men who have sex with men, 28 (5.9%) transgender women, 7 (1.5%) female sex workers. 266/475 (56%) were eligible and offered SDART, 266/266 (100%) accepted and 261/266 (98%) initiated ART: 236/261 (90.4%) on the day of HIV diagnosis, 24/261 (9.2%) within 3 days, 1/261 (0.4%) after 7 days. At their long-term ART

maintenance facilities, 166/261 (63.6%) underwent viral load testing, 161/166 (97.0%) achieved viral suppression. 5/266 (1.9%) clients who did not initiate SDART showed symptoms of OIs and were referred; all (100%) have initiated ART at their referred hospital. Of 209/475 (44.0%) clients who were not eligible for SDART, 67/209 (32.1%) were non-Thai and were referred to ART migrant support funds, 142/209 (67.9%) were diagnosed out of SDART service hours, and were referred out. All 209 initiated ART at their referred facility.

Conclusions: Community-led SDART, delivered by trained lay providers is feasible, acceptable and closes linkage to treatment gaps among key populations in Bangkok. Community-led SDART service hours should be extended. National policies should integrate community-led SDART in the health system and to allow non-Thai to receive ART at community-led clinics to ensure equitable health access to all.



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The Impact of a Multi-Intervention Program on Depression in HIV-Positive Patients Engaging in Chemsex: A 42-Week Study

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Background: This study aimed to investigate the efficacy of a comprehensive multi-intervention program in alleviating depression among HIV-positive individuals engaging in chemsex. Utilizing a pre- and post-test design, the study assessed the physical and mental health of 24 participants through the Brief Symptom Rating Scale (BSRS-5) and the Chinese version of the Beck Depression Inventory-second edition (BDI-II) before and after a 42-week intervention.

Methods: The 42-week multi-intervention program consisted of weekly 2-hour sessions, encompassing drug harm reduction, psychodrama, dance art therapy, and other diverse activities promoting participant engagement. The participants, all HIV-infected men who have sex with men (MSM), had an average age of 38 years (± 8 years).

Results: After the completion of the program, there was a significant improvement in depression scores measured by BSRS-5 and BDI-II ($p < 0.05$). Notably, participants with an attendance rate of 50% or higher exhibited more substantial improvements in depression scores ($p < 0.05$). Specifically, among the 24 participants, emotional distress, as measured by BSRS-5, decreased in 33% of individuals, while 25% experienced a reduction in depression problems according to the BDI-II pre- and post-test results. Paired sample t-tests comparing pre- and post-test scores revealed a significant improvement in emotional well-being, as indicated by BSRS-5 ($t = 1.16$, $p < 0.01$) and BDI-II ($t = .966$, $p < 0.01$). Further analysis comparing post-test scores based on attendance rates demonstrated that higher attendance rates (50% or more) correlated with better improvements in participants' mood, with significant differences

observed in both BSRS-5 ($t = -2.55$, $p = 0.019$) and BDI-II ($t = -2.61$, $p = 0.02$).

Conclusion: This study underscores the effectiveness of the 42-week multi-intervention program in improving depression scores among HIV-positive individuals engaging in chemsex. The findings suggest that sustained participation in the program, especially with an attendance rate of 50% or more, yields more significant improvements in emotional well-being. Future research should delve into the broader applicability and feasibility of this multi-intervention program. Understanding its impact on diverse populations and exploring potential modifications or additions could enhance its effectiveness in addressing the mental health challenges faced by HIV-positive individuals involved in chemsex. Ultimately, this study contributes valuable insights into developing targeted interventions to improve the mental health outcomes of this specific population.

Keywords: HIV-positive patients; Chemsex; Harm Reduction; Depression Scale



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Impact of Local Civil Society Organizations on Early Diagnosis in the Thailand Test and Treat Contest: Assessment of Provincial Short-Term and Long-Term Outcomes

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Background: Civil society organizations (CSOs) in Thailand are legalized to conduct HIV testing as an entry point to HIV treatment and prevention. CSOs and government partners, including the Ministry of Public Health, initiated Thailand Test and Treat Contest (TTTC) using prize and financial incentives to enhance early HIV diagnosis through task sharing between CSOs and public health authorities at a provincial level.

Methods: Of 77 provinces invited, 16 applied for TTTC (4 in Phase I: March-September 2022 only, 3 in Phase II: February-July 2023 only, 9 in both phases). The proportion of newly diagnosed clients with CD4 count <200 cells/mm³ (%CD4<200) and median CD4 counts at diagnosis/prior to treatment during the 6-month pre-contest phase were compared to those during the contest phase. Comparisons were classified into short-term (one-phase contest duration) and long-term (two-phase contest duration). Provinces were stratified by the ability of CSOs to perform HIV testing beyond reach and recruit.

Results: There were 4,837 new HIV cases in the short-term comparison from 16 provinces, with 4,325 verified CD4 counts. Overall, %CD4<200 was significantly lower during the contest (46.1% vs.

48.5%, p=0.036), compared to pre-contest phase. This was true only in the 11 provinces with CSOs conducting HIV testing (45.1% vs. 47.8%, p=0.027) but not in the other 5 provinces without (53.4% vs. 52.7%, p=0.809). Median CD4 count during the contest phase was significantly higher than the pre-contest phase only in provinces with CSOs conducting HIV testing (235 vs. 217, p=0.027). Long-term comparison identified 6,730 new HIV cases in 9 provinces, with 5,972 verified CD4 counts. Significantly lower %CD4<200 and higher median CD4 count were seen during the contest, than the pre-contest phase, in these provinces (44.5% vs. 48.3%, p=0.003, 240 vs. 215, p=0.004, respectively). Only 1/9 province lacked CSOs with HIV testing capability. Bangkok, with the largest number of CSOs capable of performing HIV testing, exhibited the highest improvement in median CD4 count (268 vs. 232, p=0.003).

Conclusions: HIV testing conducted by CSOs could significantly enhance early HIV diagnosis. Holding a national contest is a successful strategy which could stimulate serious collaborations between CSOs and public health authorities at a provincial level.



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Enhancing motivational counseling training for HIV service providers in Vietnam ahead of national rollout: Insights into perceived applicability and barriers among trainees

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Background: Vietnam's national strategy to end AIDS by 2030 includes enhancing service provider capacity. Motivational counseling (MC) in behavioral communication strategies has shown to increase program effectiveness across the HIV service cascade. Recognizing its evidence base, the USAID/PEPFAR-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project collaborated with the Vietnam Administration for HIV/AIDS Control (VAAC) to provide MC trainings for HIV service providers from provincial centers for disease control, regional and national institutes, and community partners. EpiC administered in-training and post-training surveys to gain insights into participants' perceived applicability of MC and used these data to inform the development of the national training curriculum.

Description: From September 2022 to August 2023, EpiC and the VAAC trained selected facility and community-based healthcare providers from 59 of 63 provinces in Vietnam on motivational counseling. During training wrap-up, 275 participants took a survey measuring self-perceived confidence and commitment to applying MC, and evaluating training objectives, applicability, content, design, and facilitation. Three to six months later, 158 participants completed a second survey on their use of MC and barriers to effective application.

Lessons learned: The in-training survey responses showed increased confidence using MC (5-point scale, pre-training: mean: 2.24, 95% CI: 2.14 to 2.34, post-training: mean: 4.12, 95% CI: 4.05 to 4.19) and commitment to applying MC after the training (10-point scale, mean 8.71, 95% CI: 8.56 to 8.86). Feedback on training objectives, applicability, content, design, and facilitation was positive. The 158 respondents who filled out the post-training survey noted the training was: applicable to their work (98.6%) and personal life (98.1%); a worthwhile use of their time (98.1%); and that they had seen positive results using MC since the training (98.1%) or were expecting positive results (98.1%). Reasons provided for successful application included participation in training (61.7%), personal motivation (46.2%), provided training materials (44.3%), recognition (31%), and knowledge recaps (27.8%). Only a few participants (1.9%) mentioned lack of motivation to apply MC to their work and perceived usefulness to their jobs as barriers to effective application. Participants identified key concepts that needed more focus during trainings to maximize their use, including dealing with resistance, eliciting talk about change, and recognizing when clients are talking about change. Recommendations include more in-person trainings with increased opportunities for practice, more relevant scenarios, and in-depth exploration of the most challenging modules.

Conclusions: Understanding participant perceptions of the utility of MC training is crucial to strengthen its applicability. The use of in- and post-training surveys can provide valuable feedback to inform the development of more practical exercises, such as more relevant roleplay scenarios, and appropriate time for each module. Ongoing efforts by EpiC and the VAAC to improve MC trainings will be reflected in the codeveloped national MC training curriculum for public and non-government providers working in HIV, with a focus on key populations, launching in 2024. Further investigation is needed to evaluate client outcomes as a result of MC trainings.



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Using a rule-based algorithm to automatic classify cause of mortality from free-text on death certificates: AIDS-related mortality results among PLHIV registered in the National AIDS Program, Thailand, 2008-2022

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Background: The Thai National AIDS Program (NAP) has collected demographic, behavioral, and HIV-related data for all people living with HIV (PLHIV) under Universal Health Coverage since 2008. NAP links individual data with the National Death Registration with non-coded, free-text data documenting causes of death. We developed a rule-based methods to automatic classify cause of death and analyzed major causes of death to determine geographic disparities from 2008 to 2022.

Methods: A rule-based algorithm was developed to classify cause of death (COD) from free-text on death certificates and patient characteristics (age and clinical information prior to death). We applied text mining technique to categorize free text into 3 major groups: AIDS-related causes, non-AIDS related causes including non-communicable diseases, and ill-defined COD following Thai HIV case surveillance definitions and WHO HIV clinical staging guidelines. Accuracy evaluation involved expert reviews of both free-text and algorithm-derived causes. We calculated the ratio of AIDS to non-AIDS-related deaths to measure geographical disparity and assessed potential determinants of AIDS-related mortality using multiple regression (SAS v 9.4).

Results: The cause of death algorithm achieved 92% accuracy. Of 120,793 deaths, 58.1% were AIDS-related, 37.8% non-AIDS-related, and 4.1% ill-defined causes. Tuberculosis, pneumocystis pneumonia, and other pneumonia were most common among AIDS-related causes. Trend of AIDS-related deaths declined from 60.6% in 2008 to 48.7% in 2022, with a significant decrease in the number of provinces with high AIDS-related deaths and proportion of AIDS-related deaths in the lower northern, northeastern, and central provinces. Factors associated with AIDS-related mortality included baseline CD4 <200, age <24 years, female gender, key populations (men who have sex with men, sex workers), and no ART history.

Conclusion: AIDS-related causes accounted for the majority of deaths using a rule-based algorithm. Targeted interventions to increase ART coverage and TB prevention, diagnosis, and treatment are critical to reduce AIDS-related deaths.



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Bridging the gaps: Identification of capacity and financing needs to integrate and sustain community complementarity to the national HIV response in Vietnam

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Background: The 2023 AIDS Epidemic Model found that 33% of all new HIV infections are in Vietnam's Mekong Delta region. Therefore, the Vietnam Administration for HIV/AIDS Control (VAAC) is calling for more comprehensive HIV services in the Mekong Delta and expanded community complementarity to the response. National efforts are increasingly focused on access to financing and investment mechanisms for community-based organization (CBO) service providers, considering PEPFAR plans to transition funding by 2030. However, no national database exists on HIV-focused CBOs and services provided. The PEPFAR/USAID-funded EpiC project, in partnership with the VAAC, is implementing a national community assessment in 11 of 63 provinces, of which five provinces are analyzed herein.

Materials and Methods: Leaders from twenty CBOs in the Mekong Delta completed a questionnaire regarding services, reach, and strategic needs of CBOs in the region.

Results: According to the respondents, CBOs target a range of key populations, including men who have sex with men (90%), people living with HIV (55%), transgender men (45%), transgender women (40%), female sex workers (40%), and people who inject drugs (25%).

All CBOs engage in behavior change communication, distribution of harm reduction commodities, and referral to HIV and complementary services. Most (90%) conduct HIV

screening; 40% screen for hepatitis B and C and other sexually transmitted infections. A limited number of CBOs refer clients for sexual and reproductive health (35%); screen for mental health (30%); counsel on amphetamine-type stimulants and chemsex (20%); sell pharmaceuticals and supplements (15%); and/or provide HIV treatment (10%).

Among CBOs, 55% generate their own strategic plans, 30% rely on donor direction, and 15% do not have a strategy. Half of strategy development focuses on income generation activities, and only 55% of organizations conduct planning for at least a year at a time. Most leaders (85%) obtain additional part-time work to sustain themselves.

To improve their utility and effectiveness, CBOs desire more donor interest in their work (95%); and more opportunities for capacity building through training, conferences, and seminars (85%); more recognition (50%); and clear and specific legal provisions (20%). Only 25% of CBO leaders indicated that they are looking for a state-managed mechanism to fund services.

Conclusions: Mekong Delta CBOs in Vietnam can deliver a wide range of HIV interventions and may be best suited to implement front-end-of-the-cascade services as the country moves toward epidemic control, especially among key populations. However, reliance on donor funding and international support for registration and capacity building limit the extent to which community partners can complement the national response in the face of decreased donor assistance. Lack of sufficient financial resources also requires most leaders to divide their professional lives between CBO work and other income-generation activities.

However, not all community partners are interested in government financing mechanisms. Additional efforts are needed to create opportunities for community and government complementarity through diverse funding mechanisms, and to build community interest in accessing them. Vietnamese community partners will also need tailored capacity strengthening to ensure they can effectively and sustainably engage in last-mile interventions.



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Perception Towards the Implementation of the Iloilo City Anti-Discrimination Ordinance (IC-ADO) to the Accessibility of HIV Preventive Services (HIV-PS) among Gay, Bisexual, and Men who have Sex with Men (GB-MSM)

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Background: The discrimination faced by LGBT individuals, particularly GB-MSM, has an impact on their behavior when it comes to seeking healthcare services. According to previous studies, initiatives and policies have been established to advance and safeguard the rights of GB-MSM. Measures such as the Anti-Discrimination Ordinance (ADO), have been put into effect at a local level, specifically in Iloilo City. However, there is a lack of sufficient data on the effectiveness of these ordinances in protecting GB-MSM individuals. Thus, this study tried to understand the perception towards the implementation of IC-ADO in facilitating accessibility of HIV-PS among GB-MSM.

Methods: This study utilized a narrative research design to understand the perception of GB-MSM towards the implementation of IC-ADO to the accessibility of HIV-PS. The data was gathered through key informant interviews (KII) from February 15, 2023 to March 2, 2023. Audio recordings were transcribed and translated using a forward-backward approach, and underwent Braun and Clarke's thematic analysis to analyze the collected data.

Results: A total of 20 participants were included in the KIIs with age ranging from 18-45 years old. The primary themes identified in this study include the (1) HIV prevention services - where it was revealed that most common services that they acquire in

sexual health facilities are HIV-PS such as HIV testing and PrEP; (2) accessibility of HIV-PS - having the clients' priority revolve around physical, financial, and information accessibility; (3) abilities of GB-MSM - focusing on their health beliefs and trust when accessing healthcare, (4) experiences of discrimination, and (5) the awareness and perception of GB-MSM towards the implementation of IC-ADO in facilitating HIV-PS, generating mix responses where some GBMSM believed that the ordinance would improve their sense of safety in accessing sexual health services while others claimed that there is much work needed on a city-wide discussion to make sure that GBMSM are fully aware of the ordinance.

Conclusion: The IC-ADO ordinance can enhance the accessibility of HIV-PS for GB-MSM individuals by promoting equality and providing safe health services. However, in order to consider the IC-ADO ordinance as effectively implemented, it is crucial to assess awareness as a key factor. Despite employing initial methods to disseminate information, there are still barriers contributing to a lack of awareness about the ordinance such as lack of initiative or interest, fear of association, insufficient campaign, and religious beliefs. While the IC-ADO has the potential to facilitate accessibility of HIV-PS, accessibility encompasses other several aspects – physical access, financial affordability, and availability of information. Although participants in this study shared information indicating that facilities and HIV-PS were accessible, their ability to perceive, seek, and engage are factors that affect their access to HIV-PS. Experience of discrimination acts as an overall barrier for GB-MSM individuals seeking access to HIV-PS. Therefore, it is necessary to intensify the campaign for the IC-ADO in order to create an inclusive and safe environment that prioritizes the recognition and addresses the unique needs of GB-MSM.



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Thailand's First Comprehensive Integrated Prevention and Treatment for HIV, TB, and STI in Bangkok Metropolitan Administration's Primary Health Clinic

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Background: Since 2017, the Public Health Center 28 (PHC28) of the Health Department, Bangkok Metropolitan Administration, has implemented an integrated care model for people living with HIV (PLHIV). This model uniquely combines services for sexually transmitted infections (STIs), tuberculosis (TB), and HIV, offering comprehensive care delivery.

Description: To expedite diagnosis and intervention while minimizing potential antiretroviral therapy (ART) delays, PHC28 utilizes a standardized patient flow:

1. **Initial Assessment:** All clients undergo rapid anti-HIV and Syphilis tests.
2. **HIV-Negative Clients:** Receive preventive education, regular HIV and STI screenings, and pre-/post-exposure prophylaxis (PrEP/PEP), with follow-up appointments every 1-6 months.
3. **HIV-Positive Clients:** Undergo further assessments, including history taking, physical examination, psychologist consultation, and index partner testing.
4. **Hospitalization Triage:** Clients requiring hospitalization are referred for treatment.

5. **ART Initiation Evaluation:** Clients not requiring hospitalization undergo same-day investigations (Cryptococcus antigen test, chest X-ray, and fundus photography) to assess for contraindications to same-day ART initiation. Additional laboratory tests are performed, with results available within 1-2 weeks.

6. **Treatment Initiation and Follow-up:** Clients without contraindications start ART, receive treatment for STIs and opportunistic infections (OIs), and have follow-up appointments within 1-2 weeks to assess adverse drug reactions, OI prophylaxis initiation, or TB preventive treatment.

The clients then have follow-up appointments every 1-6 months thereafter.

This approach eliminates lengthy laboratory processing times, allowing for interventions based on the assessments, following the Thai National HIV/AIDS Guidelines. Additionally, a status-neutral approach ensures that all individuals regardless of HIV status receive HIV prevention or ART initiation services on the very first visit and reduces visit frequency.

Lessons Learned: Comparing data from the Bangkok Smart Monitoring System and HIV-Info Hub show that between 2021 and 2022:

1. **Client Growth:** PHC28 witnessed increases in the number of PLHIV (3,880 to 4,763), PrEP (2,314 to 2,868), PEP (289 to 377) clients, and STI treatments (189 to 217).
2. **Surpassing National Benchmarks:** PHC28 consistently achieved high ART coverage (94.2% and 96.8%, exceeding the national average of 91.0% and 90.2%), 100% same-day/rapid ART initiation in PLHIV without contraindications in both years (compared to the national average of 36.2% and 39.7%). From the data, PHC28 showed significantly lower all-cause mortality rates (1.0% and 0.5% versus the national average of 3.0% and 2.6%) and higher percentages of patients achieving undetectable viral load (97.1% and 95.5%, compared to the national average of 92.9% and 93.2%) after one year of ART initiation.
3. **High Engagement and Improved Outcomes:** PHC28 demonstrated exceptional patient engagement, with minimal patient loss one year after ART initiation (3.5% and 0.3%). Additionally, the program achieved a 100% TB cure rate among PLHIV for both years evaluated.



These results suggest improvements in client engagement, outcomes, and service delivery efficiency.

Conclusions: PHC28's integrated care model for PLHIV serves as a model for primary health clinics in Thailand, streamlining diagnosis and treatment while providing holistic, patient-centered care. This program's impact on patient outcomes, 100% same-day ART initiation, aligns with the goals of national HIV epidemic control with a potential for further expansion.



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Sustaining high-quality HIV services through the HIV Disease-Specific Care Certification program in Thailand, 2020-2023

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Background: Since 2016, the Thailand Ministry of Public Health, Healthcare Accreditation Institute (HAI), and PEPFAR Thailand have collaborated to create the HIV Disease-Specific Certification (DSC) program, which includes a standardized approach and certification metrics based on national HIV guidelines, ensuring that hospitals deliver high-quality HIV services. To obtain DSC, hospitals must achieve second and third 95 targets along the HIV cascade and recertify every 3 years.

We describe HIV outcomes of DSC-certified hospitals participating in the DSC program in 2020 and monitored changes in HIV treatment outcomes during 2020-2023.

Methods: In 2020, ten hospitals applied for DSC. Participating hospitals established an interprofessional team composed of nurses, physicians, pharmacists, laboratory technicians, and quality improvement specialists.

During 2020-2022, we conducted baseline assessments, DSC standards training, and onsite (at least 2 times a year) and virtual coaching sessions (1 session per month per site) at ten hospitals in four certification areas: leadership and

program management, support system for HIV service delivery (laboratory, pharmacy, infection control, environment, and information system), clinical care delivery (counseling and testing, antiretroviral treatment (ART), opportunistic infections, preventing mother-to-child transmission, and sexual transmitted infections), and performance measurement.

In the DSC-certified hospitals, we compared 2020 baseline vs. 2022 certification year vs. 2023 after certification to ensure sustained gains using Chi-square and McNemar's test.

Results: Of ten hospitals, five (50%) tertiary care hospitals received DSC certification (one University hospital, two Bangkok Metropolitan Administration hospitals, one Air Force hospital, and one regional hospital) in 2022.

The remaining five hospitals have yet to submit a request for certification due to delays in finding responsible teams to cover the four certification areas. Of the five certified-DSC hospitals, the following indicators significantly increased ($P < 0.001$) in 2022 compared to baseline data, % newly diagnosed PLHIV receiving ART (73.6% (411/558) vs. 97.7% (506/518)), % initiating rapid ART within 7 days (55.2% (227/411) vs. 84.4% (427/506)), % PLHIV currently on treatment (91.1% (9,924/10,891) vs. 98.2% (9,568/9,744)), % receiving viral load (VL) test (89.0% (8,832/9,924) vs. 96.7% (9,251/9,568)), and % VL suppressed (84.2% (8,353/9,924) vs. 95.8% (9,168/9,568)). Three indicators increased in 2023 compared to 2022, including % initiating same-day or rapid ART within 7 days (84.4% (427/506) vs. 87.5% (529/660), $P < 0.062$), % currently on treatment (98.2% (9,568/9,744) vs. 99.2% (11,360/11,447), $P < 0.001$), and % VL suppressed (95.8% (9,168/9,568) vs. 96.8% (10,465/10,815), $P < 0.001$). Two indicators slightly decreased in 2023 but remained $> 95\%$, including % newly diagnosed PLHIV receiving ART (97.7% (506/518) vs. 96.0% (660/687), $P < 0.117$) and % VL testing (96.7% (9,251/9,568) vs. 95.2% (10,815/11,360), $P < 0.001$).

All certified hospitals reported improved HIV workflow, referrals, consultations, and treatment linkage due to better teamwork, communication, and leadership engagement.

Conclusion: HIV DSC promotes multidisciplinary teamwork to improve PLHIV treatment outcomes, increase visibility of HIV program to hospital leadership, and sustain quality after certification. The DSC model could be expanded to other



hospitals as a best practice. Continuous monitoring of key indicators after certification is critical to ensure sustained gains.



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Understanding multi-stakeholder perspectives on comprehensive chemsex services for young men who have sex with men in Thailand: Qualitative findings from the CLYMAX study

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Background: The increasing visibility of chemsex among men who have sex with men (MSM) in Thailand underscores the urgent need for well-established and comprehensive chemsex services. The lack of knowledge regarding the essential components of comprehensive chemsex services for MSM in Thailand poses a substantial obstacle to the development such services. We explored perspectives from various stakeholders on the necessary components of comprehensive chemsex services.

Material and Methods: Semi-structured, in-depth interviews were conducted in-person with 60 key informants in March 2023: 40 MSM aged 16-35 years who use chemsex, 10 peers/family members, and 10 healthcare providers. Interviews were recorded and transcribed verbatim. A codebook was developed based on a priori themes of the interview guide and emergent themes from transcripts. Analyses were conducted using Dedoose software.

Results: We identified four components that should be incorporated into comprehensive chemsex services.

1. Promoting substance use literacy is the top priority. In particular, people who use chemsex

value a reliable source of information on chemsex-related harms and mitigating strategies.

2. Mental health counseling from specialists, such as psychologists or psychiatrists, due to relationships between mental health and chemsex use.

3. Sexual health services, including routine sexually transmitted infections screening, and the provision of preventive measures such as PrEP and condoms.

4. Legal consultation and social/family support are crucial in the context of country's punitive laws and common abusive practices towards people who use substances.

Some MSM prefer onsite services for a more professional feel and effective communication, while others prefer online services due to experienced/anticipated stigma and discrimination when receiving in-person services or fears of street-side urine drug tests by the police which could lead to harassment, bribery, and legal proceedings. Regardless, campaigns to normalize/decriminalize chemsex are critical for people to access healthcare services.

Other suggestions include establishing an emergency hotline, offering mailed tools for safe chemsex use, providing on-site chemsex merchandise, and involving former users in counseling.

Conclusions: Chemsex-specific literacy, mental health services, sexual health services, legal consultation, and social/family support were identified as key chemsex service components, and their inclusion in comprehensive chemsex services for MSM in Thailand should be further explored.



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A multidisciplinary team meeting approach for the care of persons ageing with HIV in a resource-limited setting

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People living with HIV (PWH) are living longer, however they encounter multimorbidity and issues of ageing much earlier compared to the general population. The goals of HIV care need to move beyond viral suppression and embrace person-centered care.

Models of care where infectious disease (ID) specialists are the sole healthcare providers for PWH are often ill-equipped to make this pivot, like Universiti Malaya Medical Centre, a tertiary care centre in Malaysia providing HIV care to approximately 1400 PWH. In 2023, 34% of clinic attendees were 50 years or older and 30% between the ages of 40 to 49 years.

PWH with multimorbidity were referred out to other single-organ specialties increasing the number of hospital appointments, laboratory investigations and polypharmacy. Clinical decisions were made in silo by individual specialties with no feedback to the primary HIV provider, leading to disjointed management.

To address this, in February 2023 a monthly, ID-physician led multidisciplinary team (MDT) meeting was established comprising an endocrinologist, nephrologist, geriatrician, pharmacist and social worker as part of a quality improvement initiative. Each specialty was approached personally by the ID team to participate in the meetings, and to nominate an alternate. PWH with poorly controlled comorbidities and complex social needs were selected by the ID team and highlighted prior to the meeting so each specialty had time to review the case. During the meetings, physical and social aspects of care was discussed, focusing on PWH's

priorities, healthcare affordability and drug reconciliation.

The complex care of 14 PWH were discussed from February 2023- February 2024. The median age was 57 years (IQR 51-65), with median duration of living with HIV of 19 (IQR 9-24) years. All participants were virologically suppressed on antiretroviral therapy and had a median of 4 (IQR 3-5) chronic comorbidities. Each session lasted two hours, with two cases discussed and the ID physician was primarily responsible for all action points and patient communication. Cases were discussed more than once following the interventions to monitor for progress.

The MDT meetings directly resulted in reduced number of clinical and blood test appointments saving both cost and time for PWH, drug reviews and reconciliation leading to reduced polypharmacy, and increased access to subsidized medications and home monitoring devices through welfare assistance and non-HIV specific financial programs. Provider and patient communication improved with patients being more open about their care challenges. From a provider perspective, the MDT meetings established a platform for ongoing interdisciplinary knowledge exchange, improved communication between specialties, helped identify champions for the future planning of integrated HIV care and improved confidence in the management of complex comorbidities among ID physicians.

The main challenge was ensuring the availability of each specialty for the meetings. This was overcome by engaging more than one individual from each specialty and identifying an individual to coordinate the meetings.

In settings with limited resources to fully integrate HIV care services, regular MDT meetings provide an opportunity to pivot to a patient-centered care model for PWH who are ageing and have complex care needs.



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The facilitators and barriers to the access of mental health services and support for people living with HIV in China: A qualitative study from the patient's perspective

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Background: People living with HIV (PLHIV) in mainland China face significant mental health burdens, including depression, anxiety, and suicidal tendencies. The mental health needs of PLHIV remain unmet due to the fragmented nature of the Chinese healthcare system. Mental health screening, treatment, and referral services are lacking in the HIV clinic, and mental healthcare providers lack expertise and empathy in HIV care. This dual service gap contributes to fragmentation in the HIV care cascade. The aim of this study was to explore the factors that influence access to mental health services from the perspective of PLHIV in mainland China.

Methods: This qualitative research, through online in-depth semi-structured interviews, was conducted with 26 PLHIV nationwide in mainland China between November 2023 and March 2024. The interviews explored participants' understandings and experiences of HIV diagnoses, mental health coping, help-seeking behaviors, and related social and health services for mental health, as well as perceived facilitators and barriers to accessing those services. Data was coded in NVivo 14 employing the Anderson service utilization model.

Results: 26 PLHIV, mostly identifying as men who have sex with men (MSM) with 2 elderly heterosexual women, were recruited with various education and income backgrounds and ages ranging from 25 to 59. Half of the participants have experience in coping with and accessing related services when confronted with mental health challenges through various routes. The key barriers encompass deficient mental healthcare

infrastructure and acquaintance-based healthcare environments at the contextual level. Limited access, privacy concerns, and misconceptions toward HIV/AIDS and mental healthcare at the individual level. For the elderly communities, internet improficiency was the key barrier to accessing services and up-to-date information about HIV/AIDS and mental health. Stigma and discrimination associated with HIV and MSM, strained doctor-patient relationships, and standardization of HIV providers' behaviors without mental healthcare were identified as barriers at the health behavior level. The key facilitators involved CBO-led care linkage at the contextual level. At the individual level, facilitators included self-acceptance, economic capital, awareness and destigmatization of mental healthcare, adequate knowledge of HIV/AIDS, and social support from peers, CDC workers, doctors, relatives, and other social networks. Streamlined healthcare logistics and mental health counselors with expertise were identified at the health behavior level. Designated hospitals with mental healthcare and referral services were preferred for PLHIV due to privacy protection, culture adaptation, and empathy of service providers. The novel online mental health counseling services were preferred by the younger generation as it offer flexible schedules and encourage expressing intent.

Conclusion: Our findings underscore the importance of addressing disparities in healthcare access and information, ensuring privacy protection, fostering cultural competence among healthcare providers, and establishing an inclusive environment within the mental healthcare setting. Future research should consider the provider's perspective on the barriers and facilitators in service delivery in mainland China.



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In-person pick-up versus postal delivery: PrEP service and its association with adherence and retention among Chinese MSM

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Background: Differentiated services are critical for scaling up PrEP in diverse settings. Postal delivery of PrEP drugs could help people who are doing well and do not need an in-person encounter. We conducted a demonstration study to compare the effects of in-person pick-up and post-mail delivery on facilitating PrEP retention and adherence among Chinese MSM.

Methods: MSM in Wuhan and Guangzhou, China were recruited by online ads, clinic flyers, and community referrals to a PrEP demonstration trial to start a 12-month TDF/FTC as oral PrEP. Behavioral data were collected at baseline and quarterly follow-ups over 12 months. At each follow-up, participants were allowed to refill the medication either by in-person pick-up at the study hospital or by post-mail delivery. Generalized linear models were used to assess associations between key outcome variables (self-reported good adherence [primary definition: <60% vs. 60% to almost 100% compliance with PrEP dosing schedule in last 30 days], loss to follow-up [LTF], and usage of postal PrEP), adjusting for age, sexual orientation, employment status, monthly income, and PrEP dosing strategies. We defined LTF as either voluntary withdraw or not completing the survey within 4 reminders of scheduled follow-up.

Results: By September 8th 2023, 945 MSM (mean age=28.2, IQR 24.1-31.4) were enrolled and should have reached their 6-month follow-up. A quarter (n=199) of participants were LTF before six months. About 54.4% of the participants used only in-person PrEP pick-up, 19.6% only used postal PrEP, and 26.0% used both delivery methods during follow-up. No sociodemographic characteristics were found significantly associated with postal PrEP usage. In multivariable-adjusted models, participants who ever used postal delivery (aOR=0.17, 95% CI=0.11-0.27), had lower monthly income (<715 USD versus >1430 USD, aOR=0.55, 95% CI=0.31-0.97), and of younger age (aOR=0.92, 95% CI=0.88-0.95) were less likely lost to follow up. Self-reported good adherence to PrEP was not different among those who used postal PrEP and in-person PrEP (aOR=0.63, 95% CI=0.30-1.31).

Conclusions: Postal PrEP delivery is feasible and well-accepted among Chinese MSM and has the potential to increase PrEP persistence by increasing accessibility. Future research into diversifying PrEP provision models outside of traditional clinical settings while maintaining high adherence and quality of care is needed.



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Feasibility of implementing cognitive testing in a transgender health clinic in Thailand: qualitative insights from transgender women living with and at risk for HIV and their healthcare providers

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Background: Disparities in multi-level psychosocioeconomic factors place transgender women at higher risk for cognitive impairment, including potential variations by HIV-status. We therefore explored the feasibility of implementing cognitive testing in a transgender health clinic.

Material and Methods: From August-October 2023 we implemented peer-led cognitive testing at the Tangerine Clinic in Bangkok, Thailand. We used a tablet-based version of the Thai-validated Montreal Cognitive Assessment (MoCA), a 10-15 minute cognitive test. In contrast to the original pencil-and-paper version, the tablet-based version allows for self-administration and standardized test delivery. Guided by the Consolidated Framework for Implementation Research, we conducted semi-structured interviews with transgender women and their providers to explore acceptability and feasibility of implementing this

testing. Interviews were transcribed and analyzed using thematic analysis.

Results: Participants included 13 transgender women aged ≥ 40 years (6 with HIV) and 8 healthcare providers. Transgender participants agreed that cognitive function is an important health aspect, and appreciated the integration of cognitive testing into transgender care to enhance access to cognitive health services. Barriers to cognitive services included: lack of awareness of cognitive health, uncertainty about where to seek care, and perceived high costs. Transgender participants described how cognitive health received less attention during visits than other health priorities. Cognitive health stigma was not identified as a barrier, but individuals living with HIV may hesitate to seek cognition care due to fear of HIV stigma and discrimination. The tablet-based cognitive testing tool was well-received, particularly for its interactivity and ease of use. While most transgender participants indicated that the test took approximately 30 minutes to complete and expressed satisfaction with the duration, providers noted that this length could impact their overall workload. Transgender participants reported that raising awareness about cognitive health and advertising availability of cognitive services would be key for successful implementation of cognitive services in the transgender health clinic. Providers further stressed the importance of having adequate testing devices, staffing, and on-site specialists for a streamlined referral system.

Conclusions: Implementing tablet-based cognitive testing at a Thai transgender health clinic was acceptable and feasible. Addressing barriers to implementation is crucial for enhancing cognitive health services integration to the specific needs of this population.



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Co-creating an integrated gonorrhea and chlamydia testing program at community-based HIV testing centers for men who have sex with men in China

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Background: Many Chinese men who have sex with men (MSM) rarely access care through traditional healthcare channels due to social stigma. Community-based organizations (CBOs) have emerged as an important provider of HIV testing services for MSM. However, few CBOs offer integrated testing for *Neisseria gonorrhoea* (NG) or *Chlamydia trachomatis* (CT). We co-created and implemented a CT/NG testing program in partnership with six CBOs in Guangdong Province that normally provide rapid HIV, syphilis, and HCV testing for MSM as part of the PIONEER RCT (NCT05723263).

Description: From February to November 2023, we co-created a program for CT/NG testing along with 12 community MSM and 4 CBO staff members. The program was implemented from July to December 2023. CBO staff approached MSM presenting for routine HIV testing ≥ 18 years old who had not tested for CT/NG in the past year. At baseline, sociodemographic information and prior STI testing history were collected. Participants were offered pooled urethral, pharyngeal, and rectal CT/NG nucleic acid amplification testing. CBO implementors collected and pooled all samples and shipped samples to an external lab weekly. They also provided results

notification for participants through WeChat and referred positive testers for treatment at local hospitals.

Lessons Learned: 393 MSM were approached from July to December 2023. The mean age was 32.9 years (SD 10.2). At baseline, 374 (95%) reported ever testing for HIV, 372 (95%) for syphilis, and 349 (89%) for hepatitis C. Only 216 (54%) reported ever testing for NG and 211 (54%) for CT. Across all sites, 291 (74%) participants received CT/NG testing. 10 (3.4%) tested positive for NG and 60 (20.6%) for CT, including 5 CT/NG co-infections. With support from the research team, CBO staff successfully integrated CT/NG testing procedures, including counseling for results and referrals for further care, with routine workflows for HIV rapid testing. CBO leadership was critical for reaching and maintaining the trust of community MSM.

Conclusions/Next steps: Through an integrated CT/NG testing program, CBOs reached new CT/NG testers and diagnosed high rates of CT/NG in MSM at risk for HIV. Next steps include optimizing follow-up and treatment and analyzing costs so that these programs can be sustained.



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Cognitive Health Matters: Facilitators and Barriers to The Integration of A Multi-Disciplinary Cognitive Rehabilitation Programme for Persons Living with HIV(PWH) in an HIV Clinic in Malaysia :A Pre-Implementation, Qualitative Study.

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Background: In the antiretroviral therapy era, aging persons living with HIV (PWH) face increased prevalence of cognitive impairment (CI), attributed to both biological aging and long-term effects of HIV. Despite proven efficacy and widespread utilization of evidence-based cognitive interventions in the general population, a gap persists in providing targeted services to address CI in aging PWH. This qualitative study aims to explore facilitators and barriers associated with integrating multidisciplinary cognitive rehabilitation (mCR) programme into an HIV clinic, through a multidomain approach which includes dietary guidance, physical activity, cognitive training and intensive management of metabolic and vascular risk factors.

Materials and Methods: PWH attending the Infectious Diseases(ID) clinic at University Malaya Medical Centre, Malaysia, between November 2023-February 2024 were approached to participate in this study. Purposive sampling was used to ensure participant diversity; ethnicity,

gender, age (40-60 and > 60 years old) and education level. In-depth interviews were conducted using semi-structured guides developed based on the Consolidated Framework for Implementation Research 2.0 domains to explore PWHs understanding of cognitive health and their willingness to engage with an integrated mCR programme as part of routine HIV care. Participants answered a modified Patient's Assessment of Own Functioning Inventory questionnaire, to orientate them to the common symptoms of CI and they were introduced to the structure of the proposed integrated programme before interviews commenced. All interviews were audio-recorded and transcribed. Thematic analysis was used to analyse the data using Dedoose.

Results: Fourteen in-depth-interviews were conducted. The median age was 50 years (IQR:48.5-57), eight (57.1%) were males and 50% had a tertiary degree. There was a near total lack of awareness that PWH are susceptible at younger ages to cognitive impairment and its associated impact on well-being and independence. Participants also were not aware on the potential roles of multidomain interventions to address CI. Barriers to mCR integration in HIV clinics include competing priorities related to HIV specific care(CD4/viral load) and other medical comorbidities(hypertension, diabetes, dyslipidemia) deemed to be total HIV care, lack of time to discuss "non-HIV-related issues" with providers, logistic and time constraints in engaging in regular on-site rehabilitation activities, reluctance for app-based cognitive training, cost of engaging with multiple expertise and competing caregiver responsibilities particularly among women. Facilitators to service uptake following integration of mCR included if prescribed by their ID physicians, provision of a home or non-clinic-based rehabilitation programme, presence of remote support and follow-ups with the mCR teams, and self-empowerment on cognitive health motivated by their need to care for others.

Conclusion: We found a major lack of knowledge about cognitive health and the role of multidisciplinary interventions among PWH, underscoring the need for comprehensive educational initiatives to enhance awareness, promote informed decision-making, and facilitate the integration of mCR strategies as integral components of their healthcare journey. Seeking additional perspectives from other stakeholders will offer nuanced insights and will inform the development of tailored implementation



strategies that can address the specific needs and challenges, ultimately enhancing the care for PWH.



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A crowdsourcing open call for reducing hepatitis stigma among healthcare providers in China

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Background: Stigma among healthcare providers towards people living with hepatitis B and C can compromise quality of care, and negatively impact patient health outcomes. Stigmatizing perceptions, attitudes, and behaviors are common among young people but effective interventions and medical curriculum to reduce stigma among medical students are lacking. Crowdsourcing allows a group of individuals to solve a public health issue, and then share optimal solutions back to the community. We organized a university-wide crowdsourcing open call among medical students to generate community-created solutions for stigma reduction.

Methods: This open call was conducted in Nanjing Medical University with a total of 12000 students and 2000 staff. The open call involved four steps: 1) formation of a multi-stakeholder steering committee to set up rules and oversee the open call process; 2) promotion of the open call through online and offline channels, and receiving submissions; 3) screening and judging of submitted entries using pre-specified criteria and each submission was scored using a scale of 1-10 by at least 3 independent judges. A mean score of 1 indicates the poorest quality, and 10 indicates the highest quality; 4) sharing and implementing finalist ideas. Entries were accepted as text, poster or comic, and video in Chinese and English. Thematic analysis of all relevant entries was conducted to identify themes and potential solutions.

Results: The open call was conducted from September 15th to October 15th in 2023. A total of 114 entries were submitted online, and there were 9 videos, 54 posters or comics, and 51 text submissions. Thirty-three entries scored more

than 8 out of 10, with the highest score of 9.07 and the lowest score of 8.53 among the top 10 entries, which were selected as finalist submissions for future dissemination and evaluation. Among all participants, 24.6% of them had family or friends affected by viral hepatitis and 38.1% of them ever participated in hepatitis-related volunteer activities. Most participants knew the open call via a student group (46%) and social media (43%).

Of the 114 entries, 83 mentioned that public misconceptions about viral hepatitis, like hepatitis can be spread by daily contact, can be addressed by more authority-led educational campaigns. Forty-nine submissions suggested the need for legislation or enforcement of existing laws to safeguard rights among people living with hepatitis and to prevent stigmatizing practices like denial of a job position or school entrance. Forty-one highlighted that improving healthcare services, like strengthening research on medicine and public health policy can reduce the stigmatization towards people living with hepatitis, and 32 argued that a more inclusive and empathetic society, for example, getting the community involved in, can reduce the stigmatization of people living with hepatitis.

Conclusion: Within a month period of time, we solicited a wide range of entries, suggesting an open call is a feasible and viable way to engage university students in co-creating student-centered learning materials for hepatitis-related stigma reduction. Future evaluation of the effectiveness of these crowdsourced materials is needed.



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HIV-related stigma among young people growing up with HIV during transition from pediatric to adult care in Thailand: a mixed-methods study

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Background: HIV-related stigma is a significant issue for people living with HIV that can affect well-being and treatment outcomes. In this study, we explored HIV-related stigma in the perception and experiences of young people in Thailand with perinatally acquired HIV (YPHIV) and assessed their effects on healthcare transition.

Methods: We conducted the study at two sites in Chiang Mai and Bangkok. Inclusion criteria were: 1) having perinatally acquired HIV 2) aged between 18-30 years, 3) receiving antiretroviral treatment (ART) in pediatric HIV clinics (group A) or after transfer to an adult clinic (group B). Stigma was assessed by the 8-item Thai Internalized HIV Stigma Scale (IHSS), which was validated for use in measuring negative thoughts and their effects toward self, family and access to healthcare services. It rated stigma levels as low (8-15) medium (16-23) and high (24-32). In-depth interviews were performed to assess stigma and experiences during transition to adult HIV clinics.

Results: From December 2023 to January 2024 20 YPHIV were enrolled, with 10 (50%) each in groups A and B; 12 (60%) were female, median age was 23 (IQR 22-25) years, median duration on ART was 18 (IQR 15-21) years. The median IHSS score was 14 (IQR 11-17), with 2 (10%) high, 6 (30%) medium, and 12 (60%) low levels of internalized stigma. The two components with the highest scores were

anticipated negative thoughts and negative thoughts toward self.

From qualitative interviews, most YPHIV mentioned anticipated stigma. Their coping strategies included selective disclosure, avoidance of situations, and limited social activities, which allowed them to receive social support and navigate their life for years. YPHIV described enacted stigma in their childhood experiences, mostly due to prejudice and stereotypes related to their physical appearance (e.g., visible scars from past infections, short stature). Some YPHIV were discriminated against by relatives or friends (e.g., excluded from sharing meals, joining activities), and denied entrance to academic institutions or employment due to their HIV status.

YPHIV mentioned feeling safe and more comfortable in pediatric clinics with a familiar environment and well-established social networks. Those who remained in pediatric clinics were aware of the need to transition care but wanted to delay it as long as possible. The 10 YPHIV who had transitioned care reported they did not perceive anticipated HIV-related stigma while moving to the adult clinic. However, YPHIV noted adult clinics were crowded with long waiting times. It was problematic to have more frequent clinic visits with limited flexibility in appointments due to the need to excuse themselves from work/class, which led to their employers/colleagues being curious about the reasons for the frequent absences and risked unintended disclosure, which discouraged them from remaining in HIV care.

Conclusions: We found that YPHIV faced anticipated and enacted HIV-related stigma during childhood. With some coping strategies, they could manage their life in school and the community, adhere to antiretroviral treatment, and receive social support. With the presence of internalized stigma, YPHIV who transitioned to adult HIV care did not report anticipated stigma.



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Quality of Life determinants among people living with HIV: an Australian HIV Observational Database (AHOD) sub-study

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Background: As HIV treatments continue to improve longevity of people living with HIV, the focus for the clinical management is directed beyond achieving undetectable HIV viral load to include the ongoing management of other factors such as achieving good health-related quality of life (QoL). In this analysis, we will explore self-reported QoL among people with HIV in Australian HIV Observational Database (AHOD).

Methods: Participants enrolled in the AHOD were invited to participate in a QoL and socio-determinants of health sub-study. Participants self-completed a survey that included the POZQOL (a 13-item QoL questionnaire validated in people with HIV), the SF-36 (physical, functional, and mental health survey), and Berger HIV stigma scale instruments. The survey also included questions on social determinants of health, self-reported comorbidity, and ART adherence. An overall mean PoZQoL score ≤ 3.53 was used to define low or moderate QoL. The SF-36 instrument was used to determine the composite physical health (PH) and mental health (MH) scores. PH <50 or MH <50 was used to define low QoL. Significant stigma was defined as having a total score higher than the mean score using the Berger HIV Stigma scale.

Descriptive statistics was used to assess the proportion and characteristics of those with PoZQoL score ≤ 3.53 and PH/MH <50 using SF-36.

Results: To date, 99 participants consented to the sub-study. The majority were male (89%), Caucasian (88%), with a median age of 61 years (IQR 54–69). Most (76%) acquired HIV through sex with a man. The majority (95%) had an HIV viral load <50 copies/mL and a median CD4 count of 642 cells/ μ L (IQR 514–931). Most participants had a university or post-graduate education (36%), were retired or not working (46%), and had an income between \$30,000–\$99,000 (35%). The majority were socially (95%) and physically (56%) active and reported being adherent to their antiretroviral medication (94%). Almost half the participants were affected by stigma (49%), and 57% reported more than one comorbidity. Approximately a third (34%) of total participants had a PoZQoL score ≤ 3.53 and 30% had low (<50) SF-36 PH/MH scores. Participants in each group had similar HIV-related characteristics (CD4 count over 650 cells/uL; over 95% with HIV viral load <50 copies/mL) to the total study population. Majority of each group had an income $< \$30,000$ (PoZQoL ≤ 3.53 : 38%; SF-36 PH/MH <50 : 47%), experienced significant stigma (PoZQoL ≤ 3.53 : 79%; SF-36 PH/MH <50 : 57%) and comorbidities (PoZQoL ≤ 3.53 : 65%; SF-36 PH/MH <50 : 76%). More women reported PoZQoL ≤ 3.53 compared to men (60% vs 30%) and a higher proportion of Other ethnicity had PoZQoL ≤ 3.53 compared to Caucasians (54% vs 32%). Those ≤ 60 years of age had a higher proportion with PoZQoL ≤ 3.53 compared to those >60 years of age (41% vs. 28%).

Conclusions: While the sample size was small, despite favourable CD4 cell counts and controlled viremia, we found a substantial proportion of people with poor QoL. With high levels of stigma and reported comorbidities among those with poor QoL in AHOD participants, improved management of comorbidities and programs to assist with stigma reduction are necessary to improve their QoL.



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HIV-related knowledge, stigma attitudes, and intent to discriminate in healthcare settings among medical and nursing students: A cross-sectional study in Bangkok

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Background: People living with HIV (PLHIV) globally report experiencing discrimination by healthcare providers. We assessed HIV-related knowledge, stigma attitudes (worries about getting HIV infection), and intent to discriminate (intent to modify behavior in unnecessary ways) among medical and nursing students in Bangkok.

Methods: A convenience sample was chosen to enroll 4th to 6th year medical and 3rd and 4th year nursing students from 2 institutions during a 24-week period in 2022/2023. Enrolled participants completed an online questionnaire using Google Form and Moodle after providing informed consent. Differences between nursing and medical students were assessed by Chi-square for categorical variables (attitudes and intent to discriminate) and independent t-test for continuous variables (knowledge scores) using R.

Results: The survey enrolled 570 students, comprising 204 (35.8%) medical and 366 (64.2%) nursing students. Overall, the median age was 21 years and 76% were female. Fifty-seven percent of medical students and 20.2% of nursing students had ever contacted/taken care of PLHIV ($p < .001$). Of these, nursing students were more likely to use double gloves when caring for PLHIV than medical students (71.6% vs. 55.1%, $p = .022$). No significant

difference in scores on HIV transmission knowledge (6.2/9 vs. 6.3/9, $p = .12$) was observed by type of provider-in-training. Nursing students scored higher on standard precaution knowledge than medical students (8.8/11 vs. 8.4/11, $p < .0001$). Both groups reported that following standard precautions is very important. Most students (90%) in both provider-in-training groups reported not being worried or a little worried when performing non-invasive procedures (i.e., measuring blood pressure). Eighty percent of the participants reported feeling a little or somewhat worried when performing invasive procedures and 85% reported having the intention to discriminate while performing such procedures (i.e., taking unnecessary precautions or avoiding physical contact). No significant differences in stigma attitudes or intent to discriminate when providing care for PLHIV were found.

Conclusion: Medical and nursing students had moderate knowledge of HIV transmission and good standard precautions knowledge. Some students lacked experience in caring for PLHIV and showed intention to discriminate. Future interventions for medical and nursing students are necessary to reduce stigma and discriminatory behavior when providing care to PLHIV in Bangkok.



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Breaking Barriers and Stigmas: Lessons Learned from Malaysia's First Kidney Transplant on a Person Living with HIV

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Background: In Southeast Asia, an estimated 7,000 individuals with HIV infection face the challenge of end-stage renal disease (ESRD). Traditionally, patients in Malaysia encountering ESRD with HIV infection have been limited to peritoneal dialysis, lesser with hemodialysis, while kidney transplantation is a relative contraindication in national guidelines. However, the groundbreaking kidney transplant conducted at the University Malaya Medical Centre (UMMC) in 2022 heralds a transformative shift in Malaysia's medical landscape.

This abstract shares insights and reflections from this pioneering procedure, aiming to foster dialogue and inspire advancements in multidisciplinary healthcare practices with equity for all.

The man, in his 50s, prolonged battle with HIV infection, ultimately had ESRD induced by tenofovir nephropathy. His health deteriorated rapidly while on dialysis, experiencing several complications from peritoneal dialysis (PD) that significantly impacted his quality of life. Seeking a better life, he and his wife embarked on a relentless quest for a kidney transplant, consulting over ten specialists locally and overseas, only to face rejection at every turn, despite the fact that the wife volunteered to be the donor. This underscores the pervasive stigma and misconceptions surrounding HIV-positive individuals' eligibility for organ transplantation. Their strong belief and perseverance in the right to life for all individuals is a powerful message that

people living with HIV (PLHIV) are entitled to the same level of care as any other living person.

At UMMC, his case received a comprehensive evaluation, extending the workup period to six months—twice the usual duration. Multiple team discussions involving experts in nephrology, infectious diseases, and urology were conducted to ensure meticulous patient selection and evaluation. This collaborative effort tackled logistical and medical challenges for a successful transplantation. He remained well post-transplant, experiencing a notable improvement in his quality of life, aligning with the target of “fourth 95” of HIV care.

This pioneering endeavor yielded invaluable lessons. Patient advocacy and perseverance are paramount in navigating healthcare systems fraught with stigma and bias. Transplantation can be successfully performed with careful patient selection and multidisciplinary collaboration. Stigma and discrimination surrounding PLHIV's eligibility for organ transplantation underscore the need for heightened education and awareness initiatives among healthcare professionals to dispel misconceptions and eradicate stigma. Post-transplant care should closely monitor for HIV viral load, drug interactions, and quality of life, with follow-up protocols aligned with standard practices with a personalized touch. National-level policy reforms are crucial to advocate for equitable access to transplantation for PLHIV.

Conclusions: In conclusion, solid organ transplantation in PLHIV exemplifies the resilience of the human spirit in the face of adversity. By personalizing this narrative, we hope to shed light on the challenges faced by PLHIV and underscore the importance of equitable access to organ transplants. Lessons learned encompass patient advocacy, careful patient selection, combating stigma and discrimination, optimizing post-transplant care, and advocating for national-level policy reforms to ensure the inclusivity of PLHIV in healthcare systems.

This abstract invites attendees to engage in open dialogue, share their own experiences, and collectively propel multidisciplinary approaches to healthcare delivery in the Asia-Pacific region and beyond.



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Promoting Inclusivity in HIV Care: The Evolution of the Combating Stigma in HIV and Key Populations Programme (SHAKE UP!)

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Background: The National Centre for Infectious Diseases (NCID) Enhanced HIV Programme (EHIVP) in Singapore addresses the healthcare needs of a diverse cohort, including men who have sex with men, transgender individuals, people who use drugs, and sex workers. Despite NCID's expertise in HIV, communication gaps, including the use of incorrect language, create potential barriers to care and heightened stigma. In response, the EHIVP launched the SHAKE UP 2.0 programme to improve healthcare workers' sensitivity and inclusivity.

Description: In 2022, EHIVP collaborated with community groups to launch a one-day HIV sensitivity training workshop covering gender identity, sexuality, sex work, drug use, and HIV stigma. In 2023, in response to feedback, the workshop was extended to two days, incorporating additional interactive activities. There was an emphasis on refining sensitive verbal and non-verbal communication skills, along with the inclusion of a new topic on HIV basics. This addition aimed to educate participants, including new staff, on HIV, prevention, treatment, and U=U.

Lessons: The workshop experienced high demand, with over 65 participants expressing interest, but venue limitations capped attendance at 51. A pre-workshop survey (n=41) revealed 46 instances where participants witnessed staff stigmatising patients based on their sexuality, gender identity, sex work, drug use, and HIV status, highlighting the need for sensitivity training.

The workshop received a 97% overall satisfaction rating. Participants reported increased knowledge (20% increase) and confidence in sensitive communication (21% increase), as well as confidence in intervening if staff witnessed patient stigma (30% increase). All participants found the workshop relevant, practical, easy to apply, valued the new knowledge gained, and would recommend the workshop to others.

Participants valued the need for mindfulness in sensitive communications, and involving community groups in workshop development. Participants expressed transformative sentiments about the workshop's impact on their perspectives as healthcare workers.

Conclusions: Active community involvement is crucial for EHIVP's SHAKE UP programme, ensuring cultural relevance, tailoring approaches, and fostering trust. Establishing a feedback loop for continuous improvement, community involvement in healthcare initiatives challenges social norms, reduces stigma, and creates a more inclusive environment. The EHIVP plans to conduct annual workshops to promote sensitivity and inclusivity among healthcare workers in Singapore.



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Patterns of Internalized HIV-related Stigma among Youth Living with HIV in Thailand: A Cross-Sectional Study

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Background: Internalized HIV-related Stigma (IHS) refers to social views and negative stereotypes about HIV/AIDS which people living with HIV have incorporated into their self-concept. IHS may affect emotional well-being and mental health. This study aimed to characterize patterns of IHS among youth living with HIV (YLHIV).

Materials and Methods: We conducted a cross-sectional study at Buddy CU Clinic, a youth-friendly HIV service in Bangkok, Thailand. Inclusion criteria were YLHIV (1) aged 15-24 years, 2) who had acquired HIV horizontally. Mental health was routinely assessed at clinic visits using patient health questionnaires (PHQ9). PHQ9 scores were categorized as 5 to 8 mild, > 9 moderate to severe depressive symptoms. Assessment of IHS was performed using the adapted brief Thai Internalized HIV-related Stigma Scale, a series of 8 questions, consisting of 2 items in each of the following domains: negative thoughts towards self; effects of negative thoughts towards self, negative thoughts towards family or access to health care, and anticipated negative thoughts.

Results: From September to December 2023, 85 youth with a median (IQR) of age 21.3 (19.2 to 22.9) years were enrolled. Median (IQR) time since diagnosis was 32 (14 to 53) months. Participants included 71 (84%) men who have sex with men, 7 (8%) transgender women and 7 (8%) cisgender females. There were 13 (15.3%) and 19 (22.4%) participants who had mild and moderate to severe depressive symptoms respectively.

Overall, 61 (71.8%) of participants reported experiencing at least one item assessed in the stigma scale. Some 41.2% experienced negative thoughts towards self, 'I am ashamed of having HIV' or 'I have HIV due to karma'. A further 38.8%

experienced negative thoughts towards their family or access to health care, 'I have brought shame on the family' or 'I fear accessing healthcare will disclose my HIV status to others'. Another 43.5% of participants reported experiencing stigma in anticipated negative thoughts, 'others think it serves me right having HIV' or 'my relationships will be disrupted from my diagnosis'. Interestingly, only 11.8% of youth reported effects of negative thought towards self, 'I feel hopeless about my HIV'. There were no significant correlations between depressive symptoms and stigma scores.

Conclusions: Although rates of internalized HIV related stigma were high, this was not associated with hopelessness or depressive symptoms in youth living with HIV. Further study should be performed to find appropriate interventions to alleviate internalized stigma.



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Empowering Youth: PrEP4U campaign as an innovative intervention in HIV prevention and demand generation for HIV services.

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Background: HIV infections in Vietnam are increasing among young people, including students. To achieve Vietnam's goal of HIV epidemic control by 2030, it is imperative that uptake of pre-exposure prophylaxis (PrEP) be scaled up via joint efforts from HIV service delivery partners. Co-designed by USAID/PATH STEPS, Vietnam's Ministry of Health, the Ministry of Education, and youth leaders, the national PrEP4U campaign (where "U" stands for both "you" and "university") uses a suite of edutainment ("educational entertainment") activities at universities and high schools to enhance student knowledge about SRH and safer sex, and encourage the use of HIV and STI testing, PrEP for HIV prevention, and other SRH services.

Description: PrEP4U campaign employs diverse approaches such as talk shows, interactive edutainment games, integration with other sex-ed programs at schools, and booth exhibitions where students can interact with staff from community-based primary care clinics and receive HIV testing, PrEP counseling, and referrals for other services. The campaign also runs across online platforms and leverages a network of PrEP4U Ambassadors and a PrEP4U Facebook page blending informative and humorous content derived by youth to motivate viewers to seek PrEP/SRH information and services.

Lessons learned: In 2023, STEPS and partners integrated digital innovations in the PrEP4U campaign, such as 1) an online registration

platform to effectively link individuals to free STI testing and HIV services at Glink clinic; 2) an online Virtual Reality (VR) gallery showing SRH information; and 3) an online survey to evaluate SRH knowledge levels of students. From March 2022 to —September 2023, PrEP4U campaign hosted 44 offline events and reached more than 11,000 students, distributed 1,445 HIV self-test kits and enrolled 804 individuals on PrEP. The PrEP4U Facebook page has become a hub of trustworthy SRH and PrEP information for students, supporting the campaign to garner over 2.4 million views across-platform since its launch in May 2022.

Conclusions/Next steps: Youth-focused PrEP/SRH campaigns with targeted edutainment activities centered around principles of choice, equity, and people-centeredness ensures that PrEP and sex-ed knowledge resonated with different youth segments to achieve Vietnam's twin goals of ending AIDS and ensuring universal health coverage by 2030.



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Empowering Choices for Health and Beyond: A Status-Neutral Demand Generation Campaign to Proactively Combat HIV Transmission in the Philippines

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Background: According to the latest data, the Philippines is far from its 95-95-95 targets, registering at 64-66-97. Diagnosed cases are increasing, with 50 Filipinos diagnosed with HIV per day. Current approaches in HIV-related demand generation strategies include sero-sorting, risk-based, and messages involving behavior change for key populations. Here, we present #WhatWorksForU: a status-neutral demand generation campaign developed by key communities in the Philippines.

Description: A crowdsourcing inviting key populations were conducted to facilitate discussions in creating the framework of the demand generation campaign. In the discussions, the following were considered: demographics (such as age, occupation, activities during the day, etc.) and technographics (social media accounts they use, how they interact, etc.). The campaign made sure to use a range of sub-campaigns targeted at specific age groups and relationship dynamics, emphasizing self-empowerment and inspiring others to do the same. The campaign also highlighted the integration of the status-neutral approach, recognizing that HIV prevention and care is everyone's responsibility, regardless of their HIV status.

Lessons learned: The developed campaign, #WhatWorksForU, is a demand generation campaign that aims to promote HIV testing and combination prevention among individuals regardless of their HIV status and gender. The campaign's status-neutral approach recognizes that HIV care is everyone's responsibility,

regardless of their HIV status and demographics. Also, the different sub-campaigns will cater to the different needs of individuals, encouraging them to access free and/or subsidized sexual health packages and services. The sub-campaigns will also educate individuals on how to protect themselves and their partners from HIV and other STIs, depending on their specific relationship dynamics.

Conclusions/Next steps: In conclusion, the #WhatWorksForU campaign is a comprehensive approach to HIV prevention and care that aims to increase HIV awareness and combination prevention among individuals of all HIV statuses and genders. Through a series of sub-campaigns targeting different relationship dynamics and sexual experiences, the campaign empowers people to take charge of their sexual health. With the help of key people and the entire community, and the power of social media, the #WhatWorksForU campaign seeks to create a lasting impact and a world where everyone can take proactive steps to protect themselves and others.



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Empowering HIV prevention: Strategies to more meaningful engage key population (KP) and community leaders in driving tailored HIV pre-exposure prophylaxis (PrEP) communications in Myanmar

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Background: HIV in Myanmar is concentrated among KP; 2019 data shows 34.9% prevalence among people who inject drugs (PWID), 8.8% among men who have sex with men (MSM), and 8.2% among female sex workers (FSW), necessitating focused prevention efforts. Despite PrEP's introduction in July 2020, demand remains suboptimal due to low literacy and awareness, non-inclusive messaging, and stigma. Greater emphasis on community-informed/led communications is required to address PrEP demand and uptake barriers. PATH, through the USAID-funded HIV/TB Agency, Information, and Services project, led an assessment to understand and recommend strategies to enhance community engagement in PrEP awareness-raising campaigns.

Description: Our assessment comprised eight focus group discussions with 32 representatives from MSM, transgender women (TGW), FSW, and PWID communities and 30 key informant interviews with influencers, PrEP providers, and technical experts from Yangon and Kachin. Qualitative discussion/interview information was manually coded and analyzed to extract themes.

Lessons learned: Our findings showed suboptimal community involvement in existing PrEP awareness-raising initiatives. Some organizations engage KP in campaign planning and design as content/messaging creators or campaign webpage administrators, while others involve community influencers in PrEP promotional events. However, influencers' involvement tends to be short-term/one-time engagements, leading to minimal

interest in continued and/or voluntary promotion of PrEP. Greater community/peer engagement in PrEP awareness-raising and counselling is especially critical among tighter-knit PWID and FSW networks, where peer-based outreach is better received and trusted.

Participant-recommended strategies to empower KP peers and enhance community engagement in PrEP promotion include:

- Ensuring holistic community participation across the entire campaign process, from ideation and implementation to monitoring and evaluation.
- Establishing a "PrEP champions" network (with representatives across diverse KP segments) for continuous online and offline PrEP promotion.
- Adjusting messaging and sensitization efforts to address potential user and providers' questions and concerns to improve PrEP acceptance and prescription.
- Cultivating trust in PrEP by enhancing PrEP literacy via peer-to-peer mobilization, interviews with key opinion leaders/experts, and user experience-sharing.

Conclusions/Next steps: Our assessment underscored the need to engage community stakeholders more meaningfully in PrEP awareness-raising efforts to drive uptake and effective use of PrEP among populations vulnerable to HIV and enable Myanmar to reach 95-95-95 goals.



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HIV-related knowledge, attitude, and practice (KAP) among nurses towards people living with HIV in Singapore.

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Background: Despite the transformation of HIV into a treatable chronic illness through antiretroviral therapy (ART), nurses remain pivotal in addressing the multifaceted needs of people living with HIV (PLHIV), extending their roles beyond biomedical aspects to encompass social complexities. However, nurses may lack adequate HIV-related knowledge, impacting the quality of nursing care and underscoring the necessity for enhanced education and training initiatives to bridge these gaps. Effective HIV nursing care necessitates not only spending time with patients but also accurate knowledge to facilitate non-judgmental communication and comprehensively address the biopsychosocial needs of PLHIV. Hence, this study aims to expand local research on nurses' knowledge, attitudes, and practices (KAP) regarding HIV in Singapore. Current studies are outdated or narrow in scope, often focusing on low to middle-income settings and not high-resource settings like Singapore. By assessing nurses' current KAP towards PLHIV, this study seeks to inform tailored HIV education and training programmes in Singapore.

Methods: This study was conducted in two tertiary hospitals in Singapore. A sample of 350 nurses was recruited through purposive sampling, regardless of prior experience with HIV patients, and data was collected via surveys distributed during roll calls, emails, and posters. Participants completed a modified HIV KAP survey, and validity and reliability were ensured through expert review and previous studies' findings. Descriptive statistics were used for data analysis to provide insights into nurses' attitudes and practices towards PLHIV.

Results: Out of the 350 participants who were surveyed, 202 (57.7%) were from TTSH, and 148 were from NCID. 165 (47.1%) of the participants had more than 10 years nursing experience, and 210 (60%) of the participants have had ever received training/education in aspects of HIV nursing care. Nurses generally showed good knowledge by understanding that HIV does not transmit through touch (329 [94%]), and saliva (275 [78.6%]). However, only 196 (56%) of the nurses knew that PLHIV with an undetectable viral load have zero risk of transmitting the virus sexually, and 108 (30.9%) felt that PLHIV acquired HIV from sexual promiscuity. When asked if PLHIV only have themselves to blame for acquiring HIV, 38 (10.9%) agreed to the statement. 306 (87.4%) felt that PLHIV should have the right to the same quality of care as other patients. Interestingly, 64 (18.3%) felt worried that they might get HIV from caring for a PLHIV. In terms of practice, 291 (83.1%) mentioned that they practice standard precautions when caring for PLHIV, and 291 (83.1%) do advise PLHIV to adhere to their ARTs.

Conclusion: This study offers one of the initial large-scale insights into nurses' HIV-related KAP in Singapore. Despite overall positive indicators, areas for improvement exist, particularly in educating nurses about undetectable = untransmittable and dispelling transmission misconceptions. Further research should explore nurses' qualitative experiences in caring for PLHIV, informing targeted interventions to enhance holistic care provision and reduce stigma in Singapore's healthcare settings.



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Harmonizing a global vision with local action: safeguarding clients in HIV programming in Vietnam

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Background: Participants of HIV interventions, especially those from key populations, are vulnerable to sexual exploitation and abuse (SEA), child abuse and trafficking in persons. In July 2022, FHI 360 launched new global safeguarding standards to support harm reduction for program participants across all projects. The USAID/PEPFAR-funded, FHI 360-implemented EpiC project in Vietnam, which includes HIV-focused interventions, sought to align global guidance with local context and participant needs.

Description: In October 2022, EpiC Vietnam assessed the project's vulnerability, and risks that increase SEA and other harms towards program participants, the project's compliance with safeguarding actions, and implementing partners' adherence to safeguarding standards using four self-assessment checklists for project and its implementing partners.

Identified risk factors included data collection for minors, service provision for key populations, contextual challenges, gender imbalances, and supplier- and media-related risks. Project staff then formulated anti-trafficking compliance and action plans to address identified risks and harmonize global policies with local practices.

EpiC integrated safeguarding topics into trainings, adjusted consent forms, reviewed relevant local requirements, improved supplier monitoring, disseminated reporting channels, and organized awareness-raising activities. The team then conducted a reassessment in September 2023 using the same tools.

Lessons learned: EpiC Vietnam has high SEA vulnerability ratings (16 in 2022, 12 in 2023 with ≥ 4 indicating high risk) because of its work with vulnerable populations and high-risk setting. This

underscores the importance of internal compliance measures to mitigate risk and the need to ensure internal controls.

In 2022, compliance scores varied across the eight domains with pre-intervention scores ranging from 42% to 100%. Scores were developed by indicating not- (0), partially- (1), and fully implemented (2) for each question within each domain. The total score for the domain was aggregated from question scores.

Substantial improvements were observed in 2023 after the implementation of global standards. Compliance scores increased in five domains: risk assessment and action planning (2022: 83%, 2023: 92%), supplier agreements and monitoring (2022: 42%, 2023: 92%), training and capacity strengthening (2022: 50%, 2023: 100%), complaints and reporting mechanisms (2022: 67%, 2023: 83%), and awareness raising among program participants and staff (2022: 50%, 2023: 75%). Domains on staff recruitment and hiring, safeguarding focal point, and safeguarding networks maintained perfect scores across both assessments.

Challenges meeting global standards arose from discrepancies between global safeguarding requirements and local compliance and standards especially in applying more comprehensive and inter-disciplinary SEA interventions, and from common to more stringent practices (e.g., age and consent for services). With FHI 360's authorization, EpiC adapted age and consent requirements to align with Vietnamese law and strategy to promote HIV testing among younger populations. These changes worked within local standards while adhering to the goal of enhancing safety.

Conclusions: Safeguarding program participants requires significant effort. Despite strong team commitment to adopt new guidance, EpiC still faced discrepancies adapting global policy to the local context. Yet, reliance on local policies alone may prevent implementing partners from advancing efforts enough. To proactively mitigate SEA risks, ongoing efforts are required to tailor safeguarding interventions, ensure effective risk mitigation, and measure compliance.



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Clinical features-based machine learning models to separate sexually transmitted infections from other skin diagnoses

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Introduction: Many sexual health services are overwhelmed and cannot cater for all the individuals who present with sexually transmitted infections (STIs). Digital health software that separates STIs from non-STIs could improve the efficiency of clinical services. We developed and evaluated a machine learning model that predicts whether patients have an STI based on their clinical features.

Methods: We manually extracted 25 demographic features and clinical features from 1,315 clinical records in the electronic health record system at Melbourne Sexual Health Centre. We examined 16 machine learning models to predict a binary outcome of an STI or a non-STI diagnosis. We evaluated the models' performance with the area under the ROC curve (AUC), accuracy and F1-scores.

Results: Our study included 1,315 consultations, of which 36.8% (484/1315) were diagnosed with STIs and 63.2% (831/1315) had non-STI conditions. The study population predominantly consisted of heterosexual men (49.5%, 651/1315), followed by gay, bisexual and other men who have sex with men (GBMSM) (25.7%), women (21.6%) and unknown gender (3.2%). The median age was 31 years (intra-quartile range (IQR) 26-39). The top 5 performing models were CatBoost (AUC 0.912), Random Forest (AUC 0.917), LightGBM (AUC

0.907), Gradient Boosting (AUC 0.905) and XGBoost (AUC 0.900). The best model, CatBoost, achieved an accuracy of 0.837, sensitivity of 0.776, specificity of 0.831, precision of 0.782 and F1-score of 0.778. The key important features were lesion duration, type of skin lesions, age, gender, history of skin disorders, number of lesions, dysuria duration, anorectal pain and itchiness.

Conclusions: Our best model demonstrates a reasonable performance in distinguishing STIs from non-STIs. However, to be clinically useful, more detailed information such as clinical images, may be required to reach sufficient accuracy.



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Can AI Chatbots Assist Clinicians in Managing HIV-Related Opportunistic Infections? A Comparative Evaluation of Accuracy and Readability of ChatGPT 3.5, Gemini, and Microsoft Copilot

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Introduction: Opportunistic infections (OIs) are the leading cause of death in people living with HIV (PLWH). Managing OIs can be complex and requires clinicians to have readily accessible and accurate guidance. The emergence of chatbots powered by Large Language Models (LLMs) can serve as potential interactive reference tools for healthcare professionals. This study aimed to evaluate the performance of LLM-powered chatbots namely ChatGPT 3.5, Gemini, and Microsoft Copilot as support tools for junior doctors by assessing their concordance with the US Department of Health and Human Services (DHHS) guidelines on OIs (ClinicalInfo.HIV.gov: Guidelines for the Prevention and Treatment of OIs in Adults and Adolescents with HIV), along with their readability.

Methods: ChatGPT 3.5, Gemini, and Copilot were prompted with eight questions about the management of four common OIs namely cerebral toxoplasmosis, Pneumocystis jiroveci pneumonia, Cytomegalovirus retinitis, and Cryptococcal meningitis as well as the optimal time to initiate antiretroviral therapy (ART). Responses were evaluated against DHHS guidelines for concordance, and their readability assessed using the Flesch Reading Ease Score and Flesch–Kincaid Grade Level. Concordance to guidelines was rated on a Likert scale of 1 to 5 by two independent

reviewers with 1 being the least concordant while 5 is the most concordant.

Result: Gemini demonstrated the highest concordance with DHHS guidelines (mean score=3.7), followed by ChatGPT 3.5 (mean score=3.4) and Microsoft Copilot (mean score=3.0). The readability score for all LLMs ranged from 9.5-17.6 for the Flesch Reading Ease Score and 14.2-16.2 for the Flesch–Kincaid Grade Level indicating that the responses required university graduate level understanding. Only Gemini and Microsoft Copilot cited references. All three LLMs emphasized they cannot provide medical advice and recommended consulting healthcare professionals. All LLMs could provide recommendations but their details varied, particularly in types of antimicrobial and dose, treatment duration, and chronic maintenance therapy. For toxoplasmosis, all chatbots demonstrated commendable concordance as they were able to provide first-line treatment therapies and nuanced approaches to ART, but no specific drug dosages on Gemini and Copilot. All LLMs offered accurate information about preferred treatments for Pneumocystis pneumonia (except Copilot), alternative therapies (except Gemini), and adjunctive corticosteroids. Responses for Cytomegalovirus retinitis treatment aligned well with DHHS guidelines, except for Copilot, which lacked individualized therapy choices and preferred regimen details. All LLMs responses for Cryptococcal meningitis treatment included overviews of induction, consolidation, and maintenance therapy. However, Gemini and Copilot's responses lacked duration for treatment phases, and Copilot suggested initiating ART within two to four weeks after starting antifungal therapy, which deviates from DHHS guidelines which recommended within four to six weeks.

Conclusion: The concordance of LLM responses with DHHS guidelines varied, with Gemini demonstrating the highest concordance. LLMs may support self-directed learning and provide valuable clinical decision support for junior doctors but should only be used as a supplement to established guidelines and expert consultation. Managing OIs in PLWH necessitates a personalized approach and adherence to ethical standards. While chatbots hold potential in infectious disease management, continual training, development, and updates are crucial to ensure reliable guidance.



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Improving Treatment Management Efficiency and Outcomes of People Living with HIV Using an Online Reservation Application in Laguna Medical Center, Philippines

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Background: By the end of December 2022, among total enrolled clients in the Philippines (N=86,792), 23% had interrupted treatment. Focused group discussions and interviews highlighted ineffective case management due to burdened human resources as a common problem contributing to treatment interruption.

With the implementation of QuickRes - an online service booking platform launched in 2022, Laguna Medical Center (LMC) and PEPFAR USAID-supported Meeting Targets and Maintaining Epidemic Control (EpiC) Project saw the opportunity of maximizing QuickRes for client task management and prioritization.

Description / Methods: With other service delivery approaches such as multi-month dispensing, enhanced case management, and decentralized drug distribution, QuickRes' online reservation function was used to schedule and set reminders for client refills and arrange client queuing per day. The LMC staff, composed of 1 doctor, 1 nurse and 1 case manager, prioritized the client refills and other requested HIV services per day based on the specified needed time and risk assessment results in QuickRes.

Lessons Learned / Results: By September 2023, LMC has 382 clients currently on ART visiting quarterly for medication refills. Among these clients, 245 (64%) booked their refills through QuickRes. These clients are prompted and reminded of their next visit schedules using the SMS function of QuickRes.

With the use of QuickRes, LMC has improved the time spent with each client from 30 minutes to 1 hour per client to 15 mins per client refills and 30 minutes for in-depth client consultation. From 7% treatment interruption in March 2023, LMC was able to reach 5% by the end of September 2023.

Conclusion: Advances in technology such QuickRes, can support the service delivery process and optimize use of time of limited human resources. Alleviating the burden of staff for task management can improve efficient implementation of case management approaches for better client outcomes.



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Implementation and Evaluation of Electronic Patient Reported Outcomes (ePRO) in Japanese Clinical Practice

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Background: In the realm of HIV treatment, the emphasis has shifted towards maintaining a high healthcare-related quality of life. Achieving this necessitates patient-centered care, wherein the integration of patient-reported outcomes (PROs) into clinical practice has proven instrumental. Herein, we introduce a novel cell phone application designed for real-time PRO monitoring within clinical settings. This study presents the findings from a feasibility test evaluating the application's viability.

Methods: Between July and December 2022, individuals living with HIV (PLWH) receiving care at Teikyo University Hospital were recruited with informed consent for utilizing the cell phone application as an electronic (e)PRO in their medical management. Subsequently, PLWH were tasked with responding to HIV-Symptom Index queries via the ePRO tool between one week prior to and on the day of the scheduled clinic visit. The obtained ePRO data were incorporated into their clinical evaluation during the subsequent visit. Post-ePRO usage, participants completed a questionnaire assessing their experience with the tool, including its perceived usefulness. The collected ePRO data were analyzed, and its impact on clinical decision-making was evaluated based on medical record entries.

Results: Twenty-seven PLWH were enrolled in the study, with their ePRO data analyzed for insights. Notably, over 40% of participants reported experiencing symptoms related to mental health, such as nervousness, anxiety, and sleep disturbances. Feedback from the post-usage survey indicated unanimous agreement among respondents regarding the usefulness of ePRO in their routine medical assessments, with 76% expressing a desire to continue its use. Moreover,

17 cases (63%) prompted referrals to other medical departments, and one case led to the identification of a previously undetected medical condition.

Conclusions: The findings underscore the potential of ePRO in enhancing the quality of care within real-world clinical contexts. Future endeavors will focus on longitudinal investigations to further elucidate the utility of ePRO in clinical practice.



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Is there demand for long-acting injectable cabotegravir for HIV prevention in Australia? Results from a cross-sectional survey of men who have sex with men

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Background: Oral HIV pre-exposure prophylaxis (PrEP) is currently the most common method of HIV prevention in Australia among gay, bisexual, and other men who have sex with men (GBMSM). Long-acting injectable cabotegravir (CAB-LA) has received regulatory approval in Australia but is not yet available. This analysis aims to assess the demand for CAB-LA, and the characteristics of participants who are likely to take CAB-LA.

Material and methods: An online cross-sectional survey was conducted in Australia between May–November 2022 among GBMSM aged 18 or over, self-reported as not living with HIV, and reported about their willingness to take existing and hypothetical forms of PrEP. Participants were recruited through social media and gay dating apps. Demographic and behavioural characteristics of participants who were willing to take CAB-LA were compared with those who were not willing using logistic regression.

Results: We recruited 1,687 GBMSM in this study. The mean age was 40.2 years (SD=12.7). Most participants identified as either gay (n=1,294, 76.7%) or bisexual (n=296, 17.6%). Approximately half (n=929, 55.1%) had a university education and 1,149 (68.3%) were in full time employment. In our

sample, 1070 (66.2%) had ever taken PrEP, and 359 (21.7%) had heard of CAB-LA prior to the survey. In this sample, 423 (25.1%) were willing to take CAB-LA. Among PrEP-experienced participants, 343 (32.1%) were willing to take CAB-LA which was higher compared to PrEP-naïve participants (n=80, 13.0%). The most common reasons they would use CAB-LA included not needing to remember to take pills (n=1,097, 65.0%), protection from HIV (n=1,076, 63.8%) and long-term protection compared to other methods (n=791, 46.9%). Common concerns included not knowing enough about it (n=788, 46.7%), cost (n=752, 44.6%) and potential side effects (n=547, 32.4%). There were 654 (40.3%) participants who would only use CAB-LA if they could switch back and forth with other forms of PrEP, and 425 (26.4%) thought it would be easy to switch between CAB-LA and oral PrEP. Participants were significantly more likely to be willing to take CAB-LA if they were in full-time employment (aOR=1.41, 95%CI=1.05-1.88, p=0.021), have ever taken PrEP (aOR=1.95, 95%CI=1.36-2.79, p<0.001), had 11 or more sexual partners in the last six months (compared to fewer; aOR=1.52, 95%CI=1.16-2.01, p=0.003), knew some people on PrEP (aOR=1.54, 95%CI=1.13-2.09, p=0.006), would consider trying CAB-LA if it was more effective than oral PrEP (aOR=2.04, 95%CI=1.44-2.88, p<0.001), and belief that CAB-LA will be more effective than event-driven PrEP (aOR=1.49, 95%CI=1.10-2.01, p=0.009)

Conclusions: Up to one third of Australian GBMSM would be willing to use CAB-LA, with a higher likelihood observed in PrEP experienced GBMSM. Those with PrEP experience who would prefer not taking pills may benefit from long-acting protection. However, more work is needed to address concerns about cost and side effects, and generally increasing awareness of CAB-LA's effectiveness. Flexibility in switching between PrEP options also was important for participants. As PrEP programmes introduce CAB-LA in conjunction with oral PrEP, simplified guidance on switching between PrEP options may enhance interest in and uptake of CAB-LA.



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HIV-related service use and preferences among key populations (KPs) in Vietnam: Results from a consumer study to support the private sector with strategies for HIV prevention services.

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Background: The Government of Vietnam has permitted private hospitals and clinics to offer HIV related services, increasing accessibility for individuals willing to pay for services rather than rely on state-run facilities. This interest in paying for services represents an opportunity for providers such as key population (KP) led Community Based Organizations (CBOs) and social enterprises (SEs). Consumer research is thus critical to support the private sector with investment, demand generation, and guidance strategies for HIV prevention services.

Methods: From July to October 2023, a cross-sectional study involving 3,370 KPs (transgender women (TGW), men who have sex with men (MSM), people who inject drugs (PWID), people living with HIV (PLHIV), and sero-discordant couples (SDCs)) was conducted across 12 selected provinces in Vietnam. The study employed a mixed-methods approach, combining qualitative and quantitative methods to characterize the healthcare services utilization, preferences, and willingness to pay among KPs.

Results: 3,730 participants were enrolled in the study with an average age of 29 years. In terms of socioeconomic status, mean monthly income was at 8.1 million VND, and the majority of participants were employed as daily laborers, in construction, or drivers (20.9%), followed by the entertainment sector (14.4%), and office workers (13.4%). Approximately 70% had used community testing,

condoms, lubricants and antiretroviral therapy (ARTs), while access to Post Exposure Prophylaxis (PEP), HIV self-tests and low dead space syringes among PWID was limited. Strong preference for non public sector services was observed for all HIV-related services. Private clinics and those led by KPs were preferred for PrEP (Pre Exposure Prophylaxis) and PEP, community based organizations for testing services (HIV-testing and HIVST), and public facilities for ART. Notably, a significant percentage expressed willingness to pay for HIV related services and commodities, with ART and HIV testing being the highest (84%).

Conclusions: The study reveals a strong preference and willingness to pay among KPs for non-public HIV services in Vietnam. The results highlight opportunities to engage private and community providers to address unmet needs and leverage willingness to pay. Targeted initiatives to build private sector HIV service capacity and demand creation are warranted, particularly for testing, PrEP, PEP and harm reduction.



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iPARTY2: Increasing Pre-Exposure Prophylaxis (PrEP) Access and Reach through Telehealth for Young Men Who Have Sex with Men (YMSM) in Singapore 2022-2023

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Introduction: The iPARTY Project discovered that PrEP telehealth services seemed feasible, acceptable, and in demand among young men who have sex with men (YMSM) in Singapore. Our objective is to continue evaluating daily PrEP adherence, risk compensation-informed sexually transmitted infections (STIs) counselling service and the demand for PrEP services.

Description/Methods: We enrolled self-reported HIV-negative YMSM aged 18-29 in Singapore for participation in this 12-month demonstration project. The majority of consultations were conducted through a secure telecommunications platform, while laboratory tests, baseline and quarterly surveys were performed to assess PrEP adherence, sexual behaviour, and the incidence of HIV and sexually transmitted infections (STIs). All consultations, tests, and generic daily PrEP were provided at no cost.

Lesson Learned:

- Between June 2021 and 2022, 53 participants were enrolled and 35 participants (66%) completed the 12-month follow up. The median age of the cohort was 24 years old, with the majority being of Chinese ethnicity (69.81%), followed by Malay (22.64%) and Indian (7.55%) participants.
- We observed a significant decrease in self-reported PrEP adherence among participants consistently taking 7 pills per week, the adherence

rate declined from 55.56% at Visit 2 to 37.14% at Visit 5.

- At visit 5, there was a reduction in reported condom use for anal intercourse with both regular and casual partners. Specifically, the rates decreased from 15 out of 53 (28.30%) to 4 out of 35 (11.43%) for regular partners, and from 30 out of 53 (56.60%) to 10 out of 35 (28.57%) for casual partners.
- A slight increase in STI incidence was observed after PrEP initiation among participants; nevertheless, the overall number remained consistent (n=6, visit 1; n=10, visit 5)
- The majority of participants provided positive feedback regarding teleconsultation and all participants showed a keen interest in continuing daily PrEP, even if physical consultations were required.

Conclusion: The real-life findings of this pilot project have shown that PrEP provides an opportunity for YMSM to access sexual health testing, treatment and counselling. Additional efforts should be directed towards improving daily PrEP adherence. Collaborative initiatives are crucial to enhance the affordability and accessibility of PrEP in Singapore, with the support of telehealth services.



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Barriers and facilitators of pay-it-forward interventions for HIV/STI research: A systematic review and qualitative evidence synthesis

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Background: Pay-it-forward interventions involve someone receiving a free health service, then making a monetary or non-monetary donation to support someone else's health service. Pay-it-forward interventions have been used to distribute HIV self-test kits, increase STI test uptake, and distribute sterile needles. The purpose of this qualitative evidence synthesis was to examine barriers and facilitators of pay-it-forward interventions in HIV/STI research.

Methods: We used the Cochrane Handbook and registered the review in PROSPERO (CRD42024499448). Five databases (PubMed, CINAHL, Embase, PsycInfo, Scopus) were searched for qualitative studies on pay-it-forward interventions in HIV/STI research. Thematic synthesis was used to summarize findings. CASP was used to assess the quality of individual studies; GRADE-CERQual was used to assess confidence in review findings.

Results: Twenty-six studies examined pay-it-forward interventions. Twenty studies assessed secondary distribution of HIV self-tests (i.e. distributing HIV self-tests within social networks); five assessed secondary syringe exchange; and one assessed a pay-it-forward approach for STI tests. Studies included heterosexual partners (10 studies), LGBTQ individuals (eight studies), people who inject drugs (seven studies), pregnant women (seven studies), and female sex workers (five studies). Study settings included high- (seven studies), middle- (12 studies), and low-income countries (10 studies).

Pay-it-forward interventions increased participant agency and informed sexual and injection decisions (14 studies, moderate confidence). Distribution was motivated by altruistic concern for the health of partners, clients, and peers, sometimes with moral obligations (11 studies, moderate confidence). In established marital, sexual, and peer relationships, distribution was mediated by mutual trust and responsibility, aligning with an ethic of care (16 studies, moderate confidence). Though uncommon, distribution to peers without a prior relationship was facilitated by a shared social identity (10 studies, low confidence). For female partners and sex workers, the key barrier to distribution was anticipated negative recipient reactions, especially violence and abandonment (15 studies, moderate confidence).

Conclusion: Pay-it-forward interventions leverage agency, altruism, and relationality to decrease HIV/STI transmission among key populations. Social network distribution can empower participants as health agents and draw on a propensity for care to enhance HIV/STI services.



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Strengthening Community Systems: A strategic advancement for sustainable HIV Response in India

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Background: The National AIDS Control Programme (NACP) in India places communities at the forefront of its HIV/AIDS response. Community System Strengthening (CSS) is pivotal in achieving program goals, focusing on targeted interventions, reducing stigma, enhancing treatment literacy, and fostering community involvement. To fortify Community System Strengthening (CSS), a community resource pool of 100 Community Master Trainers was created at the national level, taking into account typology (MSM, FSW, PWID, PLHIV, and H/TG), geography, and linguistic requirements as well as over 4900 Community Champions at sub-national level (state and district level). The master trainers underwent a comprehensive training program aimed at addressing the dynamic challenges in CSS whereas Community Champions were trained on the 6 thematic areas identified and prioritised for capacity building through need assessment.

Description: As one of the core components of community system strengthening initiative under NACP - V, Community Resource Pool at the national and sub-national level has been created aiming to be available for their communities as well as with the NACP. The capacity building modules were developed referring to the priority areas identified through need assessment in consensus with the community experts. The Training Program for Master Trainers on CSS aims to update their knowledge, enhance training and facilitation skills, foster networking, and promote innovative approaches. Covering six thematic modules and additional sessions, the program ensures comprehensive skill development. Followed to the Expression of Interest released by the SACS/DACS, interested community representatives identified as Community Champions through a rigorous process led by the

Community Resource Group. Capacities of these identified Community Champions were built by engaging Master Trainers from the regions. The training covered essential components, including advocacy, community networks, linkages, partnerships, coordination, resource mobilization, demand generation, organizational and leadership strengthening, and CLM with knowledge management. Community Champions are local resources for the community members to link with services, and advocate for the community issues/concerns identified including stigma and discrimination for their redressal.

5861 Community Champions were selected from 9801 nominations received against the EoI released for Community Champions. 4965 Community Champion are trained against the total training load of 6722 in 34 States/UTs through 176 batches by engaging 72 Master Trainers.

Lessons Learnt: A community resource pool of the 100 master trainers has been created at the national covering all typologies across geographies and over 4900 community and sub-national level with the representation of communities (2 CCs from each of the typologies in each of the districts) and is available for communities. The dynamic nature of community systems requires ongoing training and adaptability through refresher training batches. The role of CCs is found crucial in linking with community hard-to-reach and hidden populations.

Conclusions/Next Steps: Periodic refresher training is vital for addressing evolving challenges. Expected outcomes include optimized service delivery, enhanced organizational capacity, accessible evidence-based services, and strengthened monitoring and evaluation systems. Empowering Community resource pool supports sustainable CSS interventions, aligning with India's commitment to end AIDS by 2030.



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The differences in attitude and willingness to recommend PrEP among health personnel in rural and urban areas of Iloilo, Philippines

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Background: Antiretroviral Pre-Exposure Prophylaxis (PrEP) has revolutionized HIV prevention and is currently undergoing nationwide implementation in the Philippines. Issues such as limited knowledge of PrEP, moralistic attitudes among healthcare personnel, and stigmatization of PrEP users have been well-documented, leading to obstacles in its adoption. This dearth of data on PrEP-related barriers in Iloilo could hinder national efforts to combat HIV in the Philippines. This study aims to compare the knowledge, attitudes, and willingness to recommend PrEP among health professionals in rural and urban areas of Iloilo, Philippines.

Methods: An online cross-sectional survey was conducted from January 5 to February 20, 2024, utilizing an adapted, validated questionnaire. Demographic data included age, gender, religion, occupation, location, years of experience, and hospital level. Additional aspects covered were years of experience, hospital level, availability of HIV PrEP, management of key populations at risk, and patient load. It also gauged knowledge of PrEP (10-item, true/false), attitude towards PrEP (negative attitude=1-2, neutral=3, positive attitude=4-5), and willingness to undergo HIV testing (0-not willing; 9-very willing). Data analysis utilized descriptive statistics, composite scoring for knowledge and perception, and multivariable regression analysis.

Results: Among 142 participants, the mean age was 36.4 years (SD=12.9), with 37.12% male and 62.88% female. Most were Roman Catholic (84.85%), with 12.88% medical doctors, 53.79% nurses, and 33.33% others. The majority worked in rural areas (55.30%), with an average of 4.92 years

of experience (SD=2.57). About 23.48% had access to HIV PrEP, and 68.18% had managed key populations at risk. The mean willingness to recommend PrEP was 5.25 (SD=2.09), with an average knowledge score of 13.73 (SD=0.0648). Health personnel located in urban areas displayed higher knowledge levels of PrEP compared to those in rural areas (64.3% vs 35.7%, $p=0.001$) and exhibited greater willingness to recommend PrEP (55.4% vs 44.6%, $p<0.001$). Composite scores indicated positive attitudes: positive attitude of health personnel in rural areas (mean=3.54, SD=0.71), positive attitude of health personnel in urban areas (mean=4.27, SD=0.71). Multivariable regression analysis demonstrated positive associations between knowledge of PrEP, attitudes toward PrEP, and willingness to recommend PrEP (aOR=7.91; $p=0.012$ and aOR=3.28; $p=0.03$, respectively).

Conclusion: A study conducted in Iloilo, Philippines, underscores differences in attitudes and willingness among healthcare personnel regarding recommending Pre-Exposure Prophylaxis (PrEP), with variances observed between rural and urban areas. It emphasizes the importance of improving PrEP knowledge and promoting its recommendation, especially in rural settings, to bolster HIV prevention efforts. The findings suggest the necessity for collaborative interventions aimed at ensuring equitable access to and utilization of PrEP across various healthcare settings.



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A global review of national guidelines of post-exposure prophylaxis for the prevention of HIV

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Background: The World Health Organization (WHO) recommends the use of antiretroviral drugs as post-exposure prophylaxis (PEP) for preventing HIV infection for occupational and non-occupational exposures. To inform the development of global WHO recommendations on PEP, we reviewed national guidelines of PEP for their recommendations.

Methods: Policies addressing PEP from 38 WHO HIV priority countries were obtained by searching governmental and non-governmental websites and consulting country and regional experts; these countries were selected based on HIV burden, new infections and the number of HIV-associated deaths. We reviewed national guidelines published as of August 2023 to collate data on where PEP can be offered, who can prescribe PEP, PEP eligibility, recommended drug regime, linkage to other interventions, recommended investigations prescribed with PEP, HIV self-test recommendation related to PEP and stopping rules for PEP.

Results: In total, 46 guidelines across 36 countries were included, with the majority (70%) of documents published on or after 2020. There was significant variation across guidelines regarding where PEP can be accessed and who can provide or prescribe PEP. Six countries (17%) described being able to access PEP from a primary care facility, four countries (11%) from hospitals and two (6%) from community-based services. Only three countries (8%) specifically considered dispensing PEP by professionals other than doctors

(e.g. nurses). None mentioned pharmacists as prescribers. We found a lack of consistency across countries regarding who is eligible for PEP, regimens used, interventions integrated into PEP provision and recommended investigations for PEP users. No country guidance provided considerations on using HIV self-tests for starting or after stopping PEP.

Conclusions: Despite PEP being recommended for more than three decades, many national policies were inconsistent or lacking in terms of PEP guidance. The findings from this review underscore the need for a globally unified approach to PEP recommendations that is in line with best practices and the latest evidence. This should include recommendations for decentralisation and task-sharing to achieve sufficient scale for impact. Improving timely access to PEP among those who need it would contribute to reducing the incidence of HIV globally.



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Pay-it-forward gonorrhoea and chlamydia testing among men who have sex with men and male STD patients in China: Interim findings from the PIONEER pragmatic, cluster randomized controlled trial.

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Background: Sexual health services are closing or being restricted in many jurisdictions because of limited funds. Pay-it-forward (PIF) interventions, where individuals receive a free healthcare service (test) accompanied by personalized messages and an opportunity to support others through donations, may increase STD test uptake and generate funds. We report interim results from a PIONEER trial in China, which evaluates PIF strategies that encourage gonorrhoea/chlamydia testing among men compared to the standard-of-care.

Methods: The PIONEER study (NCT05723263) is a cluster RCT comparing PIF implementation strategies for promoting dual gonorrhoea/chlamydia testing in 12 clusters (six MSM-led and six public STD clinics) in six cities in Guangdong Province, China. Men were recruited 2:1 into pay-it-forward compared to standard-of-care (self-pay). Men over 17 years old and not tested for CT/NG in the last six months who were seeking STD care services at an MSM-led or public STD clinic were recruited. The primary outcome was gonorrhoea/chlamydia testing. Pre-specified subanalyses focused on MSM compared to non-MSM participants, clinic type (MSM-led or not), and PrEP eligibility (based on number of sexual partners, engagement in unprotected sex, and HIV

testing). The uptake between PIF and standard-of-care was compared using Chi-square and GEE analyses.

Results: By December 18, 2023, 617 men, with an average age of 34 years (SD=11.2), were recruited into the standard-of-care (n=177) and PIF arms (n=440). Overall, 63.9%(n=395) reported sex with other men, 72.6%(n=442) had ever tested for HIV, and 34.4% (n=212) were PrEP-eligible.

Gonorrhoea/chlamydia testing uptake was 71.3%(n=440) in the PIF arm and 3.4% (6/177) in the standard-of-care arm. 25.2%(n=111) of PIF participants donated 267 USD. Testing uptake was significantly higher in the PIF than in the control arm (proportional difference: 70.0%; 95%CI=63.60%~76.90%). In subgroup analysis, more MSM than non-MSM participants (proportional difference:24.3%; 95%CI=0.21~0.29) tested for gonorrhoea and chlamydia. Testing was also higher among MSM-led clinic participants than public STD clinic participants (proportional difference:22.4%; 95%CI=0.19~0.26) and PrEP-eligible participants than non-eligible participants (proportional difference:8.9%; 95%CI=6.70~11.60).

Conclusions: The PIF intervention increased gonorrhoea/chlamydia testing among men in diverse settings. Hence, scaling up PIF could potentially promote other STD services uptake and improve financial support for differentiated HIV prevention services.



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Preferences and Acceptability of Testing for Sexually Transmitted Infections in an HIV pre-exposure prophylaxis clinic in Hanoi, Vietnam

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Introduction: Men who have sex with men (MSM) on HIV pre-exposure prophylaxis (PrEP) have high rates of STIs and routine testing is recommended by many guidelines. Understanding STI testing preferences and the acceptability of self-collected specimens are important for improving uptake of STI testing within this population. We assessed feasibility and acceptability of self-collection for STI testing and used conjoint analysis to identify factors associated with preferences for STI testing among MSM who use PrEP in Hanoi, Vietnam.

Methods: From January 10 to December 16, 2022 we recruited MSM, aged 16 and older, enrolled in the HIV PrEP program at the Sexual Health Promotion. Study participants self-collected pharyngeal, anal, and urine samples for Chlamydia trachomatis (C. trachomatis) and Neisseria gonorrhoeae (N. gonorrhoeae) testing. Data were collected on behaviors, experience and acceptability with sample self-collection, and testing preferences. Eight hypothetical C. trachomatis/N. gonorrhoeae testing profiles were created varying across five testing attributes for conjoint analysis. Participants were asked to rate each profile using Likert preference scales (0 to 5). An impact score was generated for each attribute by taking the difference between the two scores. A two-sided one-sample t-test was used to assess for differences and generate p values.

Results: In total, 529 participants out of 591 men, who were referred to study, were included. All were male and the median age was 25.1 years (IQR: 21.7-29.5). Specimens from all three sites

were provided by 97.9% (518/529). Mean satisfaction with self-collection was 4.3 (SD 1.0), and 99.4% reported they would perform again. Conjoint analysis revealed that cost (free vs. US\$17) had the highest impact on preference (Impact Score: 25.2 p <0.001). For the attribute 'Time to test result notification' 1-week was significantly preferred to 90 minutes (Impact Score: -0.8; p =0.03).

Conclusion: Our study found high acceptability of sample self-collection for STI screening in MSM PrEP clients in Vietnam. The findings indicate that testing cost was the most important factor for testing uptake. Self-collection and innovation to lower cost for STIs could promote uptake of STI screening among MSM.



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Abstract 176 has been withdrawn.



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Pre-Exposure Prophylaxis (PrEP) option preferences among sex workers (SW) in seven provinces in Thailand: a national cross-sectional study

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Background: Despite Thailand offering free PrEP under Universal Health Coverage since 2019, only 8% of users are sex workers (SW) – males (MSW), females (FSW), and transgender females (TGSW) - Thailand Ministry of Public Health, 2023. As part of a PrEP study among SW in Thailand, current PrEP uptake status and preferred PrEP options reported by SW were investigated.

Methods: A national cross-sectional study was conducted from April-December 2023 by SWING Foundation and BIRD (Bangkok Interdisciplinary Research and Development) in seven provinces in Thailand. This study investigated PrEP uptake and associated factors among SW using a questionnaire that included questions on current PrEP status and preferred PrEP options: i) PrEP oral dose; ii) long-acting injectable cabotegravir (CAB-LA); and iii) PrEP vaginal ring. Regarding PrEP options, interviewers provided information on these, mentioning that some options have not yet been registered in Thailand. The study enrolled a total of 1,511 Thai SW (FSW: 621 – MSW: 452 – TGSW: 438), aged ≥18 years old, HIV-negative, and engaged in sex work in the past three months. Data collection was conducted face-to-face by trained outreach workers.

Results: The median age of SW was 32 years. Out of the total, 35.9% had started sex work in the past 12 months, 136 (9.0%) reported currently using PrEP, 370 (24.5%) reported not being interested in PrEP, and 898 (59.4%) were willing to initiate PrEP. After explanation of the different options, injectable CAB-LA was the most preferred option (FSW: 43.6%; MSW: 40.0%; and TGSW: 43.6%)

followed by daily oral dose (FSW: 30.6%; MSW: 28.8%; and TGSW: 38.1%). Among SW who reported not being interested in PrEP (n=370), after receiving further information, 71.8% selected a PrEP option, with 40% stating a preference for CAB-LA and 17.3% for daily oral dose.

Conclusions: Information provided to SW about different PrEP options can increase demand among those previously reporting no interest. Such information enabled interested SW to select the PrEP option best suited to their needs. Enhanced information provision for SW will be needed for PrEP scale up. Different PrEP options need to be made available and accessible for SW, including affordable injectable CAB-LA, in the public health system.



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Ground-Up Harm Reduction Practices for Chemsex in the Context of Punitive Drug Laws: A Qualitative Study Among Sexual Minority Men in Singapore

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Background: Harm reduction responses for chemsex remain suboptimal around the world, and are limited by the presence of punitive drug laws. This qualitative study explored how sexual minority men in Singapore, in the absence of a formal or state-driven harm reduction framework, rely on ground-up approaches to negotiate harm reduction in the context of chemsex.

Methods: Semi-structured in-depth interviews were conducted with 33 purposively sampled GBMSM seeking treatment for chemsex in Singapore. Interview topics included participants' experiences and life histories of chemsex, substance use, incarceration, trauma, and ongoing recovery from chemsex. Interviews were audio-recorded and transcribed verbatim. Data were analyzed via inductive thematic analysis.

Results: Participants articulated a context characterised by punitive drug laws and a lack of formal and safe resources for Chemsex. In light of this, participants highlighted several ground-up means through which they navigated harm reduction in the context of Chemsex. First, at the individual level, participants learnt through their interactions with others how to develop personalised safe drug use practices. These included safety in the context of dosing and mixing drugs, routes of administration, and recognising dependence. Second, at the interpersonal level, participants articulated issues around negotiating safety during Chemsex sessions, including how to recognise overdose and harms typically associated with Chemsex, protecting oneself from sexual transmissions, and learning how to trust others.

Third, at the community level, participants learnt how to stay safe from drug enforcement agencies, including developing a 'safe' lexicon of drug use terminologies, understanding the evolving enforcement practices that such agencies undertook, as well as techniques of seeking out necessary formal health services while navigating risks of prosecution. Nevertheless, participants also recalled instances in which reliance on ground-up knowledge sometimes led to experiencing harms associated with Chemsex. Furthermore, reliance on informal harm reduction knowledge was premised on interpersonal trust and social capital, which varied across individuals and threatened to widen inequities in harm reduction vulnerabilities and practices.

Conclusions: Communities engaging in Chemsex exhibit the ability to develop ground-up harm reduction practices even in the absence of formal frameworks. Community interventions may leverage such ground-up dynamics should to address gaps that deepen harm reduction inequities.



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Factors associated with Pre-Exposure Prophylaxis (PrEP) uptake among female, male and transgender female sex workers in seven provinces in Thailand

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Background: Despite Thailand offering free PrEP under Universal Health Coverage since 2019, only 8% of users are sex workers (SW) - males, females, and transgender females (Thailand Ministry of Public Health, 2023). On the basis of these findings, a national PrEP study among SW of all genders was conducted to investigate PrEP uptake and associated factors.

Methods: A cross-sectional study, led by SWING Foundation and BIRD (Bangkok Interdisciplinary Research and Development), was implemented between April and December 2023. The study enrolled Thai male sex workers (MSW), female sex workers (FSW) and transgender female sex workers (TGSW) in hotspots, aged ≥ 18 years old, HIV-negative, and engaged in sex work in the past three months. To identify factors associated with PrEP uptake, covariates with a p-value < 0.20 in the univariable analysis were entered into the full logistic regression model (backward selection). Adjusted odd ratios (AOR) with 95% confidence interval were calculated.

Results: A total of 1,511 SW from seven provinces were enrolled: 621(41%) FSW, 452(30%) MSW, and 438(29%) TGSW. FSW were more likely to be older (median age 37 years old) than TGSW (31 years old) and MSW (30 years old). PrEP uptake was low across the SW population (9%). However, TGSW (65 –14.8%) and MSW (63–13.9%) were more likely to report PrEP use than FSW (8–1.3%). In multivariable logistic regression, key factors associated with PrEP uptake ($p < 0.05$) included:

metropolitan sites (Bangkok: AOR = 2.34–Pattaya: AOR = 3.67); study populations (MSW: AOR = 8.41–TGSW = 3.81); HIV testing in the last 12 months (AOR = 6.77); sexual violence in the last 12 months (AOR = 2.07); more than 5 clients in the past week (AOR = 2.05); good knowledge of PrEP (AOR = 4.05); and know of peer using PrEP (AOR = 1.76). Reporting any concerns on PrEP was inversely associated with PrEP use (AOR = 0.42).

Conclusions: PrEP uptake among SW in studied sites remains low despite free PrEP, reported high-risk behaviors and unsafe work environments. Improving risk awareness, enhancing PrEP knowledge and reinforcing HIV testing are crucial for PrEP scale up among SW. PrEP influencers can be mobilized in support.



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High prevalence of gender-based violence among female, male and transgender female sex workers in seven provinces in Thailand – A cross sectional study

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Background: Sex workers (SW) are particularly vulnerable to different forms of gender-based violence (GBV) resulting in significant consequences in physical and mental health and impeding access to health, social and legal services. The issue of GBV is not included in the HIV response in Thailand (National Strategy to End AIDS, 2017-2030). As part of a national PrEP study among SW in Thailand, the prevalence and types of GBV reported by SW were studied.

Methods: A cross-sectional study, led by SWING Foundation and BIRD (Bangkok Interdisciplinary Research and Development), was implemented between April and December 2023. This study explored PrEP uptake and associated factors using a quantitative questionnaire, which included GBV-related questions, administered face-to-face to respondents. A total of 1,511 SW was enrolled including Thai male sex workers (MSW), female sex workers (FSW) and transgender female sex workers (TGSW), aged ≥18 years old, HIV-negative, and engaged in sex work in the past three months. A descriptive analysis was conducted using univariate analysis. Pearson's chi-squared test was used to determine the relationship between two variables examined during this analysis.

Results: The total sample included 621 FSW (41%), 452 MSW (30%), and 438 TGSW (29%). The median age of SW was 32 years old. More than a third (35.8%) of SW reported experiencing any form of GBV in the past 12 months. The highest rates were found among TGSW (45.5%) and MSW

(36%). Verbal violence was the most common form reported (22.7%) followed by intimidation (17.3%), physical (9.9%) and sexual (7.2%) violence. Clients were the most common perpetrator of GBV mentioned by SW (40%). In univariate analysis, any reported GBV was significantly associated (p -value<0,05) with SW history of incarceration, drug use in the past 12 months, group sex in past 3 months, and HIV high-risk perception.

Conclusions: GBV needs to be integrated in the national HIV response, involving a multi-sectoral response ensuring safety in the workplace and the community for SW together with training of establishment staff, community-based outreach workers and law enforcement agencies. Linkages to health, social and legal services should be developed to respond to the needs of GBV survivors.



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Negotiating safer chemsex: A qualitative study among sexual minority men who engage in chemsex in Singapore

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Background: Chemsex, or the confluence of substance use and sexual activity among certain populations has been identified as a potential driver of HIV transmission. In Singapore, stringent and punitive drug laws and HIV criminalization laws persist that limit research and the reach and impact of community-led interventions. This study explores the subculture of safer chemsex, as individuals navigate the complex interplay between legal frameworks surrounding HIV disclosure and drug use, with the role of negotiation within the subculture of safer chemsex as a protective mechanism against harms typically associated with chemsex, including HIV transmission.

Methods: Semi-structured in-depth interviews were conducted with 33 purposively sampled GBMSM seeking treatment for chemsex in Singapore. Interview topics included participants' experiences and life histories of chemsex, substance use, incarceration, trauma, and ongoing recovery from chemsex. Interviews were audio-recorded, transcribed and analyzed using inductive thematic analysis, from which the negotiation within the subculture of safer chemsex emerged.

Results: Our findings highlight the centrality of negotiation in the practice of safer chemsex. Participants engage in comprehensive negotiations, covering diverse aspects crucial for risk reduction. Negotiations around HIV prevention methods were common, with participants actively discussing and agreeing upon the use of condoms or PrEP. Negotiations around HIV status and individuals at sessions demonstrated a commitment to transparency and informed decision-making. The negotiation of session duration emerged as a factor influencing

risk, with participants recognizing the correlation between prolonged sexual activity and increased vulnerability to HIV. Establishing ground rules was a prevalent subcultural practice, contributing to the co-creation of consensual and safer spaces. Power dynamics in negotiation, such as the exchange or payment of drugs and control over their type and administration also played a pivotal role.

Conclusions: This study sheds light on the multifaceted nature of negotiation within the subculture of safer chemsex and its potential role as a protective mechanism against harms typically associated with chemsex, including HIV transmission. Recognizing negotiation as a subcultural practice and ritual in safer chemsex is essential for designing targeted interventions that harness existing protective behaviors. Understanding and leveraging negotiation dynamics can inform HIV prevention strategies tailored to the unique challenges presented in Singapore.



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Association between Sexual Orientation Disclosure, Community Engagement, and HIV/STI Testing Uptake among Men who Have Sex with Men in Guangdong Province, China: A Mediation Analysis.

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Introduction: An individual's sexual orientation disclosure can affect their participation in community engagement activities and impact their healthcare utilization. Community-based interventions frequently employ events to promote the utilization of sexual health services among key populations such as MSM by fostering community engagement. This study aimed to test the mediation effect of community engagement in sexual orientation disclosure and HIV/dual gonorrhea (NG) and chlamydia (CT) testing among Chinese MSM.

Methods: This study uses cross-sectional data from a study conducted in Guangdong, China. The study enrolled individuals who were assigned male gender at birth, 18 years or older, who had ever had sex with other men from MSM-led and public STD clinics in six cities until December 20, 2023. The study assessed community engagement at the individual level based on data from 9 items. Linear and logistic regressions were used to assess the relationship between community engagement, sexual orientation disclosure, and HIV and CT/NG testing. We also conducted a mediation analysis to understand how the two variables affect each other and facilitate HIV/STI testing uptake.

Results: Overall, 380 men who reported ever having sex at other men at baseline were included, with a mean age of 32 years old (S.D=10.1). 74.7%(284) of participants had never been married, 29.7%(133) had ever disclosed their

sexual orientation to a healthcare provider, 92.6%(351) had ever tested for HIV, and 35.0%(135) had ever tested for CT/NG. We found no significant direct effect of sexual orientation disclosure to healthcare providers on HIV (co-efficient=-0.008± 0.029, p=0.783) and CT/NG testing (co-efficient=-0.044± 0.050; p=0.383) among participants [Figure 1]. However, community engagement was a significant positive mediator of sexual orientation disclosure (co-efficient=0.113± 0.040; p=0.005) and the probability of HIV testing (co-efficient=0.236±0.037; p<0.001) and CT/NG testing (co-efficient= 0.165± 0.071; p=0.021).

Conclusion: Our research suggests that community engagement has a mediation effect in facilitating HIV and CT/GN testing among MSM who have disclosed their sexual orientation to healthcare providers. While disclosing sexual orientation is a crucial step towards improving accessibility to HIV/STI services for MSM, engaging with the community could further increase the likelihood of actually getting tested. Therefore, incorporating community engagement activities and strategies to promote sexual health services may help enhance HIV/STI testing uptake.



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Self-reported HIV testing behaviors among migrants in Okinawa, Japan

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Background: HIV testing early can facilitate timely linkage to HIV prevention and treatment services for migrants. Migrants are at high risk for delayed HIV testing and diagnosis, and migrant population in Japan also seem to face barriers to accessing HIV/AIDS care. This study aims to examine the prevalence of HIV testing, HIV-related sexual risk behaviors and associated factors with HIV testing among migrants in Okinawa, where the number of HIV per 100,000 population was the six highest among the 47 prefectures and that of AIDS was the top of all the prefectures in Japan (as of 2022).

Methods: From January 2023 to February 2023, we conducted an online survey on HIV-related sexual risk behaviors, self-reported HIV testing behaviors and their correlates among 474 Southeast Asians, Americans and Brazilians living in 14 districts in Okinawa.

Results: The study found a low level of HIV testing and high rates of unprotected sex. Within the sample, only 35.6% (n=169) of participants reported having ever been tested for HIV. Among those who reported never having received HIV testing, 42% (n=128) reported not using condoms during their most recent sexual encounter. Multivariable logistic regression analysis revealed that, among foreign residents in Okinawa, those from Southeast Asian countries (OR=20.926, 95% CI: 2.827-154.90), having higher Japanese language skill (OR=1.148, 95% CI: 1.026-1.284), those who reported good health condition (OR=7.726, 95% CI: 1.958-30.474), having any HIV-related sexual risk behaviors (OR=2.803, 95% CI: 0.974-8.070), and familiar with HIV testing locations (OR=7.726, 95% CI: 1.958-30.474), were associated with a higher HIV testing status.

Conclusions: Overall, a low level of HIV testing rate, high rates of unprotected sex, and the difficulties in accessing HIV test among the study participants point to a need to increase the awareness about HIV screening and prevention among migrants, and more migrant-focused outreach programs are suggested to improve migrant's access to HIV healthcare in Japan.



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High potential for HIV exposure among sex workers in Thailand: a cross-sectional study of pre-exposure prophylaxis (PrEP) among Thai sex workers

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Background: HIV prevention in Thailand has been a success story, particularly among female sex workers (FSW) with 0.7% HIV prevalence in 2018 (Thailand Ministry of Public Health, 2023). However, other SW sub-populations display higher prevalence rates: males (MSW: 3.8%, 2018) with no available data on transgender females (TGSW). Investigation of HIV risk behaviors were included in a cross-sectional study of pre-exposure prophylaxis (PrEP) among Thai SW.

Methods: This study was conducted from April-December 2023 by SWING and BIRD (Bangkok Interdisciplinary Research and Development) in seven provinces in Thailand. This investigated PrEP uptake and associated factors using a questionnaire including HIV risk behaviors. The study enrolled a total of 1,511 MSW, FSW and TGSW, aged ≥18 years old, HIV-negative, and engaged in sex work in the past three months. A total of 1,511 respondents (FSW: 621 – MSW: 452 – TGSW: 438) were interviewed face-to-face by trained outreach workers. A descriptive analysis of behaviors associated with potential HIV exposure was conducted.

Results: 702 respondents (46%) perceived they were at high or medium risk of HIV exposure. Low levels of HIV testing were reported in the context of the 95-95-95 targets: 172 (11.4%) SW had never been tested and 493 (32.6%) not tested in the past 12 months. 324 (21.4%) SW (n=324) reported participating in group sex in the past 3 months with the highest rates among MSW (25.6%) and

TGSW (29.6%). Of these, 95% reported condomless sex: TGSW 99.0%; FSW 96.1% and MSW 91.0%). Recreational drug use in the past 12 months before or during sex with clients was reported by 11.8% of SW (MSW: 17.3%; TGSW: 15.1%; and FSW 5.5%). About half (780 or 51.6%) had ever been screened for a sexually transmitted infection (STI); 168 (21.5%) had been diagnosed and treated for a STI in the past 12 months. Gender-based violence (GBV) was reported across all sub-populations (35.8%, n=541), perpetrated largely by clients.

Conclusions: Significant HIV risks and vulnerability were reported by SW underscoring their need for PrEP. HIV testing and prevention strategies for SW should be revisited. HIV programming for SW needs to be reprioritized with a differentiated approach covering the full spectrum of SW risk behaviors and vulnerable populations. PrEP programming for SW must be rapidly intensified.



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High rates of HIV Serostatus Self-Disclosure Amongst Adolescents and Young Adults Living with HIV in Thailand

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Background: HIV self-disclosure is associated with health benefits including increased support, treatment adherence and HIV testing. However, concerns exist regarding the potential social harms, such as isolation, relationship breakdown and discrimination. The rate and patterns of HIV self-disclosure vary significantly among different populations, however remain poorly understood amongst adolescents and young adults (AYA) living with behaviourally-acquired infection. This study aims to address this knowledge gap by describing the rate, patterns and factors associated with HIV status self-disclosure within this group.

Materials and Methods: We conducted a mixed-methods, cross-sectional study at the CU Buddy Clinic, a youth-friendly HIV service in Bangkok, Thailand. The inclusion criteria were: 1) aged 15-24 years, and 2) living with behaviourally-acquired HIV infection. We completed semi-structured interviews to examine the rate and patterns of HIV self-disclosure. Qualitative data was collected relating to factors associated with HIV self-disclosure, attitudes and outcomes. Descriptive statistical analysis was performed; rate and patterns of self-disclosure were presented as a rate with 95% Confidence Intervals (95%CI). An inductive thematic analysis approach was used to summarize the benefits and negative consequences of self-disclosure.

Results: Between September and December 2023, 85 youth were enrolled with a median age of 21.3 years (IQR 19.2-22.9). The median time since HIV diagnosis was 32 months (IQR 14-53). 82.4% (95%CI 72.6-89.8) had an undetectable HIV viral load (<50 copies/mL) at the time of enrolment. Participants comprised of 71 (84%) men who have sex with men, 7 (8%) transgender women and 7 (8%) cisgender females.

The overall rate of self-disclosure was 84.7% (95%CI 75.2-91.6). Among those who had disclosed their HIV serostatus, the median number of persons disclosed to was 3 (IQR 1 to 7). Participants disclosed their HIV status to ex-partners (75%), current partners (68%), friends (50%), mothers (49%), siblings (27%), fathers (25%), wider family members (23%), colleagues (19%) and teachers (14%). 92% of those who had disclosed to family members did so within one month of receiving an HIV diagnosis, compared with 51% and 49% to partners and friends, respectively.

Despite a majority (72%) of participants stating that disclosing their HIV status to others was not an easy process, 83% of those who had disclosed reported that it had improved their mental health. The most commonly cited motivations for disclosure were to strengthen relationship ties (94.3%) and for practical/emotional support (90.0%). Of participants who had disclosed their HIV serostatus to current partners, 57% did so to promote HIV prevention.

From inductive thematic analysis, participants described several benefits of self-disclosure, including increased practical support, improved treatment adherence and uptake in HIV testing. Reported negative consequences included enacted stigma and discrimination, relationship breakdown and isolation.

Conclusions: The majority of adolescents and young adults in this study had disclosed their HIV status to partners and family members within the first month of diagnosis. Most reported that it had had a positive impact on their mental health. Support for AYA wishing to disclose their HIV status should be considered as part of a comprehensive package of care for youth living with HIV.



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Mental health knowledge and attitudes among social workers: Quantitative data from an implementation study assessing integration of mental health screening for PLHIV in the Philippines.

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Background: Mental health screening is not routinely practiced in HIV treatment hubs and primary HIV clinics in the Philippines because of scarcity of mental health services and specialists. This quantitative study aims to assess social workers' knowledge and attitudes about mental health conditions and the feasibility of integrating mental health screening into their social work case management of people living with HIV (PLHIV).

Materials and Methods: The Mental Health Literacy Scale (MHLS) was used to assess social workers' knowledge and attitudes on mental health conditions. It was administered through Research Electronic Data Capture (REDCap) between January and February 2024. Using a Likert Scale, survey respondents were asked to indicate their level of agreement with each of 35 statements covering six domains: ability to recognize mental health conditions, knowledge on risk factors and causes, self-treatment, professional help available, help-seeking behavior, and attitudes promoting recognition or support for mental health conditions. Social workers were identified and contacted for participation in the online survey following random selection from a provided listing of their names and contact details by facilities across the country. Descriptive statistics, specifically frequencies and proportions, were used to report on MHLS domains.

Results: Of the surveyed social workers to-date (N=71), 82% were females, almost half (48%) were 26 to 35 years old, and the majority (89%) work in

government hospitals. Over the past 6 months, 63% reported managing or assisting PLHIV in their facility. Over two-thirds (68%) reported assisting mental health cases. Responses to the survey indicated varying abilities to recognize different mental health conditions. Symptoms of Generalized Anxiety Disorder, Major Depressive Disorder, Bipolar Disorder, and Persistent Depressive Disorder are highly recognized by at least 90% of the respondents. Social worker attitudes towards mental health were generally positive with only 3% agreeing that mental illness is not a real medical illness, 92% disagreeing that people with mental illness should be avoided so as not to develop similar problems, and 94% disagreeing that professional treatment for a mental illness would not be effective. Significantly, respondents reported good attitudes that promote recognition, with only 6% agreeing people with mental illness are dangerous. A very small percentage (only 2%) of the respondents agreed they would not seek help from mental health professionals if they were facing mental health conditions. This contrast with the overall positive response of 94%, indicating that most of the social workers have a favorable attitudes that promote appropriate help-seeking behavior for mental health conditions.

Conclusion: Social workers have a high knowledge and ability to recognize mental conditions, and positive attitudes that promote recognition and help-seeking behavior. Their knowledge level and attitudes can possibly support integration of mental health screening into social work case management for PLHIV through HIV Treatment Hubs and Primary HIV facilities in the Philippines.



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Moving beyond condomless sex as an indicator of HIV risk: an analysis of national HIV diagnoses and behavioural surveillance among men who have sex with men in Australia 2012-2022

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Background: Condomless sex has been a standard measure of risk in behavioural HIV research and monitoring since the 1980s. However, as the use of pre-exposure prophylaxis (PrEP) and undetectable viral load (UVL) for prevention increase among gay, bisexual, and other men who have sex with men (GBMSM), relying exclusively on condomless anal intercourse with casual partners (CLAIC) as a measure of HIV risk may be misleading in efforts to identify people at risk of HIV and in need of more effective prevention methods.

Materials and Methods: Data were collected using national, repeated, cross-sectional surveys (the Gay Community Periodic Surveys) conducted at LGBTQ+ venues, events and online during 2012-2022. Participants were eligible if they were aged 18 or over if recruited face-to-face or 16 or over if recruited online, identified as gay, bisexual, or as a man who had had sex with another man in the last 5 years, and lived in Australia. These surveys included questions on condom use, PrEP use, and viral load. Trends in engagement in any CLAIC, use of biomedical prevention (PrEP or UVL), and higher-risk CLAIC (i.e. CLAIC without PrEP or UVL) in the last 6 months were assessed using logistic regression. Any CLAIC and higher-risk CLAIC were correlated with publicly available data about annual HIV diagnoses among GBMSM from the national HIV surveillance system over the same period.

Results: During the study period, 54,297 participants who reported casual sex (out of a total of 90,212) were included for analysis. The mean age of participants was 37.2 years (SD=12.7). Most participants identified as either gay (n=47,894, 88.5%) or bisexual (n= 4,449, 8.2%). Most were born in Australia (n=37,865, 70.0%). The proportion reporting any CLAIC increased from 34.4% in 2012 to 67.3% in 2022 (OR=1.17, 95%CI=1.17-1.18, p<0.001) but those reporting higher-risk CLAIC decreased from 33.1% to 21.5% (OR=0.94, 95%CI=0.93-0.95, p<0.001) as use of biomedical prevention increased from 8.9% to 56.6% (OR=1.36, 95%CI=1.36-1.37, p<0.001). HIV diagnoses among GBMSM decreased from 780 in 2012 to 316 in 2022 (a 59.5% reduction). Any CLAIC was negatively correlated with annual HIV diagnoses (r=-0.92, p<0.001) but higher-risk CLAIC was positively correlated with annual HIV diagnoses (r=0.93, p<0.001).

Conclusions: We found a statistically significant negative correlation between condomless sex and HIV diagnoses. This demonstrates the conceptual limitations of focusing exclusively on condom use when measuring HIV risk as we would have expected more people reporting condomless sex to be associated with more HIV diagnoses. Factoring PrEP and UVL into HIV behavioural risk measures produces more conceptually valid results and is predictive of HIV diagnoses in the expected direction in the current period. HIV research should standardise measuring biomedical prevention alongside condom use and condomless sex, as focusing on condomless sex in isolation among GBMSM may overestimate HIV risk.



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Survival probability and risk factors associated with mortality among people living with HIV in Thailand, 2008-2021

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Background: Survival of people living with HIV (PLHIV) is a key outcome of the Thai national HIV program. We examined survival probabilities and risk factors associated with mortality from 2008 through 2021.

Methods: We conducted a retrospective cohort analysis of PLHIV registered in the National AIDS Program (NAP) as of 31 January 2023. Demographics and clinical data were collected at registration and follow up visits following national guidelines. Death data was linked by national citizen identification number in the national Death Certificate database. Survival time was calculated in days as the time between date of diagnosis and date of death and mortality rates were calculated as the number of deaths per 100 person-years. Cumulative survival probability was estimated using the Kaplan–Meier method. A Cox proportional hazards regression model was performed to explore associations with survival using SAS version 9.4.

Results: Of 485,551 PLHIV diagnosed from over 1,000 sites in NAP, 111,566 deaths were reported (3.1 per 100 person-year). Survival probabilities were 89.8% at 1 year, 87.2% at 2 years, 82.0% at 5 years, and 74.7% at 10 years. Elevated death risks were observed among males (adjusted hazard ratio [aHR]: 1.28, 95%CI: 1.26-1.30), those aged 25-54 years (aHR:1.67, 95%CI:1.63-1.70) and aged >55 years (aHR: 2.64, 95%CI: 2.57-2.72) compared to ≤24 years, non-KP (aHR: 1.13, 95%CI: 1.11-1.15),

those with a baseline CD4 <200 cells/μL (aHR: 2.30, 95%CI: 2.26-2.34), and no history of antiretroviral treatment (aHR: 6.78, 95CI: 6.69-6.87).

Conclusion: Survival probability declined rapidly in the first year after diagnosis but slower over time. Elevated mortality risk factors included male gender, older age, and baseline CD4 <200. Tailored interventions for males and older age groups along with implementation of targeted active case finding with rapid linkage to antiretroviral treatment are critical to improve probability of survival among PLHIV in Thailand.



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Factors Associated with Global and Domain-Specific Neurocognitive Impairment Among People Living with and without HIV in Malaysia

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Background: Successful antiretroviral treatment (ART) has extended the lifespan of people living with HIV (PLWH), but they are still burdened with early-onset geriatric illnesses including neurocognitive impairment (NCI). The extant literature on global and domain-specific NCI among PLWH, and factors influencing them, is scarce in the Asia-Pacific region. The current study attempts to address these gaps in Malaysia, an upper middle-income country.

Materials and Methods: Participants were from the Malaysian HIV and Ageing cohort which recruited PLWH attending University Malaya Medical Centre and community controls (PWOH) (2021-2023, nPLWH=206, nPWOH=106). The inclusion criteria were age ≥ 35 years and all PLWH on ART for at least 12 months. All participants underwent neurocognitive assessments, including global neurocognition (Montreal Cognitive Assessment), sustained attention and task-switching (Colour Trails Test 1 and 2), finger dexterity and motor coordination (dominant hand and assembly scores from Purdue Pegboard Test) and processing speed (Symbol-Digit Modalities Test). Sociodemographic, lifestyle, clinical and psychosocial information were collected using standardised questionnaires. Neurocognitive scores were compared between PLWH and PWOH using Mann-Whitney U-test and Kruskal-Wallis H-test, and factors associated with neurocognition assessed with Pearson correlation.

Results: Mean age was similar in both groups (Mean PLWH=51.61 years, Mean PWOH=50.55 years, $p=0.632$), but sex distribution varied (Males: 79% PLWH and 50% PWOH, $p<0.001$). PWOH had a significantly higher education level compared to PLWH ($p=0.023$). 92% PLWH had HIV RNA <50 copies/mL and 69% with CD4 count ≥ 500 cells/mm³.

PWOH performed significantly better on global neurocognition ($p=0.014$), processing speed ($p=0.001$) and finger dexterity ($p<0.001$), compared to PLWH. Differences on sustained attention, task-switching and motor coordination were not significant (all $p>0.08$).

Among the PLWH, better performance on global neurocognition was associated with being male, higher grip strength and gait speed, better nutrition and not having diabetes. Surprisingly, low current CD4 count was associated with better scores. In PWOH, only polypharmacy was associated with poorer global neurocognition. Correlates for sustained attention and task-switching ability were mostly comparable in PLWH and PWOH. Higher scores were associated with male sex, better education, larger social network, fewer non-ART medications, not having hypertension and diabetes. Higher scores for finger dexterity and motor coordination were associated with younger age, better education and lower blood pressure (BP) in PLWH and PWOH. Additionally in PLWH, fewer non-ART medications, higher grip strength and gait speed, lower fat mass, lower baseline viral load, fewer AIDS-defining illnesses, not having diabetes and no hearing difficulties improved these domains. Among PLWH and PWOH, younger age, higher education level, higher grip strength and gait speed, lower BP, and lower fat mass had better processing speed. In PWOH, larger social network and fewer medications improved this domain while not having hearing difficulties and diabetes improved it in PLWH.

Conclusion: The majority of factors influencing NCI in PLWH and PWOH are modifiable through lifestyle changes. Interventions addressing polypharmacy and hearing difficulties may also be helpful. Motor skills in PLWH appear to be uniquely affected by viral factors. Further studies utilising machine learning approaches are needed to better identify factors associated with cognitive phenotypes in PLWH.



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Shining a Light on the Unseen: Assessing Mycoplasma genitalium in Bangkok's STI and HIV Screening Efforts

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Background: The Thai Red Cross AIDS Research Centre in Bangkok initiated a pivotal study to determine the prevalence of sexually transmitted infections (STIs), focusing primarily on Mycoplasma genitalium (MG), in addition to Chlamydia trachomatis (CT) and Neisseria gonorrhoeae (NG). This research was especially critical in light of the global concern regarding MG's developing antibiotic resistance and its relatively undocumented prevalence in Thailand. The study aimed to illuminate the prevalence of MG and evaluate its impact on STI management across a diverse demographic spectrum.

Methods: Conducted from May to December 2020, this study involved clients visiting our clinic for STI screening. The Alinity m STI assay was employed to test for CT, NG, and MG. The study's analytical approach was designed to provide a detailed overview of the prevalence of these infections, with a focus on categorizing data by gender, HIV status, and the route of pathogen detection. This methodology offered valuable insights into the distribution and dynamics of these infections in various demographic and clinical contexts.

Results: The study revealed an MG prevalence of 8% (24 out of 300 samples), with a gender distribution of 25% in females, 58.3% in males, and 16.7% in transgender individuals. For CT, prevalence rates were observed as 13.3% in cervical, 32.5% in anal, 8.9% in oropharyngeal, 7% in urine, and 31% in pooled samples. NG was

identified with a prevalence of 13.3% in cervical, 55% in anal, 17.8% in oropharyngeal, 5% in urine, and 19% in pooled samples. A significant finding was the notably higher prevalence of NG among People Living with HIV (PLH), with PLH being 19.7% more likely to test positive for NG (95% Confidence Interval: 9.9 to 29.5%; P<0.001). This trend was not paralleled in CT cases.

Conclusions: This study significantly contributes to the understanding of STI prevalence in Thailand, particularly highlighting the underreported prevalence of MG. The findings emphasize the critical need to incorporate MG in STI diagnostic processes, especially in cases of non-gonococcal urethritis that do not respond to standard treatment protocols. Additionally, the results underline the importance of comprehensive STI screening, inclusive of MG, in clinical settings, both for effective STI management and for augmenting HIV prevention and care strategies.



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Mortality Rate and Cause of Death in People Living with HIV in Long Term Antiretroviral Therapy at HIV-NAT, Bangkok, Thailand.

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Background: With increased access to effective antiretroviral therapy (ART), life expectancy of people with HIV (PWH) has significantly improved. However, mortality rates remain higher than those without HIV. Several deaths can be averted if cause of death could be modified and treated. We therefore investigated the causes and predictor of death among PWH on long term ART in Thailand.

Methods: We retrospectively analyzed data from a prospective long term adult PWH (aged ≥ 18 years) cohort at HIV-NAT, Thai Red Cross AIDS Research Centre, Thailand. This cohort was established in 1996. Participants were followed-up 6 monthly. Follow up time was calculated from the first visit until death. Cumulative all-cause mortality incidence was calculated with losses and transfers considered competing events.

Results: A total of 3,156 PWH (70 % male, median age 32 years, median CD4 240 (IQR:111-376 cells/mm³) were enrolled. During median duration follow-up of 6.5 (2.5-14.8) years, 227 (7.2%) PWH died, 18/227 (7.9%) died within a year of ART initiation. The cumulative incidence of all cause mortality at 10 year and 20 year were 4.53 per 100 person-years (95%CI: 3.75-5.42) and 11.29 per 100 person-years (95%CI: 9.80-12.89). Almost 56% of them died from non-AIDS related, following by AIDS-related (24%) and unknown cause (20%). The most common causes of death were TB (37: 16.3%), cardiovascular disease (26: 11.5%), hepatocellular carcinoma (12: 5%), and suicides (5%). At the time prior death, median age was 49

years, 68% had HIV RNA < 50 copies/ml and 50 (22%) PWH had prior TB disease. For those with prior TB, 52% died from non-AIDS. In a multivariable model, older age (sub-hazard ratio [sHR]: 1.05, 95%CI: 1.04-1.07), heterosexual male (sHR: 1.72, 95%CI: 1.23-2.43), and ever having TB (sHR: 1.62, 95%CI: 1.13-2.32) were associated with higher mortality after adjusting for baseline CD4 count, and hepatitis B/ C co-infection

Conclusions: Ever having TB infection was an independent and potentially modifiable risk factor for all-cause mortality. TB prevention in PWH should be aggressively pursued to reduce mortality risk.



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HIV mortality trends and spatial distribution among persons living with HIV, Thailand, 2008–2022

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Background: Despite notable advancements in healthcare, challenges in health equity remain, specifically in HIV-related mortality. We compared age-sex adjusted all-cause mortality trends among persons living with HIV (PLHIV) registered in the National AIDS Program from 2008 to 2022 in Thailand.

Method: We conducted a retrospective analysis of all reported PLHIV from over 1,000 facilities registered in the National AIDS Program (NAP) as of 31 January 2023. Demographics and all cause death data were classified according to Thai HIV case surveillance definitions and WHO HIV clinical staging guidelines to calculate age-sex adjusted mortality rate and standardized mortality ratio (SMR). The average Thai population age and sex structure during 2008-2022 was used as the standard population. Age-sex adjusted rates were calculated by dividing the number of observed deaths by the population standard and multiplying by 100,000. Standardized mortality ratio was calculated by dividing the number of observed deaths by the number of expected deaths and multiplying by 100. Spatial autocorrelation of SMR was measured by the Moran's I coefficient using SAS v 9.4.

Result: Of 666,157 diagnosed PLHIV registered in NAP, 157,319 (23.6%) died from all causes. The age-sex adjusted mortality rate increased from 14.9 per 100,000 in 2008 to 16.8 per 100,000 in 2015 to 18.9 per 100,000 in 2022. Moran's I revealed positive values, indicating spatial clustering of high SMR. In 2022, SMR remained

high in Bangkok and central provinces near Bangkok, northern Myanmar and Laos border, and eastern seaboard industrial provinces.

Conclusion: Increase in age-sex adjusted mortality rates and geographic disparities in SMR emphasize the need to identify risk factors for death among PLHIV to address gaps. Our findings underscore the importance of ongoing monitoring and a comprehensive approach to address both individual risk factors and regional disparities to reduce mortality among PLHIV in Thailand.



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Trend and associated factors for late and advanced HIV diagnoses in 2011-2023 in Melbourne, Australia

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Background: Most HIV transmission in Australia is attributed to individuals who have partners with undiagnosed HIV. If people living with HIV do not know their status, they also risk having a late- or advanced diagnosis or presenting with an AIDS-defining event, which increases their risk of morbidity and mortality because of delays in the initiation of life-saving antiretroviral therapy (ART). We investigated trends of late- and advanced diagnosis of HIV and factors associated with delayed HIV diagnosis at Melbourne Sexual Health Centre (MSHC), Melbourne, Australia.

Methods: A retrospective cohort study was conducted using data extracted from the electronic medical records at MSHC between 2011 and 2023 to compare the differences in individuals newly diagnosed with early diagnosis of HIV versus those with late- and advanced diagnoses. We described the demographic and clinical characteristics and calculated the proportion of late- (CD4 count <350 cells/ μ L) and advanced HIV diagnoses (CD4 count <200 cells/ μ L). Univariable and multivariable logistic regression analyses were performed to identify the factors associated with late and advanced HIV diagnosis.

Results: Among 637 individuals, 210 (33%) had a late HIV diagnosis, and 63 (9.8%) had an advanced diagnosis. Regarding those with late HIV diagnosis, the median age was 29 (IQR 26,38), 98% were men who have sex with men (MSM), 71% were born overseas, 49% were newly arrived in Australia (<5 years), 46% were Medicare-ineligible, 69% reported having more than one sexual partner in the past three months and 59% were diagnosed with a sexually transmitted infection (STI) on the

same visit. There is an increasing trend in the proportion of late HIV diagnoses from 17% (8/47) in 2011 to 37% (7/19) in 2022 (Ptrend=0.0007). Similarly, the proportion of advanced HIV diagnoses increased from 4% (2/47) in 2011 to 11% (2/19) in 2022 (Ptrend=0.0078). Factors associated with late HIV diagnosis included being born overseas (adjusted odd ratio (aOR) 1.93, 95% confidence interval (CI) 1.20-3.08, P=0.006), lack of HIV testing in the last 12 months (aOR 2.30, 95%CI 1.29-4.49, P=0.006), low perceived risk of HIV infection (i.e., no reported condomless sex in the past 12 months, no history of drug use, and no previous STI diagnosis) (aOR 1.66, 95%CI 1.02=2.69, P=0.041). Factors associated with advanced HIV diagnosis included being older (aOR 1.045, 95%CI 1.011-1.079, P=0.008), low perceived risk of HIV infection (aOR= 1.904, 95%CI 1.063-3.412, P=0.03), and having one (aOR 0.151, 95%CI 0.049-0.465, P=0.001) or more than one sexual partner (aOR 0.135, 95%CI 0.048-0.378, P<0.001) in the past three months, compared to those without sexual partners.

Conclusion: Our findings highlight challenges in HIV diagnosis and care among overseas-born MSM. Low perceived HIV risk contributes to late and advanced diagnoses, impeding timely ART initiation and increasing the risk of HIV transmission within the community.



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PrEP Re-initiation among Men Who Have Sex with Men in Guangzhou and Wuhan, China: a Multi-center Cohort Study

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Background: Promoting consistent use of HIV pre-exposure prophylaxis (PrEP) is vital for protecting at-risk populations, especially men who have sex with men (MSM). In China, with the increasing adoption of PrEP among MSM, discontinuation is common. Facilitating the re-initiation of PrEP among those who discontinue may mitigate the risk of HIV transmission. This study aims to investigate the factors influencing PrEP re-initiation.

Method: We conducted a multi-center PrEP Demonstration Trial in Guangzhou and Wuhan, China, providing 12 months of TDF+FTC for PrEP to 1200 MSM. After trial completion, participants were invited for online follow-ups to assess PrEP usage. Categorization included PrEP continued (persistent use), PrEP discontinued (absence for >7 days for daily users, or no use during sex for on-demand users), and PrEP re-initiated (resumed after discontinuation), based on their self-reported PrEP usage history after the trial. The follow-up survey also collected sociodemographic information and behaviors. The analytical approach involves log-binomial regression to determine the risk ratio (RR) of factors influencing PrEP re-initiation.

Results: From March to December of 2023, 192 participants responded to the survey with a mean age of 30.5(SD=5.3). Of those, 70.3% (N=135/192) reported PrEP discontinuation, while 37.8% (N=51/135) re-initiated PrEP. For participants who reported reasons for discontinuation, 34.9% cited that it was no longer necessary to use (N=30/86). Univariate analysis indicated that compared to individuals who discontinued PrEP but not re-initiated (reference group), people who have multiple sexual partners (RR=2.20, 95%CI: 1.30-3.74), have casual sexual partners (RR=2.51, 95%CI: 1.45-4.35), used Rush (RR=1.76, 95%CI: 1.17-2.67), and have serodiscordant sexual partners (RR=1.98, 95%CI: 1.20-3.25) in the past 6 months were more likely to re-initiate PrEP. Consistent condom use (RR=0.54, 95%CI: 0.30-0.98) was negatively associated with prep re-initiation. Meanwhile, a significant association was found between drug use in the past 3 months and PrEP re-initiation (aRR=1.54, 95%CI: 1.03-2.28), suggesting that inhaled amyl nitrate users have a higher likelihood of re-initiating PrEP.

Conclusion: Our study underscores the importance of targeted interventions to address PrEP re-initiation among PrEP users who discontinued PrEP but remain eligible for PrEP. Our findings provide valuable insights for designing effective interventions to enhance PrEP adherence in people with behaviors associated with potential HIV exposures.



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Epidemiological impacts and cost-effectiveness of daily and on-demand oral Pre-Exposure Prophylaxis among key HIV populations in China: an economic evaluation

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Introduction: Pre-exposure prophylaxis (PrEP) is highly effective in HIV prevention and was approved in China in 2020. This study evaluates the effectiveness and cost-effectiveness of scaling up PrEP among four key populations in China: men who have sex with men (MSM), female sex workers (FSW), people who inject drugs (PWID), and the uninfected partners of HIV serodiscordant couples (SDC).

Methods: Decision-analytic Markov models were constructed to simulate HIV transmission and disease progression in cohorts of 100,000 individuals aged 18 or older for MSM, FSW, PWID, and the uninfected partners of SDC over 40 years. Three PrEP strategies (no PrEP, daily PrEP, and on-demand PrEP) were simulated for key populations nationwide and among high-incidence provinces only. Incremental cost-effectiveness ratios (ICERs) were calculated with a willingness-to-pay threshold of three times the gross domestic product (GDP) in China (US\$37,653 as of 2021). One-way, two-way, and probabilistic sensitivity analyses were conducted.

Results: Without a PrEP strategy, 30,960 MSM, 10,613 uninfected partners of SDC, 7,976 PWID, and 237 FSW would acquire HIV over the next 40 years in each cohort of 100,000 individuals, respectively. For MSM, on-demand PrEP was cost-effective in both provinces with high HIV incidence

(ICER: \$1,045-\$2,129/QALY) and nationwide (ICER: \$4,554/QALY), averting 24.7% of HIV infections per 100,000 MSM nationwide. Additionally, Daily PrEP was cost-effective for MSM on a national scale compared to the status quo (ICER: \$15,768/QALY). For FSW, only on-demand PrEP in provinces with high HIV incidence (ICER: \$25,399-\$37,045/QALY) was cost-effective, averting 2,934-3,730 HIV infections per 100,000 FSW. For PWID, on-demand PrEP in provinces with high HIV incidence was cost-effective (\$10,361-\$29,560/QALY), averting 2,550-4,665 infections per 100,000 PWID. Daily PrEP would be cost-effective if the regional HIV incidence among PWID reached 5.8 cases per 100 person-years. For SDC, on-demand PrEP was cost-effective in both provinces with high HIV incidence and nationwide, averting 4,189-4,510 HIV infections per 100,000 uninfected partners of SDC in high-incidence provinces. Daily PrEP was only cost-effective for uninfected partners of SDC in high-incidence provinces (ICER: \$23,222-\$27,616/QALY). One-way sensitivity analysis compared daily PrEP and on-demand PrEP strategies, finding the top three influential factors including effectiveness of daily PrEP, the cost of daily PrEP per year, and HIV incidence.

Conclusions: On-demand PrEP yields significant health and economic benefits among all four key populations in high-incidence provinces and is also cost-effective in MSM and the uninfected partners of SDC nationwide. Due to its high cost, daily PrEP is not currently recommended as an optimal strategy but might be offered as an additional option to key populations living in high-incidence regions



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Impact of peer referral on Pre-Exposure Prophylaxis adherence and persistence among Gay, Bisexual, and Other Men Who Have Sex with Men: A cohort study in China

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Background: Peer referral as a strategy leverages social networks to reach and refer peers to health services. Peer referral could be used to enhance PrEP uptake. This secondary analysis aimed to evaluate the potential impact of peer referral on PrEP adherence and persistence.

Methods: From September 2021 to December 2023, a 12-month PrEP(FTC/TDF) Demonstration Trial was conducted in Guangzhou, China. Participants were asked whether they were recommended by a friend who had already enrolled in the trial at baseline, and all participants received a quarterly follow-up survey to assess PrEP usage. 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. PrEP persistence was defined as the time from PrEP initiation to first discontinuation, defined by 120 days without FTC/TDF in possession based on medical refilling records. We analyzed the data from the 3rd and 6th month follow-ups. Generalized estimating equations and Cox regression models to assess the impact of peer referral on PrEP adherence and persistence.

Results: Of the 563 participants who initiated PrEP, 90 (16.0%) were referred by their peers. The mean age was 27.2 (SD=5.8), and 90.0% of the participants had at least a high school education. Overall adherence decreased over time (79.7% in the 3rd month vs. 72.3% in the 6th month, $P<0.001$). PrEP adherence among peer-referred participants was 77.7% and 74.1% at the 3-month and 6-month follow-ups, respectively, and 80.0% at the 3-month and 72.0% at the 6-month follow-up among non-peer-referred GBMSM. There was no significant association between peer referral and PrEP adherence (aRR=1.01, 95%CI: 0.69-1.85). Overall, 75.0% of participants continued to use PrEP six months after initiation, 84.4% of peer-referred PrEP users and 73.2% of non-peer-referred participants were persistent users. Non-peer-referred participants were 1.8 times as likely to not persist compared to Peer-referred users (aHR=1.8, 95% CI: 1.1-3.2).

Conclusion: In this study, peer referral appears to be an innovative approach to enhancing the persistence of PrEP among GBMSM and future PrEP programs should take into account the impact of peer referral.



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Addressing the mental health needs of HIV program beneficiaries: Outcomes of two distinct screening approaches in public and private clinics in Vietnam

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Background: In Vietnam, the prevalence of mental health (MH) disorders is officially reported at 14.2%, however, one investigation suggests a substantially higher rate among people living with HIV (PLHIV), at 43.5%. Internalized and social stigma around HIV, gender identity, and MH conditions have served as barriers for PLHIV and members of key populations (KP) to seek specialized services. Additionally, the COVID-19 pandemic further exacerbated MH challenges among these populations. To increase MH service access, the Meeting Targets and Maintaining Epidemic Control (EpiC) project has integrated questions about depression and anxiety using the Patient Health Questionnaire-4 (PHQ-4), a nationally validated brief screener, in routine checkups at supported public HIV treatment facilities and KP-led pre-exposure prophylaxis (PrEP) clinics in Vietnam since June 2022. Large differences in those screened as “at risk” based on screening implementation modalities prompted efforts to expand the use of an innovative methodology resulting in higher yields. This paper explores adoption of this innovation.

Description: From June 2022 to March 2023, the PHQ-4 was used with PLHIV and PrEP clients at 21 clinics via self-administered screening at one clinic, and counselor-led screening at 20. Substantial variation in screening outcomes across clinics was observed, with self-administered screening yielding the highest rates of those at risk for depression or anxiety. After a south-to-south exchange on self-administered screening for four clinics in April 2023, one public HIV and one KP-led PrEP clinic adopted the approach. Data were

collected from EpiC’s program dashboard and analyzed using Chi-square to demonstrate outcome differences between the periods before and after the exchange.

Lessons learned: Between June 2022 and April 2023, using the previous counselor-led methodology, 38 clients (4.7%) were identified as at risk of depression or anxiety at the public clinic, and 26 clients (3.7%) at the KP-led clinic. The client-administered approach was adopted in May, and from May through September 2023, screening yields increased to 11.7% (p-value < 0.01) in the public clinic and 11.4% (p-value < 0.01) in the KP-led clinic. Across the other 18 clinics that did not participate in the innovation, yield did not change significantly and varied between 0% and 5.8%. Providers in the clinics using the innovation noted the self-administered approach allowed clients sufficient time to reflect while completing the questionnaires and that clients felt more comfortable. However, providers also noted the self-administered process was more time-consuming, including the need for time to explain the form to clients with questions and time for data entry once forms are completed.

Conclusions: Multiple stigmas faced by PLHIV and KP members, compounded by anxiety or depression experiences, may make it challenging for them to share MH challenges during provider-facilitated screening sessions. Client self-administered screening may remove barriers to promote self-reflection and willingness to share difficult truths with others. While tailored, person-centric approaches are critical to enhancing MH disorder identification among PLHIV and KP PrEP clients, adequate provider training and time commitment are essential to ensure a friendly environment, and to assist clients with questionnaire completion as needed as part of client flow algorithms.



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Usage patterns, experiences, harms, and sexual agency among Thai young men who have sex with men who use chemsex: Quantitative findings from the CLYMAX study

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Background: Despite the rise of chemsex among men who have sex with men (MSM) in Thailand, significant knowledge gaps hinder the development of tailored services. The Comprehensive Assessment in a Longitudinal Study on Young Men who have sex with men Attracted to ChemseX (CLYMAX) is a mixed-method cross-sectional descriptive study aimed at establishing models for comprehensive chemsex services. We present quantitative findings from the pre-implementation phase of the study.

Material and Methods: MSM aged 16-35 years who use chemsex were enrolled in March 2023. Data were collected through self-administered questionnaires that explore four key chemsex-related themes: usage patterns, positive/negative experiences, associated harms, and autonomy in decision-making.

Results: Among 35 participants included in the analysis (median [IQR] age: 30 [25.9-33.1] years), the most common reasons for engaging in chemsex were sexual fulfillment (71.6%), influence from social media encouraging experimentation (54.5%), and partner desires (45.7%). Sixty percent reported using multiple drugs, with a maximum of 6 substances (14.3%). Poppers (62.9%) and methamphetamine (51.4%) were the most frequently used substances. Smoking (65.7%) and oral ingestion (40.0%) were the most common

administration methods, with 20% using intravenous methods. The majority reported using chemsex less than once a month (80%) and with a regular partner (57.1%). Sexual fulfillment was cited as positive experience by 68.6%. Negative experiences included anxiety or insecurity (40.0%), changes in physical appearance or personality (31.4%), and having been detained or arrested by police officers (8.3%). Condomless sex was practiced by 31.4%, 17.1% forgot to take PrEP, 8.6% reported experiencing violence, and 5.7% had shared a needle during or due to chemsex use. The majority felt that they can make decisions about chemsex use (82.9%) and that they can negotiate sexual activities with partners during chemsex (91.4%).

Conclusions: Models for comprehensive chemsex services for Thai MSM are required that account for their diverse usage patterns, sexual agency, positive and negative experiences, and harms.



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We Ask the Y (WAY): The impact of capacity-building in improving young people-led initiatives for the HIV response in Malaysia

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Background: Between 2017 and 2022, young key populations in Malaysia have among the highest HIV prevalence (15.5%) in the Asia-Pacific region (UNAIDS, 2022). Only 10% of individuals aged 15 to 24 have comprehensive knowledge of HIV and sexual health, while fewer than half of young key populations were reached by HIV prevention programs (Malaysia AIDS Monitoring Progress Report, 2023). We Ask the Y (WAY) trained and challenged young people, especially young key populations in Malaysia, aged 18 to 30, using participatory approaches and implementation science to develop capacity and tackle root causes within the HIV cascade.

Description: From July to December 2023, we trained 30 participants; 53% (n=16) identified as men who have sex with men, 3% (n=1) as other LGBTQIA+ members, 20% (n=6) cisgender heterosexual individuals, 13% (n=4) as refugees or undocumented migrants, and 10% (n=3) who preferred not to disclose. The training, which lasted for 3 days, covered HIV epidemiology and prevention, sexual and reproductive health, sexual orientation, gender identity, gender expression, sex characteristics (SOGIESC), stigma, tackling health inequities, and the Theory of Change. Toward the end of the training, participants pitched their HIV-related innovations in groups, competing for a USD1500 seed grant. Participants interested in local community-based organization projects were matched accordingly. HIV screening, linkage to care, and PrEP were offered throughout the training. We evaluated acceptability, appropriateness, and feasibility.

Lessons learned: Baseline HIV-related knowledge increased from 77.8% to 84.4%. We improved the proportion of individuals who know their HIV status by 17.6% (n=6), all of which were negative. 23.3% (n=7) of participants were enrolled in an all-expense-paid PrEP service, including follow-up appointments. The seed grant recipient completed their project and reported on project performance. 53.3% (n=16) showed interest in local community-based organization projects; we achieved a 100% match rate. Mean acceptability, appropriateness, and feasibility scores exceeded 4.0 out of 5.0.

We encountered several challenges in the execution of the WAY training and the subsequent monitoring and evaluation of the seed grant recipients' project. Firstly, ensuring diversity and inclusion of young key populations during recruitment was challenging. Despite reaching the target number of participants and collaborating with community-based organizations for recruitment support, groups such as young transgender women, young female sex workers, and young individuals who inject drugs were underrepresented. Secondly, post-training feedback highlighted that sociodemographic factors such as educational level, proficiency in English, previous training experience, and the brevity of the training sessions acted as barriers to effective teaching and learning. Lastly, unanticipated conflicting commitments among the seed grant recipients led to delays in the completion of the proposed initiatives.

Conclusion/next steps: Capacity-building training of young people in Malaysia, particularly young key populations, can be harnessed to scale up tailored interventions that enhance the HIV response. We identified several areas of improvement: (1) Tailoring capacity-building initiatives to specific key populations, (2) Leveraging teaching approaches that meet the needs of individuals, i.e., providing translation services and personalized teaching, and (3) longer training duration.



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Unitour Campaign: How public-private sector engagement enhanced youth access and uptake of HIV and sexual and reproductive health (SRH) services in Vietnam.

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Background: HIV transmission through sexual intercourse has increased among youth in Vietnam, from 65% in 2013 to 82.2% in 2022 (Vietnam Administration of HIV/AIDS Control [VAAC]), exacerbated by low access to accurate information and youth friendly SRH services. To increase awareness and uptake of HIV and sexually transmitted infections (STIs) services among youth, USAID/PATH STEPS partnered with the VAAC, Durex, Glink Academy, and Glink Clinic to implement the Unitour campaign.

Description: Unitour was implemented in two phases: 1) "Break the Shame, Come Together" (August 2022-July 2023) focused on reducing stigma around SRH and promoting health-seeking 2) "First time to break" (launched August 2023) to encourage youth to use safe sex practices from their first sexual encounter and facilitate access to SRH and HIV services. The second phase comprised 50 offline events at academic institutions across 03 provinces, an expansion from 18 events held in the first phase. Offline events were complemented by an online component, with a campaign website and youth influencers promoting content across social and mass media channels (e.g., YouTube, TikTok, Facebook, e-newspapers). Campaign materials directed individuals towards an online registration platform for free STI testing at Glink Clinic.

Lessons learned: Unitour reached more than 30,000 students through 68 offline events from November 2022-January 2023, resulting in 1,257

people registering for STI testing at Glink Clinic and 1,017 people tested for STIs. 154 (15%) received a positive result and were referred for follow-up care. 280 HIV self-tests were distributed at campaign events and 344 individuals booked appointments for pre-exposure prophylaxis (PrEP) counseling and eligibility screening. Robust, ongoing engagement with youth champions/influencers to co-design and implement Unitour was critical to high engagement, with 12.9 million campaign followers, and the campaign going viral, garnering 15.6 million views. The campaign offered youth a space for self-discovery, enabling them to recognize their emotions and sexual orientation, which contributed to greater comfort with SRH/HIV health-seeking behaviors to protect themselves and their partners.

Conclusions/Next steps: Unitour campaign represented a strong public-private collaboration and community engagement that enhanced awareness and access to SRH information and increased uptake of HIV preventative services among youth in Vietnam.



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Insights and Strategies: The Evolving Landscape of HIV/AIDS Cases Pre and Post the COVID-19 Pandemic in Hong Kong

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Background: Understanding the dynamics of HIV/AIDS cases is crucial for effective public health management, especially amidst the challenges posed by the COVID-19 pandemic. Hong Kong, as a densely populated urban center, faces unique obstacles in HIV/AIDS prevention and control. This study analyzes the trends in HIV/AIDS cases in Hong Kong over a three-year period, considering the influence of the COVID-19 pandemic on disease transmission and diagnosis. By comprehending these trends comprehensively, we can devise efficient strategies to combat HIV/AIDS in the region.

Methods: We systematically collected and analyzed data on HIV/AIDS cases in Hong Kong from 2019 to 2021 (N=8929). Using epidemiological data provided by relevant health authorities, we focused on the annual counts of new HIV cases and AIDS diagnoses. We employed statistical methodologies to discern trends and patterns in disease incidence and prevalence.

Results: Our analysis revealed dynamic fluctuations in HIV/AIDS cases throughout the study period. In 2019, Hong Kong reported 110 new HIV cases, which declined by 16.4% to 92 cases in 2020, followed by a 9.8% increase to 101 cases in 2021. AIDS diagnoses showed an erratic trajectory, starting at 10 cases in 2019, escalating by 30% to 13 cases in 2020, and regressing to 10 cases in 2021. Cumulative HIV cases consistently rose from 7,258 in 2019 to 7,451 in 2021, with annual growth rates ranging from 1.3% to 1.4%. Similarly, cumulative AIDS cases gradually increased from 1,455 to 1,478 over the same period, with annual increments ranging from 0.7%

to 0.9%. These numerical findings underscore the persistent prevalence and transmission of HIV/AIDS in Hong Kong, despite concerted efforts to control the epidemic.

Conclusion: Our findings highlight the enduring challenge of HIV/AIDS in Hong Kong, exacerbated by the complexities introduced by the COVID-19 pandemic. Public health initiatives, preventive strategies, and societal behaviors substantially influence disease dynamics. Tailored interventions are imperative to address the evolving landscape of HIV/AIDS and mitigate its impact on public health in Hong Kong. This study provides invaluable insights for policymakers and healthcare professionals, facilitating the formulation of effective strategies to combat HIV/AIDS in the region.



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Co-create innovative PrEP service approaches with the community: Experiences from PrEP users in China

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Background: Co-creation is an iterative, bidirectional strategy that includes researchers and relevant to create knowledge, that may help inform the development of innovative HIV prevention and sexual health services. This study describes the workflows on how we leveraged co-creation groups to understand the barriers to PrEP adherence among Chinese MSM PrEP users and collaborate with them to develop mobile phone-based adherence enhancement materials.

Methods: Three rounds of co-creation groups were held between 2021 and 2023 in China to develop mobile phone-based PrEP adherence enhancement materials. Six researchers and 19 Chinese adult MSM PrEP users enrolled in the PrEP demonstration trial (NCT04754139) joined the groups. For each co-creation session, we adopted a three-step approach informed by Hawkins and Leask's framework of co-creation activities, which includes participants' consultation, co-production, and evaluation (on the advantages, deficiencies, and suggestions of the co-creation group).

Results: After extensive discussion on the adherence intervention content themes and visual designs during the co-creation sessions, a total of 25 products (19 posters, 3 videos, and 3 text messages) were generated, iterated, and finalized. Among those, 17 products were sent to 910 PrEP users in the demonstration trial via WeChat messages (a popular Chinese chat app). These products received average scores of 8.25/10, 7.86/10, and 7.25/10 on relevance to the topic,

feasibility of utilization, and elaboration, respectively. The most common barriers to PrEP adherence identified during the co-creation sessions include concerns about side effects, perceived PrEP stigma, and difficulties in integrating PrEP into daily life routines. Participants underscored the effectiveness of product generating, localized community engagement, and self-empowerment during the participation while pointing out the need to 1) thoroughly synchronize the activity aims, include diverse users to enrich solicited foci during the consultation; 2) overcome the subjective and objective barriers that hindered proactiveness building, and balance the engagement and producing avoiding productivism when co-production; 3) actual intervention effects and follow up activities disclose were needed for evaluation.

Conclusion: Co-creation can generate culturally appropriate PrEP adherence enhancement materials for Chinese MSM PrEP users, demonstrating high acceptability and feasibility. Trials are needed to understand the effectiveness of this approach.



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Analysis of Mpox Knowledge and Associated Risk Factors Among Men Who Have Sex with Men with Different HIV Infection Status in Jiangsu Province, China

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Background: Mpox, caused by the monkeypox virus, poses a significant public health threat globally. Understanding Mpox knowledge and risk factors among Men Who Have Sex with Men (MSM), especially those with HIV, is crucial for effective prevention strategies. Jiangsu Province faces increasing Mpox cases, necessitating tailored interventions based on comprehensive data.

Material and Methods: From August 22 to September 5, 2023, the Jiangsu Provincial Center for Disease Control and Prevention conducted an online survey on the awareness rate of Mpox prevention and control knowledge among MSM. The questionnaire link was mainly promoted by MSM volunteer groups and HIV-infected care groups, and QR codes were posted in voluntary counseling and testing (VCT) clinics across the province. Data was analyzed with SPSS 20.0.

Results: A total of 3,695 MSM from Jiangsu Province were recruited, including 1,554 HIV-positive and 2,154 HIV-negative individuals. The baseline awareness of Mpox among HIV-positive MSM was 48.2%, significantly lower than HIV-negative individuals (56.4%). Differences were observed in awareness rates for Mpox basic information (66.0% vs. 73.9%) and also personal protection-related knowledge (54.2% vs. 57.5%).

Out of 111 individuals reporting Mpox infection or symptoms (3.0%), no statistical difference was found between HIV-positive (3.6%) and negative (2.5%) groups. Among them, 41.4% with typical Mpox symptoms had not received professional diagnosis.

In the past six months, 20.2% of HIV-positive and 28.5% of negative individuals engaged in sex with more than two male partners. Proportions for having female-sex partners were 6.9% and 11.0%. And 4.5% had recent international exposure or sexual contact with foreigners.

Regarding Mpox knowledge, 56.9% felt moderately or very knowledgeable. 89.9% primarily acquired information through online platforms, and 59.8% believed Mpox health knowledge should be promoted through social network apps. No statistical differences were observed between HIV-positive and negative groups in these findings.

Conclusion: The awareness rate of Mpox knowledge among HIV-positive MSM in Jiangsu Province is generally lower than that of negative individuals, indicating that Mpox prevention and control work should pay special attention to HIV-positive individuals due to their higher infection risk, and specific measures should be formulated based on the characteristics of the population to ensure precision and effectiveness.

Many self-reported individuals with typical symptoms have not sought medical diagnosis, suggesting that next step work should strengthen symptom recognition and medical treatment promotion. It is also necessary to conduct Mpox epidemic monitoring and early warning to highlight detection and control.

The Internet and new media are the main channels for MSM to obtain Mpox knowledge, indicating the need to strengthen Mpox knowledge dissemination through online media and increase public awareness.

More than 20% MSM (including HIV-positive individuals) reported recent sexual contact with female, suggesting the need for Mpox knowledge dissemination among female population.



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Promoting PrEP among overseas-born and newly arrived gay, bisexual, and other men who have sex with men (GBMSM): An Australian perspective

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Background: HIV PrEP (pre-exposure prophylaxis) has been available in Australia since 2016. In 2018, PrEP was subsidised by the Australian government under Medicare, Australia's universal health insurance scheme for Australian citizens and permanent residents. However, many overseas-born gay, bisexual, and other men who have sex with men (GBMSM) are ineligible for Medicare. Consequently, they have to pay the full price of PrEP (approximately US\$32 - 100 per month) in addition to medical appointment and pathology fees. Additionally, many members of this population were either unaware or have very little knowledge of PrEP, as well as not accessing it due to concerns over cost, confusion around navigating the Australia's healthcare system, unsure of the process to obtain PrEP without Medicare, and worries over the long-term side effects of PrEP. PrEP hesitancy could play a factor in an upward trend of new HIV cases among this population, which is in contrast with a declining trend of new HIV cases among Australian-born GBMSM with Medicare. In our study, we explored overseas-born and newly arrived GBMSM's perspectives on ways to communicate and promote PrEP to this population to increase PrEP literacy and uptake.

Material and Methods: Between February 2021 and September 2021, we conducted in-depth, semi-structured qualitative interviews with 22 overseas-born and newly arrived (less than 5 years in Australia) GBMSM with varying PrEP use. We asked participants for their opinions on ways to

promote PrEP to their peers. We used a reflexive thematic analysis to interpret the data.

Results: The mean age of participants was 30 years, and the mean length of stay in Australia was 2.5 years. Participants resided in various Australian states and territories. Participants came from Southeast Asia, Central Asia, South Asia, South America, North America, the Middle East, and Europe. Many participants believed that a simple and easy to understand information about PrEP has the potential to increase PrEP knowledge among this population. Participants stressed the importance of using conversational English and for information to be available in various languages. Participants said that community members should be involved in the development of the material to ensure the contents are relevant to their cultures and lived experiences. Participants would like to see specific information about the full cost of PrEP without Medicare, including medical and pathology fees, the full process of obtaining PrEP, and the safety of PrEP. Participants suggested distributing information through various avenues, including in hostels and bars, tertiary education institutions, and student accommodation. Website and social media were seen as an important channel to promote PrEP, and for information to be fun, informative, and delivered by community members. Participants believed that implementing various strategies to promote PrEP has the potential to increase PrEP knowledge and uptake among this population.

Conclusion: Involving overseas-born and newly arrived GBMSM in the development and implementation of a comprehensive PrEP campaign is important to ensure that information is easy to understand and accessible to them. This has the potential to increase PrEP literacy and encourage PrEP uptake among this population.



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Community engaged interventions and advocacy efforts for hepatitis B/C elimination: a global systematic review and crowdsourcing open call

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Background: Community engagement is critical for the elimination of viral hepatitis, especially in low- and middle-income countries (LMICs) where publicly funded testing and treatment services are limited. Community-engaged interventions provide a mechanism for community input, increase relevance to people living with the disease, and enhance accountability. However, comprehensive documentation of existing interventions for policy makers and stakeholders is lacking. This study draws on a global systematic review of community-engaged viral hepatitis interventions and a worldwide crowdsourcing initiative, focusing on advocacy efforts in LMICs.

Methods: The global systematic review, conducted in June 2021 and updated in June 2023, encompassed searches across six databases: PubMed, Web of Science, Scopus, OvidSP Embase, and Wiley Cochrane Library. Inclusion criteria comprised reporting on viral hepatitis B/C care continuum outcomes or preventive vaccination, employing community-engaged interventions with a comparator group, being in English, and the data of primary outcome being available. Levels of community-engaged interventions were coded into lower- (inform, consult), and higher-level engagement (involve, collaborate, and empower). Hepatitis care outcomes across the continuum included vaccination, testing, linkage to care, treatment and adherence, and sustained virologic response (SVR). These outcomes were estimated using random-effects models for meta-analyses by engagement levels.

In collaboration with the World Hepatitis Alliance, a global crowdsourcing open call was organized from 15 January 2021 to 30 April 2021 to solicit personal stories or advocacy efforts related to viral hepatitis. Thematic analyses identified key themes among 28 top-ranked submissions.

Results: The systematic review yielded 12,104 citations, and 24 articles met inclusion criteria (12 focused on HBV, 10 on HCV and 2 on HBV&HCV). Among these, 20 studies were conducted in North America and Europe, and 18 studies were randomized controlled trials. Community-engaged interventions encompassed peer involvement, community workers, interactive education, and crowdsourced interventions. Community engagement interventions demonstrated significant effects on HBV vaccine completion rates (RR 1.95, 95% CI 1.23-3.09), HBV/HCV testing uptake (RR 2.83, 95% CI 2.07-3.85), linkage-to-care (RR 1.63, 95% CI 1.19-2.21), and SVR (RR 1.27, 95% CI 1.05-1.52), compared with the control group. However, adherence rates remained unaffected (RR 1.10, 95% CI 0.95-1.29).

The global open call received 119 submissions, and 85 were relevant to the topic. They were from 27 countries across five continents. Six entries were from high-income countries, 64 from middle-income countries, and 15 from low-income countries. Thematic results underscored the pivotal role of advocacy from people with lived experiences of hepatitis and civil society organizations in combating stigma, raising awareness, and addressing key determinants of hepatitis service development and delivery.

Conclusion: Community engagement interventions and advocacy efforts may help improve outcomes across the viral hepatitis care continuum. These may have implications for African and Asian contexts most of which were not captured by academic research. Crowdsourcing is a viable approach to identify those community-led initiatives but more resources need to be directed to these LMICs settings.



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Gaymi as a Bridge: Campaign Evaluation of HIV Self-testing Secondary Distribution among YSMSM

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Background: Gaymi refers to females' intimate gay friends. This relationship found the potential for sexual health promotion for gay men by comprising HIV self-testing secondary distribution. As innovative strategies are needed to expand HIV testing coverage among young students men who have sex with men (YSMSM) in China, this study aimed to explore the effectiveness of the Gaymi relationship-leveraged HIV testing promotion for YSMSM.

Methods: In December 2020, we conducted an HIV testing promotion campaign at a university in China. Online outreach and offline activities were performed by the on-campus community organization. Female college students who had YSMSM friends were recruited as the index (who distribute HIV testing kits). After paying a returnable deposit, indexes obtained an HIV self-testing package comprising a urine testing kit, educational brochures, and a postcard facilitated deposit retrieval. Once the HIV self-testing kits were used by YSMSM (alters, who received HIV testing kits), alters were instructed to upload results for their female friends' deposit reimbursement. Subsequently, both index and alter participants would receive a mixed-method assessment for the process evaluation and effect evaluation following the distribution of HIV self-testing kits.

Results: A total of 40 HIV self-testing kits were applied with 50% utilized by the alters. 60%(12/20) of YSMSM attempted first-time testing, reporting high perceived ease of use (4.95/5) and intention to use (4.90/5) HIV self-testing. The perceived instructional and emotional support reached 4.85 and 4.625. Qualitative results from in-depth interviews with 28 participants revealed that the

Gaymi relationship was acceptable for the secondary distribution as indexes were sexual minority friendly. Through in-person inspection, and informing before delivering, indexes actively eliminated the on-campus stigma to protect their YSMSM friends. Post-intervention, the knowledge and willingness for HIV self-testing of alters were enhanced. Moreover, the Gaymi relationship benefitted those testing inaccessible alters from distant sites. For alters, receiving care from the Gaymi relationship facilitated reducing stigma, contributing to self-identification. Gaymi's intervention indirectly made the sexual minorities visible in China, presenting high sustainability for future iterations.

Conclusion: The Gaymi relationship played a feasible bridging role in HIV self-testing distribution, presenting effectiveness in reaching new testers, improving HIV knowledge and testing behavior, bringing emotional support, and facilitating stigma reduction for YSMSM.



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Implementation of virological point-of-care testing for HIV-positive mothers and exposed infants to increase testing and timely clinical action: Cambodia's experience

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Background: Cambodia has made substantial progress in reducing Mother-to-Child Transmission (MTCT) of HIV, with rates dropping from 32% in 2007 to 9.9% in 2022. However, centralized testing for HIV viral load (VL) in mothers and early infant diagnosis (EID) remained a bottleneck. In response, Cambodia initiated a pilot program in 2023 to integrate Point-of-Care Testing (PoCT) for HIV VL and EID using GeneXpert devices, currently utilized solely for Tuberculosis (TB) diagnosis. This involved collaboration between three national programs- the National Centre for HIV/AIDS, Dermatology and STD, the National Centre for Tuberculosis and Leprosy Control, and the National Maternal Child Health Centre. The research conducted aimed to assess the feasibility and effectiveness of PoCT in improving service delivery and patient outcomes within the MTCT program.

Methodology: First, 15 co-located TB and Antiretroviral Therapy (ART) sites excess testing capacity and with at least 15 annual cases of pregnant women living with HIV were selected. This ensured efficient integration of PoCT within existing healthcare infrastructure and minimized potential disruption to existing TB services. Second, the program compared testing volume and turnaround time (TAT) for both centralized and PoCT for HIV VL and EID services, aiming to quantify the impact of PoCT on service efficiency and potential improvements in patient care. Additionally, the program assessed the impact of adding HIV testing on the existing TB service capacity at the selected sites.

Furthermore, to gain deeper insights into the operational dynamics and their influence on patient outcomes, phone interviews were conducted with key hospital staff involved in the pilot program. This qualitative approach aimed to capture the perspectives and experiences of healthcare workers, providing valuable information for program optimization.

Results: From February to December 2023, a total of 52 HIV VL tests, 175 EID tests, and 18,444 TB tests were conducted across 15 sites. Compared to centralized testing with TAT of 7 and 14 days for HIV VL and EID, respectively. PoCT significantly reduced TAT to an average of 5 hours for HIV VL and 7 hours for EID. This rapid TAT facilitated faster clinical decision-making and enabled swift initiation of ART for HIV-positive infants within a day of diagnosis.

Moreover, the pilot maintained sufficient TB testing capacity at the selected sites despite adding HIV testing. This demonstrates the feasibility of integrated testing on GeneXpert devices. Findings from the phone survey showed the positive impact of PoCT. Survey respondents reported 100% (13/13) satisfaction with PoCT results and 92.3% (12/13) trusted the accuracy of results. Healthcare workers' positive response is an important pillar for improved service delivery.

Conclusion: The PoCT integration pilot in Cambodia showcased the feasibility and effectiveness of integrating PoCT into the PMTCT program, notably reducing HIV VL and EID testing turnaround times to 5 hours (<1day). This enabled quicker clinical decisions and timely ART initiation for HIV-positive infants. While at the same time, it maintained TB testing capacity and received high satisfaction and trust ratings from survey respondents. Therefore, national-scale implementation has been recommended.



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Effect of inter-cellular HIV-1 Nef transfer on the liver diseases in HIV-1/HCV Co-infected Patients

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Background: The Human Immunodeficiency Virus was first discovered nearly 40 years ago and continued to threaten human life today. In the meantime, Hepatitis C virus infection was the leading cause of serious liver diseases. Because HIV and HCV shared the same route of transmission, the rate of overlapping HIV-1/HCV infection was approximately 8.3%. HIV had been reported to use a variety of proteins and mechanisms to react with HCV replication. However, the mechanisms of HIV-mediated regulation of hepatitis C virus were not fully understood. In this study, we found that Nef proteins derived from R5 virus played an important role in HIV pathogenesis, interacted with hepatitis C virus.

Methods: Lymphoma cells were infected HIV virus derived from R5 and then hepatocytes were co-cultured with HIV-infected cells. Flow cytometry, WB, qPCR, luciferase assay were exerted to investigate the objective of our study.

Results: The HIV-1 Nef protein was transferred from nef-expressing lymphoma cells to hepatocytes through the ducts. In addition, Nef altered the size and number of lipid droplets and upregulated HCV replication in target subgenomic replicating cells. Nef also significantly increased the production of reactive oxygen species (ROS), thereby accelerating the development of HCC.

Conclusions: HIV-1 Nef was a key factor in accelerating the progression of liver pathogenesis by enhancing HCV replication.



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High satisfaction with point-of-care Chlamydia and Gonorrhoea testing in community-led clinics among clients and key population lay providers in Thailand

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Background: Chlamydia trachomatis (CT) and Neisseria gonorrhoeae (NG) are prevalent sexually transmitted infections (STIs) in Thailand, particularly among men who have sex with men and transgender women. To increase STI testing access, we implemented point-of-care (POC) CT/NG testing in community-led clinics as part of a study. Counseling and testing were delivered by trained key population lay providers. We assessed satisfaction with POC CT/NG testing among clients and laboratory staff.

Methods: The study was conducted between August 2019-September 2021 across four community-led clinics in Thailand. Individuals at high risk of HIV and STIs were invited to complete a survey assessing Cepheid Xpert CT/NG testing satisfaction at baseline and subsequently every three months. Laboratory staff were asked to complete surveys at month (M) 1, and subsequently every 6 months. Responses of “satisfied” or “very satisfied” were grouped as “satisfied,” and “agreed” or “strongly agreed” as “agreed”. Data from follow-up visits were compared with baseline using a Two-sample test of proportions.

Results: Client participants included 1,696 men who have sex with men and 194 transgender women, median age was 29 (interquartile range 23

- 34) years. The survey was completed 5,975 times (M0: n=1,890, M3: n=1,297, M6: n=1,128, M9: n=956, M12: n=704). From baseline to M12 participant satisfaction with waiting times for results increased (95.64% to 98.01%, $p<0.01$), preference for testing at community-led clinics over hospitals increased (96.08% to 99.57%, $p<0.001$), and willingness to pay for testing at these clinics increased (79.79% to 84.66%, $p<0.05$). Among six lay providers surveyed, 83.34% were satisfied with training at M1, and all were satisfied with testing procedures and time efficiency. At M1 50% agreed that POC NG/CT testing was suitable for community-led clinics. This increased to 100% at M12.

Conclusions: Clients and laboratory staff were exceedingly satisfied with POC CT/NG testing delivered in community-led clinics by key population lay providers. Clients overwhelmingly preferred community-led clinics as testing locations, and a majority were willing to pay for POC CT/NG testing in this setting. Scale-up of this service delivery approach across Thailand could increase access to STI testing and improve health outcomes among key populations.



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Addressing TB-HIV management gaps in Nepal: collaborative strategies and policy recommendations

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Background: Tuberculosis and Human Immunodeficiency Virus present intertwined public health challenges in Nepal, with significant morbidity and mortality. This report analyses the critical management gaps in coexisting TB and HIV conditions and provides evidence-based recommendations to enhance care and treatment outcomes.

Methods: A comprehensive triangulation approach incorporating desk reviews, stakeholder consultations, and field interactions for assessing coexisting TB and HIV conditions management gaps in Nepal from October, 2023 to December, 2023. Key issues such as diagnostic gaps, treatment access, and service integration were scrutinized, alongside public health strategies and international best practices.

Results: The report identifies notable gaps, including insufficient HIV testing among TB clients (24% diagnosed with TB were not tested for HIV), inadequate provision of Tuberculosis Preventive Treatment (TPT was supplied only for 300 PLHIV out of the total PLHIV population in Nepal in the last two years), and suboptimal coordination between the National Centre for AIDS and STD Control (NCASC) and the National Tuberculosis Control Center (NTCC). The workshop with health experts, including the Health Secretary, yielded a range of recommendations to address resource, capacity, and systemic challenges.

Conclusions: Implementing the proposed strategies necessitates prioritizing communicable diseases and improving collaborative efforts between TB and HIV services. The health system must enhance testing and treatment coverage, promote data integration, and support socioeconomic interventions. These recommendations aim to close the identified management gaps, improve care delivery, and align Nepal's health policy with the Sustainable

Development Goals' commitment to universal health coverage and the end of the TB epidemic.



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Treatment Outcomes and Associated Factors among Tuberculosis-Human Immunodeficiency Virus Co-infection Patients at Bicol Medical Center: a Retrospective Cohort Study

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Background: Human Immunodeficiency Virus infection (HIV) is the single greatest risk factor for developing active Tuberculosis (TB). Additionally, TB-HIV co-infection is a major public health problem worldwide especially in developing countries. Monitoring of treatment response is one of the important cornerstones of disease treatment.

Objectives: This study aimed to assess the prevalence of TB-HIV co-infection, to determine treatment outcomes, and to identify the factors that influence outcomes among patients who underwent TB treatment at Bicol Medical Center (BMC), a tertiary hospital in Bicol Region, Philippines, from year 2018 to 2022.

Methods: The investigators employed a retrospective cohort design. An ethical clearance was sought from the institution Ethics Review Board. The study participants included HIV-confirmed and at the same time TB diagnosed patients who have completed the standard DOTS (Direct Observed Treatment Short-course) treatment. Data were collected via medical charts review and were analyzed using Stata MP version 17 software. Screening of potential factors affecting treatment were entered into a regression model using simple logistic regression analysis. Afterwards, model building was performed by multiple logistic regression analysis with Firth's bias correction and backward elimination technique to determine the factors associated treatment outcome.

Results: Four hundred three HIV patients were enrolled in BMC HIV treatment hub from 2018-2022. Of these, 142 (35.24%) had TB with the median time of diagnosis at 0 months (almost same time of establishment of diagnosis). Majority were around 31 years old (early adults), males (93%), high-school and college graduates (42%), and were employed (69%). Clinically, they were mostly bacteriologically-confirmed cases (63%), with low level of CD4 cell count of <200 cells/ μ L at the time of TB diagnosis (82%). Sixty three percent of patients were in the advanced disease stage (HIV stage 4). There were 61% of patients who had successful TB treatment outcomes. Only two factors remained statistically associated with poor TB outcome after the multivariable analysis statistical analysis. Patients who were unemployed [Crude OR 5.23; Adjusted OR 4.04], who are bedridden [Crude OR 43.24; Adjusted OR 18.41] and with HIV stage of stage 4 [Crude OR 30.16; Adjusted OR 22.35] have higher odds of poor TB treatment outcome.

Conclusion: The prevalence of TB among HIV patients at BMC was high, whereas TB treatment outcome remain low. Poor TB treatment outcome among these patients is associated with low functional status, and advanced disease clinical stage. A wider multi-center study may be done in order to explore the other additional clinical and social factors related to treatment outcomes. This is to help enforce our current strategies in addressing this disease double burden.



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What lies beneath: Multi-drug resistant disseminated tuberculosis of the bone marrow, GI and lymph nodes in a 31-year old PLHIV with severe aplastic anemia: A CASE REPORT

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Background: Hematological abnormalities are frequent in HIV patients, however, there have been only anecdotal case reports of SAA in the setting of HIV infection. To our knowledge, this is the first case of PLHIV with disseminated MDR EPTB (bone marrow, GI and LN) and SAA presenting as pancytopenia in the Philippines.

Clinical Scenario: We present a 31 year old male, PLHIV since 2017, off ARV and on 4TH month of GI TB regimen with 3-week history of easy fatigability, body weakness and episode of loss of consciousness. Progression of symptoms associated with shortness of breath, prompted consult and admission. Noted weak-looking, with pale palpebra and nailbeds, multiple papular pustular eruption on extremities, no hepatosplenomegaly, tight sphincteric tone, no blood on tactating finger upon DRE. Workups showed: pancytopenia and whole abdomen CT scan consistent with EPTB. BMA with biopsy showed aplastic anemia, given ciclosporin and folic acid. Referred to PMDT for possible treatment failure. Individualized treatment regimen with bedaquiline, levofloxacin, clofazimine and cycloserine started. ARV shifted to TDF + 3TC and nevirapine. Mtb not detected in gene Xpert and culture of BMA. The final histopathology result showed lymphogranuloma compatible with TB. He was discharged improved.

Key Words: severe aplastic anemia (SAA), MDR, EPTB, HIV, AIDS

Discussion: The most common infectious agents associated with HIV-related anemia include M. tuberculosis. Both tuberculous bacilli and anti-TB therapy have been implicated in pathogenesis of anemia and pancytopenia. (Prasad et. al, 2021). Our case presented with MDR EPTB involving the bone marrow, LN and GI. BMA result compatible with aplastic anemia, suspicious for TB. Final histopathology showed lymphogranuloma compatible with TB. Diagnostic yield in EPTB has higher sensitivity >70-80% if obtained from biopsy. TB of the bone marrow is life-threatening EPTB and rarely seen in PLHIV with CD4 count below 200/ul.

Conclusion: Disseminated MDR EPTB is rarely reported, and bone marrow TB is extremely rare. The isolation of M. tuberculosis from bone marrow indicates disseminated disease with high mortality rate and requires prompt initiation of appropriate treatment. It is recommended that in a setting with high incidence of HIV, all BMA should be routinely examined for AFB and sent for TB culture.



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False-Negative Serum Cryptococcal Antigen Test due to Post-zone Phenomenon in an Advanced HIV Patient

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Among Cryptococcal Capsular Polysaccharide Antigen (CrAg)-based tests, lateral flow assay (LFA) has the highest sensitivity and specificity for all CrAg serotypes for detecting cryptococcal infection. Since 2018, our institution had unpublished reports of negative serum CrAg LFA results in microbiologically confirmed cases of cryptococcal infection. We present a case of *Cryptococcus neoformans* meningitis presenting with a negative serum CrAg-LFA.

A 31-year-old Filipino male with advanced HIV disease presented with 2-week history of headache, fever and meningismus. Initial serum CrAg LFA is negative and cranial CT scan was unremarkable. Elevated intracranial pressure was noted at lumbar puncture. CSF studies showed lymphocytic pleocytosis with normal protein and glucose. India ink was positive, CSF CrAg LFA had a titer of 1:12560 and fungal culture isolated *C. neoformans*. Blood cultures from 2 sites also isolated the same fungus. Amphotericin B deoxycholate and Fluconazole were given based on the current treatment guideline with resolution of infection. Dolutegravir-based antiretroviral regimen was started after induction phase of anti-cryptococcal treatment.

A negative serum CrAg LFA result in a case of confirmed disseminated *C. neoformans* infection happens due to prozone phenomenon. This happens when the antigen concentration is high and excess antibodies prevents cross-linking and precipitation of the antibody-antigen complex leading to a false negative result. This results to delayed diagnosis, advanced clinical presentation and late initiation of appropriate anti-fungal treatment.

Our case reflects the diagnostic limitation of antigen assays despite of high reported sensitivity and specificity. Patients with advanced HIV disease presenting with symptomatic CNS infections and negative antigen assays warrant further investigation and confirmatory studies.



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HIV knowledge and attitudes of women toward PLHIV in Iloilo City, Philippines

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Background: In the Philippines, people living with HIV face a great amount of perceived stigma due to their serostatus, seen as a marker of sin and immorality. National Demographic and Health Survey found that 7 in 10 Filipino women aged 15-49 years old who have heard of HIV hold discriminatory attitudes towards people living with HIV. This study emphasized the need to raise women HIV awareness because stigmatization and discrimination of PLHIV often occur due to the lack of knowledge about the issue.

Methods: Four hundred (400) women resided in 7 districts of Iloilo City participated in the study, Their ages were clustered to ≤ 21 years old (42%), and ≥ 22 years old (58%). Most participants were students (43%) at college level (67%). They were singles (69%) and had family incomes of PPh 5,000 to 10,000 per month (42.3%). A validated questionnaire consisted of a mix of right and wrong knowledge about HIV and an adapted Stigmatizing Attitudes towards PLHIV Scale were administered to the target participants. In assessing the attitudes, the two extreme agreements were taken for discussion. The association between participants' profile and level of their knowledge in HIV was determined using Chi-square test and Spearman r test for correlation between participants' level of knowledge and attitudes. The data were processed through the use of SPSS version 25 for statistical analysis at 95% confidence interval.

Results: More than half of the women (55%) had high level of knowledge while almost half (45%) had low knowledge in HIV. Women were strongly agreed the banning prostitution can control the spread of HIV& other STDs (39%); screening for HIV and other STDs is good (47%) and go to clinic

for STDs (56%), However, women were strongly disagreed that a man can have premarital sex, but a women should not (42%) and it is better for men to have sexual experience before marriage (48%). An association was found between knowledge on HIV and demographics of the participants such as employment status ($p=.008$), family income ($p=.001$), and level of education ($p= .002$) Spearman r test results revealed that women strongly suggested to go to clinic for STDs ($p=.000$); Screening for HIV and other STDs is good ($p=.000$); Towards gender equality as related to sexuality ($p=.001$); A man can have premarital sex, but a women should not ($p=.000$); had significant correlation with the level of knowledge of the women on HIV AIDS .However, the level of knowledge of the women were negatively correlated with their attitudes: Patients pay the price for their immoral life ($p=.001$); AIDS patients should be isolated for the safety of others ($p=.014$); and it is better for men to have sexual experience before marriage ($p=.001$).

Conclusions: Women have high knowledge on HIV. Their attitudes revealed that they have strong desired to reduce the transmission of the disease. They also want gender equality and put to end discrimination on vulnerable and marginalized group of people in the society. . .



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Factors associated with prevalence of cryptococcal capsular antigen among people living with HIV: a retrospective observational cohort study.

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Objective: Cryptococcosis, caused by *Cryptococcus*, is an invasive fungal disease that poses a significant health risk, particularly to people living with HIV (PLHIV), who are considered one of the most vulnerable groups. In 2016, the World Health Organization recommended cryptococcal capsular antigen (CrAg) screening for AIDS patients with CD4+ T cell count below 100 cells/ μ l before initiating antiretroviral therapy (ART). This strategy has been implemented successfully in numerous countries and regions, yielding significant results. However, research related to this strategy has only recently commenced in China, and there is limited reporting on this matter. The primary objective of this study is to identify the factors associated with the prevalence of CrAg among PLHIV in southern China.

Methods: PLHIV were recruited from a designated HIV/AIDS clinic in southern China during the period from March 1, 2018, to December 31, 2019. Serum CrAg was qualitatively detected using colloidal gold immunochromatography (LFA). Additionally, fungal culture and pathological examinations of cerebrospinal fluid (CSF) were performed. Statistical analyses were conducted using the Chi-squared test and Wilcoxon rank-sum test to assess factors associated with the prevalence of CrAg.

Results: The study cohort included a total of 1478 PLHIV, among whom 297 (20.1%) were classified as ART-naïve, while 1181 (79.9%) were ART-experienced. The median of CD4+ T cell count was 43 cells/ μ l [interquartile range (IQR):13-117]. The overall CrAg positive rate was determined to be

5.1% (75/1478). Notably, the majority of CrAg positive patients (71/75, 94.7%) had a baseline CD4+ T cell count \leq 200 cells/ μ l. When stratified by ART status, the CrAg positive rates were 6.4% (19/297) among ART-naïve patients and 4.7% (56/1181) among ART-experienced patients. There was no significant correlation between the CrAg positive rate and ART status ($P=0.245$). However, within the ART-experienced group, CrAg-positive individuals displayed lower baseline and latest CD4+ T cell counts ($P>0.05$). Among the 75 CrAg positive patients, 63 patients underwent fungal culture or pathological tests. 51 patients (51/63, 81.0%) were diagnosed with cryptococcosis, including 34 previously diagnosed patients and 17 newly diagnosed patients (14 untreated patients and 3 treated patients). Significantly, none of the patients with newly diagnosed cryptococcosis had a CD4+ T cell count exceeding 200 cells/ μ l.

Conclusion: The CrAg positive rate in ART-naïve PLHIV was similar with that in ART-experienced. Lower CD4+ T cell count was the primary factors associated with prevalence of CrAg among PLHIV. Serum CrAg screening should be recommended for both ART-naïve and ART-experienced PLHIV with CD4+ T cell counts \leq 200 cells/ μ l.

Keywords: PLHIV, ART, prevalence, CrAg



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The willingness for HIV testing among risk women population and reasons for not getting tested

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Introduction: In the Philippines, HIV testing remains focused among the aforementioned key populations with limited information about the prevalence of HIV testing among the high risk women including the pregnant population. The prevalence of having ever tested for HIV in the country is very low and is far from the 90% target of the Philippine Department of Health (DOH) and UNAIDS, thus, the study addresses this gap in research by examining women population identified at risk and to determine the association of HIV testing and their reasons of not getting tested.

Method: Survey questionnaires were given to 658 women aged between 15-49 years old resided in Iloilo City. The answers of women in some factors in the questionnaire were indicators that identified them as risk individuals. A total of 261 women were found to be at risk. Almost half of women (48%) were young (≤ 23 years old) and more than half (52%) were old (≥ 24 years old). To examine the association between HIV testing and respondents' reasons of not getting tested, Chi-square was used. The level of significance was set at .05 alpha.

Results: More than half of the respondents were college (59%) students (69%), unemployed (31%) with low monthly family income (48%). 54 (21%) pregnant women participated in the study. These were the indicators that identified the respondents as at risk: 67/204. (33%) were planning to get pregnant; 54/253 (21%) have had unprotected sex; 4/252 (1.5%) have shared needles or other injecting equipment; 2/260 (8%) have recently been diagnosed with another

sexually transmitted infection; 178/260 (68%) worried about HIV and want to put their mind at ease. There were 190 (72%) women willing to be tested and 71 (28%) were not willing to be tested for HIV. The common reasons of these women not to be tested either willing or not are: they have never been at risk for infection (61%); their life won't be the same if they find out they are HIV positive (60%); they always use protection (57%); they are afraid that others would know that they are HIV positive (54%); and they fear the lack of confidentiality of the health care personnel (48%). Only level of education was significantly associated with their willingness to be tested for HIV with $p=.001$. For the reasons: afraid of blood and needles ($p=.001$) and prefer not to know if infected ($p=.001$) had significant associations with the willingness of the women to be tested for HIV.

Conclusion: The most common reason of women for not getting tested for HIV is -they have never been at risk for infection. HIV testing is very important especially to risk population. People who get tested and learn they don't have HIV can make decisions about sex, drug use, and health care that can help prevent HIV. Detection of early HIV infections is important for individual health, prevention of HIV transmission, and measurement of HIV incidence..

Keywords: willingness, HIV testing, risk, women, population, reason



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Disseminated Non-tuberculous Mycobacterial Infections among People Living with Human Immunodeficiency Virus: A Systematic Review and Meta-Analysis

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Disseminated Non-tuberculous Mycobacterial Infections among People Living with Human Immunodeficiency: A Systematic Review and Meta-Analysis

Introduction: Disseminated nontuberculous mycobacterial (NTM) disease is more commonly observed in individuals with advanced human immunodeficiency virus (HIV) or acquired immunodeficiency syndrome (AIDS). However, the incidence of disseminated NTM infections has declined among people living with HIV (PLHIV) following the introduction of highly active antiretroviral therapy (HAART). Despite a decline in the incidence of disseminated NTM infection among people living with HIV with HAART and primary prophylaxis, disseminated NTM infection remains a severe infection with high mortality rates and frequent associations with other opportunistic infections, necessitating prolonged treatment. This study aims to investigate the prevalence, clinical characteristics, microbiological characteristics, and outcome of disseminated NTM infections among PLHIV.

Methods: A systematic literature search was conducted in PubMed, ScienceDirect and Ovid SP from inception up to 31st January 2024 to identify relevant articles. Prevalence and mortality were expressed as proportions. Pooled prevalence and mortality were calculated using the random-effects generic inverse variance model with a 95% confidence interval (CI). All the statistical analysis was conducted in R programming.

Results: 16 studies comprised a total cohort of 3480 patients diagnosed with disseminated NTM infection among PLHIV. The prevalence of disseminated NTM infection in PLHIV was 4% (95% CI, 1 – 14%). The prevalence of disseminated NTM infection was higher in the studies conducted in the pre-HAART era (12%, 95% CI, 0.4 – 84%) compared to the studies conducted in the post-HAART era (2%, 95% CI, 1 – 10%). The prevalence of disseminated NTM infection in PLHIV with positive NTM isolation was 29% (95% CI, 9 – 63%). 60% (95% CI, 11 – 95%) of the patients had concomitant other opportunistic infections 54% (95% CI, 13 – 90%) of patients with disseminated NTM infection were on HAART. Slow growing mycobacteria (SGM) were accounted for majority of the cases with a prevalence of 86% (2393/2797) and rapid growing mycobacteria (RGM) were only accounted for 0.4% (10/2420) of the cases. The most common NTM isolated was *Mycobacterium avium* complex (MAC) (84.1%, 95% CI 82.3 – 85.8%), followed by *M. avium* (62.7 %, 95% CI 30.8 – 86.4%), and *M. abscessus* (10.0%, 95% CI 1.39 – 46.7%). The overall mortality rate was 33% (95% CI, 20 – 49%).

Conclusion: The incidence of disseminated NTM infection was low among PHLIV. However, the mortality rate was despite the introduction of HAART.



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Epidemiological investigation on the incidence and mortality risk of Kaposi's sarcoma associated with HIV in Japan

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Background: Kaposi's sarcoma is an Acquired Immunodeficiency Syndrome (AIDS)-defining illness. Although it frequently occurs in individuals with HIV, the characteristics and prognosis of patients at the onset are not well understood in Japan.

Method: We conducted a retrospective review of the medical records of patients diagnosed with HIV-associated Kaposi's sarcoma at the Department of Laboratory Medicine, Tokyo Medical University, from 2000 to 2023, to investigate their profiles at diagnosis and subsequent outcomes.

The diagnoses of Kaposi's sarcoma were confirmed by biopsy. A p-value of < 0.05 was considered statistically significant, and analyses were conducted using SPSS 29.0.1 (IBM, Chicago, USA).

Results: We identified a total of 70 cases. The median age was 42 years with an Interquartile Range (IQR) of 14 years; 100% of the cases were male. Among them, 34 (48.6%) were smokers and 6 (8.6%) had alcohol intake. The median HIV viral load at diagnosis was 150,000 copies/ml with an IQR of 297,500 copies/ml. The CD4 count was 69.0/μL with an IQR of 175.7/μL (range from 4 to 1,121). The median time from the start of Antiretroviral Therapy (ART) to the diagnosis of Kaposi's sarcoma was 24 days, with an IQR of 92.5 days (range from 0 to 7,778 days). However, Kaposi's sarcoma was diagnosed before the commencement of ART in 43 (61.4%) patients. Two cases occurred after long-term initiation of ART (7,778 and 5,866 days). Visceral lesions were

found in the gastrointestinal tract (25 cases, 35.7%), oropharynx (10 cases, 14.3%), and bronchial/lung (4 cases, 5.7%). Chemotherapy was administered in 40 cases (57.1%), with Doxorubicin being used in 35 cases (87.5%) for a median of 3 cycles (maximum of 47 cycles). Kaposi sarcoma inflammatory cytokine syndrome (KICS) accounted for 5 cases (7.1%). There were 10 deaths (14.3%), including 2 from pancreatic cancer, progressive multifocal leukoencephalopathy 2 cases, and 4 from KICS. The median observation period was 8.7 years (IQR, 12.65). Kaplan-Meier survival curves were drawn based on the presence or absence of KICS, showing significantly higher mortality in patients with KICS ($p < 0.01$). Moreover, even after adjusting for age, CD4 count, HIV RNA levels, smoking, alcohol consumption, and systemic chemotherapy, KICS was significantly associated with an increased risk of mortality. The Hazard Ratio was 26.8 (95% Confidence Interval, 4.5-158.6, $p < 0.01$).

Conclusion: Kaposi's sarcoma can occur regardless of CD4 count and the duration of ART. If KICS is not present, with proper diagnosis and treatment, the mortality rate may be low, even for cases with visceral lesions.



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Genital Warts in People Living with HIV in Korea: A Retrospective Descriptive Study.

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Background: Genital warts (GWs) are one of the most common forms of sexually transmitted disease and common in People Living with HIV (PLWH). However, there is scarce information on the epidemiology of genital warts in PLWH in Korea.

Methods and Materials: Between January 2023 and December 2023, a cross-sectional survey on GWs was conducted at the study hospital. This survey was conducted as a part of routine care at the outpatient HIV care clinic, and an interview survey was offered to male PLWH. Patients were asked if they had ever experienced GWs diagnoses, and if so, when they were diagnosed with GWs. Where the GWs occurred and how they were treated. The patient's medical records were also reviewed to obtain epidemiological and clinical data.

Results: The mean age of 538 enrolled male PLWH was 52.28 ± 14.72 years, and 99 were < 35 years (18.4%). Among 538 enrolled patients, 97 (18.02%) had ever experienced Genital warts. The most common sites of GWs were the anus (81/97, 83.5%), following genitalia (17/97, 17.5%), oral cavity (2, 2.1%) and another site (1, 1.0%). Four patients (4.1%) had experienced GWs in multiple sites.

Overall, GWs development was significantly more prevalent in the men who have sex with men (MSM) than men who have sex with women (MSW); MSW 91.7% vs. MSW 57.5%, $P < 0.001$. GWs were also more prevalent in the younger age group (<35 years (younger group 30.3% vs. non-younger group 15.3%, $p=0.001$). associated with age ($p=0.001$) and HPV vaccination status ($p=0.026$). Among the 138 PLWHs with age ≤ 40

years, 14 (10.1%) received HPV vaccination, and 6 vaccinated PLWHs developed GWs.

Conclusions: The prevalence of GWs in PLWH was common among young and MSM PLWHs in Korea.



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Exploring sexual behavior patterns in women with HIV and cervical dysplasia: A descriptive study on early age at first intercourse and number of sexual partners

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Background: Women living with HIV have a sixfold higher risk of developing cervical cancer compared to those without HIV. The compromised immune system in women with HIV makes them more susceptible to HPV transmission, which increases the risk of cervical dysplasia. Women with HIV, as a vulnerable group, often exhibit sexual behaviors that can elevate the risk of cervical dysplasia. Early age at first intercourse and multiple sexual partners have been identified as significant risk factors.

Method: This study aims to examine the distribution of first sexual intercourse and the number of sexual partners in women with cervical dysplasia. The research design employs a quantitative descriptive method.

Results: The accessible population consists of women living with HIV aged 18-50 years, attending HIV clinics in Bali, regularly from July 2023 to December 2023, with a sample size of 239 subjects. Sampling will be done consecutively (non-probability technique). Results show that 71 subjects (29.7%) had ≥ 5 sexual partners in the last six months, with 6 subjects (8.5%) having cervical dysplasia. Additionally, 159 subjects (66.5%) had their first sexual intercourse ≤ 21 years, and 17 subjects (10.7%) experienced cervical dysplasia. The research also explored the history of routine pap smears, finding that 126 subjects consistently undergo pap smears. The findings show a relatively small percentage of women with HIV experiencing cervical dysplasia from the group with ≥ 5 sexual partners and those with sexual debut ≤ 21 years old. This shows a high awareness

in population regarding reproductive health risks, particularly cervical cancer risk. The study participants have taken preventive action, as evidenced by 52.7% routinely undergoing pap smears.

Conclusion: In conclusion, the findings suggest that self-awareness and preventive actions among women with HIV contribute to lowering cervical dysplasia risk. However, understanding participant's perceptions and further research are necessary. Recommendations include enhancing cervical cancer prevention initiatives, especially for women with HIV, emphasizing education, HPV vaccination, and regular examinations. This study provides a foundation for developing targeted health policies to improve the well-being of women with HIV.



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Erythema Nodosum Leprosum in an HIV patient with Poor CD4 Cell Recovery: A True Co-Infection

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Background: As of 2021, leprosy is still considered endemic in the Philippines with more than 1000 cases annually. With the increasing number of PLHIV in the country, HIV-Leprosy co-infection has also been noted to increase. Most documented cases involve tuberculous leprosy-associated immune reconstitution inflammatory syndrome (IRIS) from treatment-induced immunological recovery. Rarely, lepromatous leprosy is encountered in the setting of severe immunodeficiency with poor CD4 cell recovery.

Case Proper: We report a 51-year-old female with rectal adenocarcinoma and advanced HIV disease on Lamivudine + Zidovudine + Dolutegravir for three months, presenting with multiple erythematous tender papules with central umbilication on the upper extremities, chest, and face. This was accompanied by bipedal edema, facial swelling, and eruption of tender violaceous nodules on the anterior leg. Skin punch biopsy revealed foamy histiocytes and multinucleated giant cells consistent with Hansen's Disease. She was treated for Lepromatous Leprosy with Erythema Nodosum Leprosum and started on a 12-month-MDT regimen with tapering doses of prednisone. On follow-up, the lesions flattened and edema and joint pains resolved.

Discussion: Leprosy reactions are immunologically mediated episodes of acute inflammation. In patients with HIV, reactions are triggered by an unstable immune system. Most cases of leprosy in HIV are associated with IRIS after initiation of highly active antiretroviral therapy (HAART). Despite three months of HAART, our patient's CD4 cell count decreased to 36 cells/mm³ from 68 cells/mm³. This decline is attributed to the presence of ongoing co-infection between HIV-1 and leprosy. Untreated coinfections and medical

conditions such as malignancy are considered factors causing CD4 lymphopenia.

In treating HIV patients with Leprosy, no further dosage adjustments are required for most HAART when co-administered with once a month high dose rifampicin. Standard dose Lopinavir/Ritonavir-based ART and Dolutegravir-based ART co-administered with monthly rifampicin may still achieve virological suppression in HIV-1-leprosy coinfecting patients.

Conclusion: In HIV-Leprosy co-infection, it appears that the patient's cell-mediated immunity, and not the HIV infection per se, alters the clinic-immunopathological spectrum of leprosy. A range of manifestations complicates diagnosis due to the variability of the body's immune response. No treatment modification is required in cases of HIV-Leprosy co-infection. However, potential interactions between anti-Mycobacterium leprae and anti-HIV medications should be considered.



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HIV knowledge of young adults and HIV testing

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Background: Young Filipinos who are aware of HIV and AIDS had fallen to its lowest since 1994.

University of the Philippines Population Institute (UPPI) conducted Young Adult Fertility and Sexuality which said that only 76 % of 15 to 24 year old have heard of HIV and AIDS in 2021. It was a 19% point drop from 95 % in 1994. HIV and AIDS awareness was still 95 % in 2002, but a decrease was seen in 2013, when the share of youth who have heard of the virus and the disease fell to 83 %.The UPPI was concerning since a low level of awareness and insufficient knowledge of HIV and AIDS can stall efforts to arrest the increasing number of infections in the Philippines. Comprehensive knowledge on HIV is essential to intervene early before risky behaviors are formed. Getting tested for HIV is also important for prevention since limited data on the willingness of the young adults to be tested and have been tested are reported.

Methods: A total of 263 young adults, ages from 15 to 24 years old were the participants of the study. They were categorized as to early young adults (15-19 years old) and late young adults (20-24 years old) which comprised approximately 39% and 61% of the young population respectively. Majority of them were single college students and few were pregnant. Several young adults belonged to low income family. A validated HIV knowledge questionnaire was administered to gather the data. Chi square was employed to determine the association between the level of knowledge and the willingness of the young adults to have HIV tested. The level of significance was set at .05 alpha.

Results: Almost half of young adults (49.0%) had high knowledge and more than half of them (51%) had low knowledge in HIV. As to their age group, more than half of late young adults (56%) and several early young adults (38%) had high knowledge in HIV. Furthermore, college (81%) students (53%) and married (60%) young adults with family income of Php 80,000 and above (65%) displayed high level of knowledge in HIV. Half of the young adults (51%) were not pregnant had high knowledge in HIV. More than half of young adults (54.4%) were willing to be tested for HIV and almost half of them (46%) were not willing. Using Chi square test, age group of the young adults had strong significant association ($p=.005$) with their willingness to be tested for HIV and a significant association ($p=.000$) between the level of knowledge and the willingness to be tested for HIV among young adults

Conclusion: Schools are a place for students to learn comprehensive knowledge on HIV, They are in a unique position to help the students adopt behaviors that reduce their risk for HIV and to practice skills that promote a healthy lifestyle. Late young adults and have high knowledge is more likely have strong willingness to be tested for HIV.

Keywords: HIV knowledge, young adult, and HIV testing



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FEATURES OF THE EPIDEMIC PROCESS OF HIV INFECTION IN THE CONDITIONS OF PANDEMIC OF INFECTIOUS DISEASE COVID-19

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Introduction: The problem of the COVID-19/HIV syndemic is of particular relevance due to the worsening prognosis and burden of the disease. **Objective:** To study the characteristics of the epidemic process of the infectious disease COVID-19 among people living with HIV infection (PLHIV).

Materials and Methods: Data on the incidence of COVID-19 and HIV infection were retrospectively analyzed based on materials of the Ministry of Health and Social Protection of the Population of the Republic of Tajikistan.

Results: A study of the epidemic process of HIV infection in the current epidemic of the infectious disease COVID-19 in the Republic of Tajikistan revealed a slight decrease in the incidence rate. As of December 31, 2023, the cumulative incidence of HIV infection in Tajikistan for the entire observation period (1991-2023) was 16,129 cases, of which 4,433 (27.5%) people died. Currently, the number of people living with HIV is 11,696 (72.5%) people.

Cases of HIV infection are common among men (63.7%). The most susceptible age group is 15-49 years old, predominantly among PLHIV 30-39 years old.

Among new cases of HIV infection, sexual transmission (mainly heterosexual contacts) predominates - 82.0%. Injecting HIV transmission accounts for 8.0%, which is associated with non-medical injection drug use. Over the past 10 years, the level of sexual transmission of HIV has increased by 25.0%, and the share of injection routes has decreased by 2.5 times.

In 2020, 1095 cases of HIV were detected, which is 20.5% lower than in 2019 (n=1320), i.e. before the pandemic period. In addition, in 2020, the coverage of the population with HIV testing was 805,120 people, which is 1.3 times less (n=1,062,509) in 2019.

At the beginning of April 2023, a total of 17,786 cases of coronavirus infection COVID-19 were registered in Tajikistan, of which the proportion of those who recovered was 97.0% (17,264 cases), and the number of fatal cases was 0.7% (125 cases). The overall incidence rate of COVID-19 in the country was 139.5 per 100 thousand population, mainly among people 40-60 years old (43%), which correlates with the incidence rate among the general population.

During the COVID-19 coronavirus pandemic, the prevalence of COVID-19 among people infected with HIV was 0.31% of the total number of this cohort of patients, that is, 29 cases among 9459 people living with HIV infection (as of April 2023), of which one was fatal (3.4%).

Conclusion: An analysis of the epidemic process among people living with HIV who have suffered from COVID-19 shows that, despite a slight decrease in the incidence of HIV infection, coronavirus infection at this stage did not have a significant impact on the course of the development of the HIV epidemic in the country.

This trend is, in particular, associated with a decrease in the volume of testing for HIV infection and with restrictive measures introduced due to the worsening epidemiological situation of COVID-19, as well as with asymptomatic and relatively mild COVID-19 in the country. Therefore, the majority of people living with HIV did not seek medical help.



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Analysis of Prevalence and Risk Factors with Cytomegalovirus Infection in People with Human Immunodeficiency Virus (HIV)

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Background: Cytomegalovirus (CMV) infection may lead to tissue-invasive end-organ damage including CMV enteritis, retinitis and other severe comorbidities, especially in immunodeficiency individuals such as people infected with HIV (PWH). However, there were inconsistent reports on the prevalence of CMV infection in PWH. This study is to identify the prevalence rate and the risk factors of CMV infection through the examination of CMV Deoxyribonucleic Acid (DNA) expression in the peripheral blood and urine of PWH in China.

Methods: In this cross-sectional study on 267 PWH, data on CD4+ T cells, CD8+ T cells, B cells, natural killer (NK) cells, and HIV Ribonucleic Acid (RNA) in peripheral blood were all collected, and CMV DNA was examined in both peripheral blood and urine. The risk factors of CMV infection were analyzed.

Results: Of the selected 276 patients, 2.5% (7/276) had positive CMV DNA expression in peripheral blood and 9.5% (24/252) had positive CMV DNA expression in urine. There was no consistency on CMV DNA expression between urine and peripheral blood ($\chi^2=10.557$, $P<0.05$). Populations with positive expression of CMV DNA in peripheral blood had significant lower percentage of CD4+ T cell, CD4/CD8 ratio and higher HIV RNA levels compared with CMV DNA negative populations (all $P<0.05$). Multivariate analysis revealed that the percentage of CD4+T cell was a strong risk factor for positive expression of CMV DNA in peripheral blood (HR=0.599, 95%CI: 0.397-0.902, $P<0.05$). Populations with positive expression of CMV DNA in urine had lower percentage of CD4+ T cell and CD8+ T cell, CD4/CD8 ratio and higher HIV RNA levels, which is consistent with the data on peripheral blood. Multivariate analysis showed

that these were not the influencing factors of positive expression of CMV DNA in urine.

Conclusion: The percentage of CD4+T cell of PWH is a major risk factor for CMV DNA positive expression in peripheral blood.



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Addressing the burden of Hepatitis C among High-Risk Groups: Learning from Punjab Experience

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Introduction: Injection drug use (IDU) is fast becoming the primary cause of new hepatitis C virus (HCV) infection in several countries. Punjab, a state in India, has high number of drug users and the prevalence of chronic hepatitis C (CHC) among People Who Inject Drugs (PWID) was 8-10% in comparison to 3.6% among general population.

Approach: To address the challenge of increasing hepatitis C, Government of Punjab launched the Mukh Mantri (Chief Minister) Punjab Hepatitis-C Relief Fund (MMPHCRF) in 2016 to provide free treatment of Hepatitis-C to all the patients in the State. Further, in 2017, recognizing the need to reach out to high-risk individuals, the approach was changed from passive screening to active screening. The active screening for HCV was undertaken among People Living With HIV/AIDS (PLHIV) at Antiretroviral therapy (ART) centres, PWID at Opioid substitution therapy (OST) sites and in Prisons, across the state. Four laboratories were established for viral load testing and sample transport networks were mapped to screening centres thus minimizing the sample transport distance, reducing costs, and optimizing lab capacities.

Results: In 4 years, more than 200,000 people were screened and 85,000+ HCV patients were initiated on treatment. Out of these, 69,000+ patients have completed treatment and 52,000+ were completely cured. Besides that, financial burden on the State, for tests and medicines was greatly reduced through large scale procurement and negotiations with suppliers.

Conclusion: Punjab's comprehensive approach to Hepatitis C management showcases the feasibility of large-scale screening and treatment in a decentralized public healthcare setting. Its success

highlights the importance of integrating Hepatitis C screening and treatment in public health programmes and need to reduce the financial burden among vulnerable patients.



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HIV/TB Co-infection Managed with Dolutegravir and Lamivudine Combined with Rifampin-based Anti-tuberculosis Therapy

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Introduction: The interaction between rifampin and dolutegravir (DTG) has traditionally been managed by administering DTG twice daily. However, this approach poses challenges, including a high pill burden and an increase in adverse drug reactions. Previous research has demonstrated effective virologic suppression with a single dose of dolutegravir, combined with lamivudine and tenofovir, in anti-tuberculosis treatments containing rifampin. Current guidelines advocate for dual therapy regimens as the first-line approach in clinical settings to minimize drug interactions and adverse reactions. This study aims to preliminarily evaluate the virological outcomes in HIV patients co-infected with tuberculosis, treated with a rifampin-based anti-tuberculosis regimen alongside a dual therapy regimen, specifically the fixed-dose combination of dolutegravir/lamivudine antiretroviral therapy (ART).

Methods: This investigation was carried out on patients co-infected with HIV-1 and Mycobacterium tuberculosis at a hospital in Southwest China. Participants were administered standard anti-tuberculosis treatment (rifampin, isoniazid, pyrazinamide, and ethambutol for the initial 2 months, followed by isoniazid and rifampin for 4 months). The ART regimen comprised DTG/3TC (50mg/300mg, once daily) taken with meals. The primary endpoint was the proportion of patients achieving virological suppression (HIV-1 RNA < 50 copies/mL).

Results: From May 1, 2023, to September 1, 2023, 5 participants (2 females, median age 51 years [Interquartile Range (IQR): 33-63]) were enrolled. The median baseline CD4 cell count was 56 cells/ μ L (IQR: 145-316), and the median HIV-1 RNA

was 5.1 log₁₀ copies/mL (IQR: 4.2-5.7). By week 12, 3 out of the 5 patients had achieved virological suppression. The remaining 2 patients experienced a decrease in viral load by 3.1 log₁₀ copies/mL and 3.3 log₁₀ copies/mL, respectively, with a median increase in CD4 cell count from baseline of 57 cells/ μ L (IQR: 37-107). By week 24, all 5 patients had achieved virological suppression, with a median increase in CD4 cell count from baseline of 100 cells/ μ L (IQR: 78-127). Key metabolic markers, including total cholesterol (TC), low-density lipoprotein (LDL), blood sugar, and safety indicators such as alanine aminotransferase (ALT), aspartate aminotransferase (AST), blood urea nitrogen (BUN), and creatinine clearance (CrCl), were monitored, revealing no significant abnormalities.

Conclusion: HIV/TB co-infected patients receiving the simplified dual therapy regimen of DTG/3TC, in conjunction with a rifampin-containing anti-tuberculosis treatment, exhibited stable virological and immunological responses at both 12 and 24 weeks, with favorable safety profiles. This regimen has the potential to significantly alleviate economic and pill burdens. However, further validation through extensive real-world studies is essential.



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Finding the TB missing case in the areas of low reported TB cases in Cambodia

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Background: Cambodia's estimated TB burden is approximately 32% of TB cases were estimated to be undiagnosed and untreated in 2022, with a WHO estimation of 48,000 and a case notification of 32,770. The disease's prevalence may rise as the country's population matures due to a lack of quality TB diagnosis tools, health care management, and accessibility of TB service providers.

Intervention: A mobile active case finding (ACF) intervention was conducted in 28 remote communities in four operational districts. The trained village health support groups conducted door-to-door screenings in their community. Close contact with bacteriologically positive patients, the elderly aged 55 or more, HIV and diabetes patient were invited for a screen by CXR; they were then asked to collect their sputum if they had a CXR abnormality or TB symptom(s).

Result: Between February and August 2023, there were 28 communities visited by ACF, resulting in a screening of 11,682 people by CXR, and 1,754 (15%) were tested by XpertMTB/RIF. A total of 506 new all-form TB cases, with 249 bacteriologically positive, were treated at health facilities on the same day of the diagnosis. NTP reported that in 2022 (before intervention), there were 133 TB cases, including 63 that were bacteriologically positive. In the period of intervention, the number of all-form TB cases and bacteriologically positive cases increased by +380% and +395% compared to the same period in 2022, respectively.

Conclusion: In the case of low-reported TB cases, they are often unaware of the extent of the TB intervention. When combined with community mobilization and the use of new tools, a series of

roving, one-off ACF days were able to increase TB diagnosis, treatment initiation, and treatment outcomes in a key population with high TB prevalence.



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Isoniazide and ofloxacin-loaded PLG nanoparticles: a promising new treatment option for tuberculosis

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Isoniazide and ofloxacin-loaded PLG nanoparticles: a promising new treatment option for tuberculosis

Introduction: The potential for poly-(DL-lactide-co-glycolide) (PLG) nanoparticles to improve azide bioavailability has been shown in the literature. As a result, using Isoniazide and ofloxacin encapsulated in PLG nanoparticles, either alone or in combination with other ATDs, may be a cutting-edge tactic in the fight against TB. We assessed the pharmacokinetic and chemotherapeutic capabilities of Isoniazide and ofloxacin, either separately or in combination, against murine tuberculosis in this investigation. This work also aimed to design a more effective TB regimen by evaluating the effects of Isoniazide and ofloxacin encapsulated in poly-(DL-lactide-co-glycolide) (PLG) nanoparticle-encapsulated ECZ against drug-susceptible murine TB.

Material and Method: Oral administration of PLG nanoparticles to mice was accomplished by the use of the multiple emulsion and solvent evaporation process. PLG nanoparticles were administered orally once, and the therapeutic drug concentrations were maintained in plasma for up to 5 days Isoniazide and ofloxacin, and up to 6 days in the organs (lungs, liver, and spleen). In contrast, the same organs eliminated free medicines in a matter of 12 to 24 hours.

Result: The formulation was found to be equipotent to 42 doses (ofloxacin administered daily) or 84 doses (isoniazide administered twice daily) of free medicines in mice infected with M. tuberculosis when eight oral doses were supplied weekly. Moreover, when compared to the individual medications, the combination of ofloxacin demonstrated to be greatly effective. The mice's organs were completely free of germs

after eight weeks when standard drug rifampicin (RIF) was added to this combination.

Conclusion: The most effective combination of Isoniazide and ofloxacin is found in PLG nanoparticles, which show promise for intermittent Tuberculosis therapy.



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Simplified ART with DTG/3TC in an experienced HIV-Infected Patient with 3TC Resistance: A Case Report

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Background: Although dolutegravir/lamivudine (DTG/3TC) is not typically recommended for HIV-infected individuals with a history of treatment failure and 3TC resistance, the emergence of opportunistic infections (OIs), drug resistance, tolerance and financial constrains often limit clinical antiretroviral therapy (ART) options. Here, we present a case of an HIV-infected patient with OIs of Nocardia and fungal, along with 3TC resistance and the patient's poor financial status, who had to receive the ART of DTG/3TC.

Case Presentation: A 38-year-old man was admitted to our center on December 5, 2019, following a year-long history of persistent cough and sputum production, worsening over the last three months. Diagnosed with HIV in 2016, he initially declined ART but started Efavirenz (EFV) + Tenofovir (TDF) + 3TC treatment in June 2019 at another clinical center, with an undisclosed viral load. Following a serious clinical testing, the patient was diagnosed with pulmonary Nocardiosis and sinus aspergillosis infections, in addition to HIV infection, and received tailored treatment for Nocardia and antifungal therapy, including voriconazole. His plasma HIV viral load reached 97,400 copies/mL and CD4 counts were 2 cells/ μ L, indicating treatment failure during the previous 6 months of ART. Then HIV drug resistance testing results revealed nucleoside reverse transcriptase inhibitor (NRTI) mutation of K65R and Y115F with moderate resistance to 3TC, Emtricitabine (FTC) and high resistance to TDF and Abacavir (ABC), non-nucleoside reverse transcriptase inhibitors (NNRTI) mutation of K103N and Y106M resulting in high resistance to EFV, Nevirapine (NVP) and moderate resistance to Doravirine (DOR), no protease inhibitor (PI) related mutation. Considering these results and DDIs, ART was switched to DTG+AZT+3TC.

In January 2020, during a follow-up call, it was noted that the patient had discontinued voriconazole without the consulting doctors. Despite unsuccessful persuasion, and with a baseline hemoglobin was 91g/L, the ART was adjusted to Lopinavir/ritonavir (LPV/r) +DTG+3TC. In May 2020, the patient was hospitalized due to worsening symptoms, considering the possible association with the discontinue of voriconazole, then voriconazole treatment was restarted, and the ART was adjusted to AZT+DTG+3TC due to DDIs between LPV/r and voriconazole.

In late August 2020, the patient's viral load decreased to 47 copies/mL, CD4 count rose to 116 cells/ul, but hemoglobin was 70 g/L. Considering the high possibility of anaemia caused by AZT, the ART was switched to DTG/3TC after extensive discussion with the patient and the dosage of anti-Nocardia drugs was reduced. Subsequently, the hemoglobin level was gradually increased. In late September, the HIV-1 viral load was lower than 20 copies/mL, and the patient continued to use DTG/3TC. The viral load remained below 20 copies/mL by October 2023, with CD4 count increasing to 457 cells/ul.

Conclusion:

In this case of a treatment-experienced HIV patient with treatment failure history, drug resistance, DDIs, and poor economic status, the simplified treatment regimen of DTG/3TC was chosen, resulting in favorable long-term clinical outcomes.

Keywords: Resistance; Simplified ART; HIV;



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Detection of KatG Ser315Thr substitution in Mycobacterium tuberculosis infected patients using PCR -RFLP method for screening Isoniazid-Resistance

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Co-infection of HIV with Mycobacterium tuberculosis is a common event, particularly in developing countries. The emergence and spread of multidrug resistant tuberculosis (MDR-TB) is an increasing public problem in India. The drug-resistant M. tuberculosis strains are posing a significant challenge to TB control. As per increasing incidence of TB patients in developing countries and the emergence of MDR-TB, DNA sequencing is a very simple, cost-effective, and rapid method for the diagnosis before clinical treatment for patients. Sequencing along with Spoligotyping improves the identification of M. tuberculosis (MTB) isolates. The conventional methods like sputum microscopy and chest X-ray for detection and diagnosis for antibiotic sensitivity are time consuming as compared to molecular methods

The study used PCR to characterize mutations inside the rifampicin resistance-determining region (RRDR) of the rpoB gene in the rifampicin-resistant M. tuberculosis co-infected with HIV. All the rifampicin-resistant strains had missense mutations. Sequence analysis detected a single or multiple hotspot mutations in the RRDR region of the rpoB gene at codons 516, 512 and 531, in most strains. Furthermore, mutations also occur at codons 512, 514, 517 and 526. The results suggest that hotspot mutations in the rpoB gene are not the sole contributors to MDR-TB co-infected with HIV.

Sequencing of the PCR purified samples was performed by capillary electrophoresis. The results were screened for mutations in the rpoB gene with reference to M. tuberculosis H37Rv strain sequence. In drug resistance pattern, there is an amino acid substitution or amino acid change at

the codon position 531 in 81 bp hotspot region of RRDR in the rpoB gene. It is known that the most common mutation in the rpoB gene is at codon 531 with serine to leucine substitution (TCG to TTG)

The results from this study suggest that mutations in the rpoB gene hotspot may not be the only factors associated with rifampicin resistance in TB co-infected with HIV. Mutations at other sites may also contribute to drug resistance. Therefore, GenexPert focusing on targeted hotspot regions may miss out mutations at other sites. Further studies about these novel mutations in addition to those in the hotspot region in the TB-HIV co-infected population would add more diagnostic markers for the reliable prediction of drug resistance. This will provide insight into developing novel diagnostic tools for the detection of M. tuberculosis co-infected with HIV in a high TB-HIV endemic area like India.



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Effectiveness and safety study of DTG + 3TC duo simplified regimen in HIV / AIDS complicated with tuberculosis infection

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Effectiveness and safety study of DTG + 3TC duo simplified regimen in HIV / AIDS complicated with tuberculosis infection

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Objective: To observe the efficacy and safety of dolutegravir (DTG) + lamivudine (3TC) in HIV with tuberculosis infection.

Methods: From January 1, 2020 to March 1, 2023, a retrospective single-center observation study was conducted to analyze the HIV viral suppression rate, immunological and biochemical indicators, and the curative effect of tuberculosis infection at 24 weeks and 48 weeks of treatment.

Results: A total of 42 patients were enrolled. The HIV viral suppression rates at 24 weeks and 48 weeks were 73.8% and 95.2% respectively. And the rates of those HIV RNA $\geq 500,000$ cp/ml and HIV RNA $< 500,000$ cp/ml were 28.5% & 82.9% respectively at week 24, and 100% & 94.3% respectively at week 48. And the rates of those CD4+T ≥ 200 c/ul and CD4+T < 200 c/ul were 100.0% & 69.4% respectively at week 24, and 100% & 94.4% respectively at week 48. At week 24 and 48, CD4+T cell counts and CD4+/CD8+ ratio were both significantly increased compared to baseline (P < 0.05). And HDL levels were significantly higher at week 24 and 48 than at baseline (P < 0.05). Blood creatinine levels also increased at week 24 and 48, while glomerular filtration rate based on creatinine decreased from baseline at week 24 and 48 (P < 0.001). Fourteen of these patients were

complicated with extrapulmonary TB. The anti-TB regimen was HREZ in 59.5% (25 / 42) patients, 4.8% (2 / 42) patients HLftEZ, and 35.7% (15 / 42) patients HREZ + Mfl / Zfl, and 76.2% (32 / 42) adjusted HLftEZ after initiation of anti- / reverse retroviral therapy (ART). After 6 months of anti-TB treatment, 33.3% (14/42) of patients were cured, 38.1% (16/42) of patients were cured after 9 months of anti-TB treatment, and 28.6% (12/42) of patients were cured after 12 months of anti-TB treatment.

Conclusion: DTG+3TC dual simplified regimen can effectively suppress HIV replication, improve the immune function of the body, and is with good safety, it can become one of the clinical optimal treatment of HIV patients with tuberculosis.

Keywords: HIV; Tuberculosis infection; Dual simplified regimen



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Efficacy and Safety of INI-based Regimens in Treatment-Naïve and Experienced HIV-1 Patients: A Real-World Retrospective Study

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Introduction: The evolution of Antiretroviral Therapy (ART) has significantly transformed HIV-1 treatment, positioning Integrase Inhibitors (INIs)-based regimens as the first-line recommendation. This study aims to scrutinize the efficacy and safety of INI-based regimens among treatment-naïve and experienced HIV-1 patients, shedding light on usage trends and clinical outcomes from 2019 to 2023 in a southwestern Chinese city.

Methods: We conducted a thorough retrospective analysis of HIV-1 patient records between January 1, 2019, and December 31, 2023. Eligibility criteria included adults treated with INI-based regimens, excluding those under 18, with Hepatitis B or C co-infections, treatments shorter than 48 weeks, regimen switches midway, and incomplete follow-up data. The cohort was divided based on their regimens into DTG+3TC (D3), BIC/TAF/3TC (BIC), and EVG/c/TAF/FTC (EVG) groups. We assessed virological and immunological responses, along with safety profiles, comparing outcomes between treatment-naïve and experienced patients across different INI regimens.

Results: From a pool of 2374 patients, 1346 met the inclusion criteria; 1094 were on NNRTI/PI regimens, and 252 were on INI-based treatments: 145 on D3, 146 on BIC, and 65 on EVG. The adoption of INI regimens peaked in 2022 and 2023, with a notable preference for BIC, while EVG usage declined. Comparative analysis through Intention-to-Treat (ITT) and Per-Protocol (PP) analyses revealed no significant differences in virological suppression rates (VL<50copies/mL) between D3 and BIC groups in both treatment-naïve and experienced cohorts at 24 and 48 weeks. However, D3 demonstrated lower suppression rates compared to EVG at 48 weeks among treatment-naïve patients (53.45% vs.

80.65%, p=0.012) and experienced patients (66.67% vs. 85.29%, p=0.045) in the ITT analysis, with no significant differences in the PP analysis. No statistically significant differences were observed in CD4 count changes or CD4/CD8 ratio improvements across all groups. The safety profile was comparable among the regimens, with D3 showing advantageous results in triglycerides and glucose levels, suggesting a potentially better metabolic profile.

Conclusion: Although INI regimens are recommended as first-line ART in most guidelines, their usage in southeast China is limited, with about 18.7% usage observed in our study. These findings reveal that while D3, BIC, and EVG regimens provide effective virological control, D3 may offer metabolic benefits, crucial for long-term management. This study contributes to a nuanced understanding of INI-based treatments, facilitating informed decisions in tailoring ART to individual patient needs and optimizing clinical outcomes in diverse HIV-1 populations.



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Real-world efficacy, safety and feasibility of different initiation modes of Dolutegravir/Lamivudine in HIV treatment-naïve patients

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Backgrounds: Dolutegravir/Lamivudine (DTG/3TC) regimen has been incorporated into international guidelines as preferred first-line regimen in human immunodeficiency virus (HIV) treatment-naïve patients. Here we conducted a real-world study to investigate the efficacy and safety of DTG/3TC in HIV treatment-naïve patients. In addition, we also explored the feasibility of DTG/3TC for rapid initiation (starting antiretroviral therapy (ART) in 7 days after HIV infection confirmed), or starting ART before reporting viral load (VL) and/or drug resistance (DR).

Methods: We conducted a single-center, retrospective study in Beijing Youan Hospital, Capital Medical University, enrolled adult participants (≥ 18 years) who were newly diagnosed with HIV-1 infection and given oral ART DTG/3TC once daily. ART was modified if baseline testing reported DR to DTG or 3TC, hepatitis B virus (HBV) coinfection, as well as serum creatinine clearance $< 30\text{mL}/\text{min}/1.73\text{m}^2$, but participants would still be remained in the study cohort. The primary endpoint was the proportion of participants with HIV-1 RNA < 50 copies/mL at 24 week and 48 week (ITT and PP analysis). Secondary endpoints included immunological results as well as safety and tolerability data.

Results: 109 eligible participants (from February 2021 to December 2022) were recruited in this study. Most of them were male (99.1%, 108/109), with median age 34 (27, 40) years, median plasma HIV-1 RNA 4.1 (3.6, 4.7) \log_{10} copies/mL and median CD4 counts 367 (250, 507) cells/ μL . The proportion of baseline HIV-1 RNA $\geq 10^5$ copies/mL

and CD4 counts ≤ 200 cells/ μL were 17.4% and 12.8% respectively. The median ART initiating time (from confirmed HIV-1 diagnosis to treatment) was 9 (4, 17) days. At week 24, 96.3% of all participants (105 of 109; ITT analysis) and 99.1% of participants with available data (105 of 106; PP analysis) achieved virological suppressed (HIV-1 RNA < 50 copies/mL). At week 48, 90.8% of all participants (99 of 109; ITT analysis) and 100% of participants with available data (99 of 99; PP analysis) achieved virological suppressed. Subgroup analysis showed that different initiation modes (VL known but DR unknown or both VL and DR unknown before ART), rapid start of ART (ART initiating date ≤ 7 days), high VL at baseline ($\geq 10^5$ copies/mL), and advanced age (≥ 50 years) did not affect virological efficacy (all $p > 0.05$). The immune reconstitution was satisfactory, with median CD4 counts of 558 (417, 709) cells/ μL at 24 weeks and 614 (484, 846) cells/ μL at 48 weeks, significantly higher than baseline ($p < 0.001$). Overall, during the follow-up timepoints, we found that there were very small changes in liver and kidney function, blood lipids, as well as random blood glucose levels. No patients discontinued DTG/3TC due to adverse drug reactions.

Conclusions: This study proved DTG/3TC an effective, safe and well-tolerated ART regimen for HIV-1 treatment-naïve patients. It also provided evidence for the feasibility of DTG/3TC in rapid ART initiation, even in the absence of VL and/or DR reports before ART initiation.

Keywords: DTG/3TC; first-line regimen; rapid initiation; virologic suppression.



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Efficacy, Safety, and Patient-Reported Outcomes After Reverting from DTG/3TC to TDF+3TC+EFV Due to Financial Difficulty

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Introduction: Despite the TDF+3TC+EFV (TLE) regimen not being a first-line treatment in current guidelines (EACS 2023, IAS 2023, DHHS 2024), it is extensively used in China because it's provided free of charge. Although numerous studies have reported switching from other regimens to DTG/3TC (D3) regimen, financial difficulties sometimes have forced a few patients to revert to the cost-free TLE regimen. This real-world study evaluates the efficacy, safety, and patient-reported outcomes of such reversions.

Methods: Between April 2022 and April 2023, we included patients who had been on TLE for over a year and switched to D3 for at least six months. Those who were planning to revert D3 to TLE underwent comprehensive consultations with physicians to ensure that financial constraints were the only reason for the switch. Baseline assessments included viral load, CD4 counts (cells/ μ L), routine laboratory tests, and WHOQOL-HIV BREF evaluations. At 24 weeks post-reversion, we reassessed viral load, CD4 counts, laboratory tests, and WHOQOL-HIV-BREF scores to analyze changes in efficacy, safety, and patient-reported outcomes.

Results: 18 eligible participants were included finally. At baseline, 100% patients achieved virological suppression, with a median CD4+ cell count of 260 cells/ μ L (IQR: 118-330). After reverting to TLE, 24-week follow-up data were obtained for 14 patients, with no cases of virological failure and a median CD4+ cell count of 358 cells/ μ L (IQR: 261-484), showing a statistically significant increase ($p=0.002$). Safety assessments, including main metabolic indicators (TC, LDL, glucose) and liver and kidney function markers (ALT, AST, BUN, CrCl), showed no significant

differences. However, WHOQOL-HIV BREF evaluations indicated significant deteriorations in several dimensions, including quality of life and psychosocial aspects, after reverting to TLE.

Conclusion: Facing financial difficulties, patients sometimes revert from regimens with higher resistance barriers back to ones with lower barriers, despite guideline recommendations. In this preliminary study, patients reverting from D3 to TLE did not experience new virological failures, and their CD4 counts significantly increased, suggesting efficacy is maintained. No significant alterations in safety markers were observed, although patient-reported outcomes markedly worsened. These findings highlight the need for further research into the long-term effects of economically motivated regimen changes.



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Addressing Treatment Interruption among people living with HIV using a systematic monitoring tool piloted in Bacoor City, Philippines

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Background: Treatment interruption among people living with HIV is a challenge in the Philippines. As of September 2023, 22% of 95,399 total enrolled clients in the country interrupted treatment due to the lack of a standard tracking and risk factor assessment system for clients. The PEPFAR USAID-supported Meeting Targets and Maintaining Epidemic Control (EpiC) Project in the Philippines developed a Microsoft Excel-based "Client Monitoring Tool (CMT)" that optimizes data from the national information system for client follow-up and case management. The tool was piloted in Bacoor Social Hygiene Clinic (BSHC) in October 2023.

Description / Methods: The CMT has unique features that automatically compute the date of the next visit and color-coded the number of days before it prompts urgent follow-up. From related literature reviews, common client risks for treatment interruption were included in the tool, scored, and classified by risk category of each client. Varied case management interventions were recommended to address the risks. Through data review, facilities with high rates of treatment interruption were identified as priority sites for implementing the CMT. One priority site was BSHC, where on-site mentoring was done on navigating the tool and utilized different case management interventions to address factors contributing to clients' treatment interruption.

Lessons Learned / Results: Using the CMT-optimized case management, providers were able to schedule clients conveniently to reduce missed appointments, prioritize clients by risk, and allow for differentiated service delivery methods like

multi-month dispensing and telemedicine for lower-risk clients. As a result, BSHC reduced monthly client interruption. In over 70 client interruptions in September and 106 in October, BSHC reported 40 and 12 clients interrupting, in November and December 2023 respectively.

Conclusion: Standardized monitoring tools can efficiently track clients' adherence and address risk factors that contribute to their treatment interruption. With proper training, the tool can facilitate efficient case management to reduce treatment interruption and help clients achieve U=U status.



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Bictegravir/emtricitabine/tenofovir alafenamide (B/F/TAF) in treatment-naïve (TN) and treatment-experienced (TE) people with HIV (PWH): 24-month outcomes from the BICSTaR Asia cohort

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Background: BICSTaR, an ongoing, multinational, observational cohort study, evaluates real-world effectiveness and safety of B/F/TAF in TN and TE PWH. We present outcomes from the BICSTaR Asia cohort at 24 months (24M).

Materials and Methods: Retrospective and prospective data were pooled from PWH enrolled in the Republic of Korea, Singapore, and Taiwan (data cutoff: September 2023). Outcomes included virologic effectiveness (HIV-1 RNA <50 copies/mL), CD4 counts, weight/body mass index (BMI) change, treatment discontinuation, and drug-related adverse events (DRAEs). In prospective participants, 36-Item Short Form Health Survey Physical/Mental Component Summary (PCS/MCS) scores and HIV Treatment Satisfaction Questionnaire status (HIVTSQs) score (TE participants; ranging from 0–60, with higher scores indicating greater treatment satisfaction) were assessed.

Results: Overall, 240 participants (78 retrospective, 162 prospective) were included (59 Republic of Korea, 12 Singapore, 169 Taiwan). Among TN (n=51) and TE (n=189) participants, median age was 31.0 and 42.0 years; 96% and 91%

were male at birth, respectively. At baseline, 0 TN and 91% of TE participants had HIV-1 RNA <50 copies/mL; median HIV-1 viral loads were 4.5 and 1.3 log₁₀ copies/mL, respectively. In TN and TE participants with data at 24M, baseline median CD4 count was 307.0 and 583.5 cells/μL, median bodyweight was 71.0 and 67.7 kg, and median BMI was 23.8 and 23.7 kg/m², respectively. In prospective TN and TE participants, median baseline PCS/MCS scores were 55.5/41.8 and 57.7/49.4, respectively.

At 24M, 93% (40/43) of TN and 96% (157/163) of TE participants had HIV-1 RNA <50 copies/mL by missing=excluded analysis; 91% (40/44) and 92% (157/171) had HIV-1 RNA <50 copies/mL by discontinuation=failure analysis. Median (Q1, Q3) CD4 count change was +289.0 (186.0, 404.0) cells/μL in TN (n=34) and +44.5 (-39.0, 153.0) cells/μL in TE (n=104) participants. No treatment-emergent resistance was reported.

At 24M, median (Q1, Q3) weight change was +3.0 (0.4, 7.0) kg in TN (n=32) and +1.3 (-0.6, 3.9) kg in TE (n=140) participants; correspondingly, median (Q1, Q3) BMI change was +0.9 (0.2, 2.2) and +0.5 (-0.2, 1.4) kg/m².

By 24M, 2% (1/51) of TN and 5% (9/189) of TE participants discontinued B/F/TAF; the reported reasons were participant's decision (n=6), lack of efficacy (n=1), and adverse events (n=3 [DRAEs, n=2]). DRAEs occurred in 10% (5/51) of TN and 7% (14/189) of TE participants. Weight gain was the most common DRAE (n=8), leading to B/F/TAF discontinuation in two TE participants.

At 24M, in TN (n=20) and TE (n=129) participants, median PCS scores remained stable (median [Q1, Q3] change: +0.6 [-5.5, 8.0], P=0.503, and +0.2 [-2.4, 2.7], P=0.597, respectively); median MCS scores showed a small improvement in TN and a statistically significant improvement in TE participants (median [Q1, Q3] change: +4.5 [-2.1, 12.4], P=0.054, and +1.2 [-3.1, 6.5], P=0.013, respectively). At 24M, treatment satisfaction was high in prospective TE (n=130) participants (median [Q1, Q3] HIVTSQs score: 59.0 [54.0, 60.0]).

Conclusions: B/F/TAF demonstrated high levels of effectiveness and safety at 24M, with no reported treatment-emergent resistance, in an observational cohort of PWH in Asia treated as part of routine clinical care.



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Factors associated with poor adherence to antiretroviral therapy in people with HIV in Taiwan

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Background: According to UNAIDS statistics, there are 39 million people with HIV(PWH) globally in 2022. Antiretroviral therapy (ART) has been used for decades and dramatically improved life quality and life expectancy of PWH. However, factors affecting ART adherence are major concerned by caregivers because poor adherence could cause poor viral suppression that contributes to treatment failure. Therefore, we conducted this study to find out factors causing poor adherence to ART.

Methods: This study recruited PWH patients from one single HIV clinic in northern Taiwan between December 2018 and December 2020. All participants who agreed to join this study would be interviewed face to face by recording charts and Medication Adherence Report Scale (MARS-5). MARS-5 was used to evaluate treatment adherence and score <23 defined as poor adherence.

Results: 831 participants were enrolled, and 93 patients were considered poor adherence to ART. The different characteristics between two groups were that people with low medication adherence were younger, lower body mass index, shorter ART treatment duration, lower education level, lower income level, more history of gonorrhea acquired, more illicit drugs use within 3 months especially methamphetamine and sildenafil, living with friends, more with chronic disease, lower CD4 counts and detectable viral load.(Table 1) Univariate analysis was conducted which showed PWH with poor adherence were associated with having chronic disease(OR=1.991, p=0.002), history of gonorrhea acquired (OR=2.101, p=0.012), taking illicit drugs within 3 months(OR=2.976, p=0.002) which

methamphetamine (OR=2.78, p<0.001) and sildenafil(OR=2.976, p=0.002) were significant, living with friends (OR=3.39, p=0.004) and detectable viral load (OR=5.927, p<0.001). Older Age (OR=0.944 P<0.001), longer ART treatment duration (OR=0.951, P=0.02), higher CD4 counts (200-499 OR=0.299, p=0.034; ≥500 OR=0.174, p=0.003), higher income level (OR=0.466, p=0.027) and education level above university (OR=0.589, p=0.026) were prone to good adherence. (Table 2)

Conclusions: Factors of PWH with poor adherence in this study were younger age, shorter ART treatment duration, with chronic disease, history of gonorrhea, living with friends, illicit drugs use within 3 months especially methamphetamine or sildenafil using, lower CD4 count and detectable viral loads. Therefore, for patients with these characteristics, we need to pay more attention to whether these patients have poor adherence.



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ICAROS - An Australian observational study of clients and health workers who use long-acting cabotegravir and rilpivirine injections for HIV treatment - preliminary baseline survey results.

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Background: In Australia, long-acting cabotegravir and rilpivirine injections (LA-CAB/RPV) were approved and funded for use as treatment for HIV in April 2022. HIV treatment in Australia has a unique model of care as 50% of HIV care is provided by approved primary care providers, thus it was important to conduct an observational study using this treatment in Australia. ICAROS - (Injectable Cabotegravir and Rilpivirine - Observational Study) will help understand the perceptions and barriers, acceptability and appropriateness of this treatment as well as the quality life of people living with HIV over 12 months.

Methods: From June 2023 onwards, ICAROS recruited client and health worker subjects, who have used or administered this treatment, to complete online surveys. Subjects were recruited from primary care centres, tertiary centres and the community. The surveys were done online using a QR code or website. Surveys included information about the perceptions and barriers, acceptability and appropriateness, and quality of life (for clients only).

Results: Surveys from the first 35 client subjects and 33 health workers were reported. All the clients were male and 69.7% received care from a primary care centre. 57 % were concerned about continued viral suppression and 54% were

concerned about injection site pain. The most common reasons for commencing treatment were - interest in new HIV treatments (51%), convenience for travelling (49%) and not having a daily reminder of HIV (46%). 100% of clients finding the time taken for this treatment to be acceptable. For health workers, the concerns were - staff resourcing (48%), rescheduling missed appointment (42%) and treatment failures with resistance (39%)

Conclusions: LA-CAB/RPV treatment for HIV is preferred by people living with HIV for a variety of reasons but they and health workers have concerns about its use. The findings of this study so far, confirm the common reasons why this treatment may be preferred by clients but also has some additional reasons that have not been described before. Similarly, the survey results from the health workers also show some differences from previous studies. The information from this study can help address any concerns or barriers and also understand the benefits for the clients and the experience of clients and health workers in using this treatment. Further data collection is recommended and further measures can be used to help reduce the concerns about this treatment based on the information from this study. This study is ongoing.



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Effect of baseline factors on the efficacy of DTG/3TC in ART-naive PLHIV: a multicenter retrospective observational study

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Background: Dolutegravir/Lamivudine (DTG/3TC) is approved to be used in ART-Naive people living with HIV (PLHIV) with no known resistance to the individual components and is not recommended by guidelines for PLHIV with a baseline viral load > 500,000 copies/mL and has not been validated for rapid initiation of ART. Data on the efficacy of initiating DTG/3TC when baseline resistance testing or baseline viral load testing results are not available or at different time points after diagnosis are still lacking.

Material and Methods: We conducted a multicenter retrospective observational study in six clinical centers in Liaoning Province of China to analyze the effects of baseline drug resistance (BLDR), baseline viral load (BLVL), and ART initiation time after diagnosis on the virological inhibition (VL < 50 copies/mL) rate of DTG/3TC at 48 weeks in PLHIV who initiated ART between May 1, 2020 and December 30, 2022. We used chi-square test and logistic regression to analyze the impact of different baseline factors on the efficacy of initial DTG/3TC treatment.

Results: A total of 211 ART-naïve PLHIV without HBV were enrolled in this study. Overall, 200 (94.7%) males, 175 (82.9%) homosexuals, 43 (20.3%) aged ≥ 50 years. Median time from diagnosis to ART initiation was 40 days, and 143 (67.8%) patients initiated ART without baseline drug resistance testing and 43 (20.4%) patients initiated ART without baseline viral load testing. Baseline viral load ≥ 100,000 and < 500,000 copies/mL in 38(19.8%) patients and ≥ 500,000

copies/mL in 4 (2.1%) patients. The overall virological inhibition rate is 91% (192/211). The virologic suppression rates of DTG/3TC were similar [OR(95CI): 1.033(0.375-2.847), P=0.949] in patients with [Ref; 91.1% (62/68)] and without BLDR [90.9%(130/143)] and were similar in patients with BLVL<100,000 copies/mL (Ref; 95.0%(114/120) and with ≥ 100,000 and < 500,000 copies/mL [86.3%(38/44); OR(95CI): 3.000(0.913-9.858), P=0.07] and with ≥ 500,000 copies/mL [100%(4/4); OR(95CI): 0, P=0.99] and may be statistically better in patients without BLVL testing [87.3%(36/43); OR(95CI): 3.694(1.166-11.703), P=0.02]. The rate of virologic suppression was not statistically different in patients who initiated ART in 0 day [Ref; 90.0%(18/20)] and 7 days [95.3%(61/64); OR(95CI): 0.443(0.069-2.857), P=0.392] and 14 days [91.1%(51/56); OR(95CI): 0.882(0.157-4.955), P=0.887] and 30 days [84.6%(33/39); OR(95CI): 1.636(0.299-8.959), P=0.57] and >30 days [90.6%(29/32); OR(95CI): 0.931(0.142-6.122), P=0.941] after diagnosis.

Conclusion: As recommended in the guidelines, we suggest that HCPs should order BLDR testing and BLVL testing before initiating ART. We did not find that BLDR had an effect on the efficacy of DTG/3TC in ART- Naive patients, which may be related to the incidence of transmitted drug resistance of DTG/3TC being < 1%. We also found no effect of BLVL on the efficacy of DTG/3TC in ART- Naive patients, which is consistent with other real-world studies. This study demonstrates that BLDR, BLVL, and different initiation times do not affect the efficacy of DTG/3TC, indicating that DTG/3TC can be one of the optional options for rapid initiation of ART treatment.



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DTG/3TC improve early renal dysfunction caused by TDF in Chinese PLWH

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Background: Kidney dysfunction is an important comorbidity in patients live with HIV(PLWH), especially in those used TDF containing regimens, and it is associated with poor outcomes of these patients. However, data on kidney dysfunction in Chinese PLWH is scarce. In this study, we evaluated the improvement in renal dysfunction after replacement of DTG/3TC in PLWH with renal dysfunction due to TDF use.

Methods: A single-center, retrospective cohort study, The Ninth People's Hospital of Dongguan recruited 54 cases of PLWH with renal dysfunction who were using TDF regimen and evaluated the improvement of related indicators of renal function after 1 year of stable switching to DTG/3TC. Renal dysfunction was defined as albumin to creatinine (UACR) \geq 30 mg/g.

Results: A total of 54 Chinese PLWH were included and analyzed in this study. The median TDF use time was 1400 (IQR, 731, 2369.5) days, and the median duration of use after stable switch to DTG/3TC was 428.5 (IQR, 398,497) days, with a male predominance of 79.6%, and a median age of 45 (IQR, 34,51.5) . In terms of baseline characteristics, 64.81% of patients with renal dysfunction defined by UACR \geq 30 mg/g had eGFR $>$ 90 ml/min . At 12 months after the switch to DTG/3TC, UACR improved significantly ($p=0.000$) compared to baseline, with a median UACR value of 69.07 (IQR, 45.29,114.32) at baseline and a median UACR value of 24.76 (IQR, 10.57,40.06) at month 12 . However, eGFR calculated using CKD-EPI showed a significant decrease from baseline at month 12 ($P=0.012$) , but no statistically different decrease from month 6 ($P=0.099$). This may be related to the physiologic effect of DTG on serum creatinine.

Conclusion: UACR is an early indicator for the identification of renal impairment. This study confirmed that UACR was significantly improved

after stable switching to DTG/3TC in the PLWH of renal dysfunction caused by TDF. In PLWH, UACR may be more sensitive than eGFR, which may help to recognize renal dysfunction earlier and facilitate early intervention.



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Efficacy and Safety of Switching to DTG/3TC from INI-Based Three-Drug Regimens in Treated HIV Patients

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Objective: This study assesses the efficacy and metabolic changes in HIV patients switching from INI (Integrase Inhibitor)-based regimens without TAF (Tenofovir Alafenamide), with TAF, and with TAF plus a booster to DTG/3TC (Dolutegravir/Lamivudine) in a real-world study.

Methods: The retrospective study was conducted on HIV-1 patients at Chongqing Public Health Medical Treatment Center from 2021.1 to 2023.1, who had been on INI-based regimens for at least 6 months before switching to DTG/3TC for over 12 months. Excluding individuals with pre-existing metabolic conditions, participants were categorized based on the prior regimen's TAF content into three groups: DTG+TAF-free group, BIC/TAF/FTC group, and EVG/c/FTC/TAF group. The study compared virological, immunological, and metabolic outcomes, including renal function and lipid and glucose levels at 24- and 48-weeks after the switch to DTG/3TC.

Results: A total of 214 patients were included with pre-drug resistance testing revealing 3 cases of 3TC resistance among 74 tested (34.6%). The INI+TAF-free group included 100 patients previously treated with DTG+TDF or AZT or ABC+3TC. BIC/FTC/TAF group include 56 patients and EVG/c/FTC/TAF group included 58 patients. Initial virological suppression (defined as HIV-1 RNA < 50 copies/ml) rates before switch were 93%, 85.7%, and 91.4%, respectively. At baseline, there were no significant differences in uric acid, creatinine, or glucose levels among the groups, but EVG/c/FTC/TAF group had a significantly lower eGFR compared to the other two groups ($p=0.000$). Additionally, levels of triglycerides (TG), total cholesterol (TC), high-density lipoprotein (HDL), and low-density lipoprotein (LDL) were also

significantly higher in EVG/c/FTC/TAF group ($p < 0.05$).

At week 24, 140 patients had available follow-up data, with virological suppression rates of 90.3% (DTG+TAF-free), 96.8% (BIC/FTC/TAF), and 100% (EVG/c/FTC/TAF). The increase in CD4 counts and the changes in creatinine, uric acid, eGFR, glucose, HDL was not statistically significant across the groups ($p > 0.05$). After switching to DTG/3TC, the EVG/c/FTC/TAF group showed a decrease in TG, TC, and LDL from baseline, while the DTG+TAF-free and BIC/FTC/TAF groups showed an increase, with significant differences between the groups ($p < 0.05$).

At week 48, 95 patients had available follow-up data. The virological suppression rates were 91.3% (DTG+TAF-free), 100% (BIC/FTC/TAF), and 96.0% (EVG/c/FTC/TAF). 3 patients with pre-drug 3TC resistance all achieved virological suppression. The increase in CD4 counts and changes in creatinine, uric acid, eGFR, glucose, HDL, and TG was not statistically significant across the groups ($p > 0.05$). Median changes in TC were 0.57 (IQR: -0.19 to 0.91), -0.09 (IQR: -0.47 to 0.71), and -0.25 (IQR: -0.99 to 0.33) mmol/L, and median changes in LDL were 0.23 (IQR: -0.23 to 0.67), -0.15 (IQR: -0.39 to 0.01), and -0.18 (IQR: -0.71 to 0.10) mmol/L for the DTG+TAF-free, BIC/FTC/TAF, and EVG/c/FTC/TAF groups, respectively, with significant statistical differences observed ($p < 0.05$).

Conclusion: Switching from INI-based three-drug regimens to DTG/3TC maintained good virological and immunological outcomes. Compared to DTG+TAF-free group, BIC/FTC/TAF and EVG/c/FTC/TAF groups showed notable metabolic benefits after switching to DTG/3TC. The preliminary findings highlight the potential advantages of regimen simplification, emphasizing the need for further studies.



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Abstract 242 has been withdrawn.



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Efficacy and Safety of Integrase Inhibitor (INSTI)-based ART Regimens B/F/TAF and DTG/3TC in Treatment-Naive People with AIDS

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Background: According to the report from Chinese Center for Disease Control and Prevention (CDC), 35.5%-37.5% of people with HIV (PWH) are late presenters with low CD4 cell counts at the time of HIV diagnosis and/or have been diagnosed with Acquired immunodeficiency syndrome (AIDS), which may diminish the benefits of antiretroviral therapy (ART).

Both Bictegravir/Emtricitabine/Tenofovir Alafenamide (B/F/TAF) and dolutegravir/lamivudine (DTG/3TC) are efficacious and well tolerated in clinical studies, while real world data on the efficacy and safety of these two regimens in treatment-naïve patients with AIDS are still insufficient in China. This study is to investigate the clinical efficacy and safety of integrase inhibitor (INSTI)-based ART regimen B/F/TAF and DTG/3TC in treatment-naïve AIDS patients in Shanghai.

Methods: This retrospective study enrolled treatment-naïve PWH initiating ART with co-formulated B/F/TAF or DTG/3TC and on stable ART regimen for ≥ 6 months from October 2020 to July 2023. Between-regimen differences in viral suppression (< 50 copies/mL), immunological factors (including CD4 cell count, CD8 cell count and CD4/CD8 ratio) and changes in metabolic, hepatic and renal functions were examined.

Results: We enrolled 189 patients, including 74.6% on B/F/TAF and 25.4% on DTG/3TC. Participants with baseline viral load > 500000 copies/mL were 20.5% in B/F/TAF group and 8.3% in DTG/3TC group ($p < 0.05$). 77.3% (109/141) on B/F/TAF achieved complete virological suppression with no virological failure (plasma HIV-1 RNA ≥ 200

copies/mL) at week 24 after initiation, 85.4% (41/48) on DTG/3TC achieved complete virological suppression with 1 virological failure at week 24 after initiation, no statistical significance was observed between groups. 92.2% (130/141) on B/F/TAF and 85.4% (41/48) on DTG/3TC achieved more than 30% CD4 cell counts increase, no statistical significance was observed between groups ($p > 0.05$). Elevated uric acid levels, creatinine, total cholesterol and low density lipoprotein from baseline were observed in both groups ($p < 0.05$). The proportion of patients with mild and moderate renal impairment (based on creatinine clearance) increased significantly in both B/F/TAF regimen and DTG/3TC regimen ($p < 0.05$).

Conclusion: B/F/TAF and DTG/3TC were both effective in virological suppression and immunological recovery in treatment-naïve people with AIDS. Both regimens demonstrated good safety profile.



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Efficacy and Metabolic Safety of Bictegravir/ Emtricitabine/ Tenofovir Alafenamide (B/F/TAF) in Treatment-Naïve People Infected with Human Immunodeficiency Virus (HIV) : A 48-week Observational Analysis

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Background: To investigate the efficacy and metabolic safety of B/F/TAF in the treatment-naïve people infected with human immunodeficiency virus (HIV).

Methods: People infected with HIV (PWH) who used B/F/TAF as their initial antiretroviral therapy (ART) regimen and continued for more than 24 weeks in the third people's hospital of Nantong from December 2020 to June 2022 were retrospectively collected. Differences in plasma HIV RNA viral load, CD4+ T lymphocyte cell count, metabolic indicators including total cholesterol (TC)、triglyceride (TG)、high-density lipoprotein (HDL) and Low-density lipoprotein (LDL) were examined and compared before and after B/F/TAF treatment.

Results: 168 PWH were enrolled. CD4+cell count was 176.52±156.47 cells/μL at baseline, 284.86±196.29 cells/μL and 351.60±202.27 cells/μL at 24 and 48 weeks after B/F/TAF treatment respectively. Significant differences were observed among baseline, 24 weeks and 48 weeks ($p<0.05$). 85.71% (144/168) on B/F/TAF at 24 weeks and 97.62% (164/168) at 48 weeks achieved complete virological suppression. Subgroup analysis showed that in the population with baseline CD4+ T cell counts <200 cells/μL, the differences in TG, CH, HDL, and LDL at 24 weeks and 48 weeks after treatment were statistically

significant compared with baseline ($p<0.05$). The incidence of dyslipidemia was not high, and there was no significant difference in blood lipid profile between 24 weeks and 48 weeks after treatment ($p>0.05$). In the population with a baseline CD4+cell counts > 200 cells/μL, only HDL was statistically increased at 48 weeks after treatment compared with baseline ($p<0.05$).

Conclusion: B/F/TAF has a good virological suppression and immunological reconstitution in treatment-naïve PWH. Elevated lipid profiles were observed within 24 weeks after initiation in PWH with CD4+ <200 cells/μL and then stabilized. There was no significant difference in the lipid profiles with CD4+ > 200 cells/μL population, except for a significant increase in HDL level at 48 weeks.



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Safety and Efficacy of Albuvirtide plus Dolutegravir/Lamivudine compared with Bictegravir/Emtricitabine/Tenofovir Alafenamide as initial therapy for HIV-1 Infected and ARV-naïve inpatients, 12-week results of a preliminary real-world study

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Objective: The study was to evaluate the antiviral efficacy and safety of Albuvirtide (ABT) when combined with Dolutegravir/Lamivudine (DTG/3TC) compared to Bictegravir/Emtricitabine/Tenofovir Alafenamide (BIC/TAF/FTC) as the initial antiretroviral therapy (ART) for treatment-naïve adults with advanced HIV-1 infection.

Methods: The retrospective study enrolled participants with advanced HIV-1 infection who received ABT plus DTG/3TC or BIC/TAF/FTC as their initial ART at the 2nd Affiliated Hospital of Chengdu Medical College · Nuclear Industry 416 Hospital, a single center. Baseline assessments, including viral load (VL), CD4+ T cell count, and laboratory indicators, were conducted. Follow-up assessments were performed at week 12. The primary endpoint was the proportion of patients achieving virological suppression at week 12.

Results: A total of 94 ART-naïve patients with up to 12-week hospitalization were enrolled, with 49 receiving ABT+DTG/3TC and 45 receiving BIC/TAF/FTC (2020.4 to 2022.4). At baseline, 29 patients (30.9%) had opportunistic infections (OI), and 34 (36.2%) had non-AIDS defined chronic diseases. At week 12, virological success (defined as HIV-1 RNA < 29 copies/mL) was achieved by 39 out of 49 participants (79.59%) in the ABT+DTG/3TC group and 31 out of 45 participants

(68.89%) in the BIC/TAF/FTC group ($p=0.248$). The increase in CD4+ T cell count was significantly higher in the BIC/TAF/FTC group (141.73 ± 72.77 cells) compared to the ABT+DTG/3TC group (102.88 ± 48.81 cells) ($p=0.003$). Both groups showed a significant increase in the proportion of patients with CD4+ T cell counts ≥ 200 cells/ μ L. ABT+DTG/3TC treatment also resulted in a significant rise in serum creatinine (SCr). No severe ARV-related adverse events were observed.

Conclusions: This real-world study suggests that the ABT plus DTG/3TC regimen has similar virological efficacy to BIC/TAF/FTC as an initial therapy in hospitalized patients with HIV-1 infection, with fewer potential drug-drug interactions (DDIs). Considering the limitations of sample size and follow-up duration, further studies are needed.



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Real-world implementation of dolutegravir plus lamivudine for rapid initiation-ART of people living with HIV

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Real-world implementation of dolutegravir plus lamivudine for rapid initiation-ART of people living with HIV

Background: Dolutegravir/Lamivudine (DTG/3TC) is indicated for treatment-naïve and treatment-experienced people living with HIV (PLWH). Long-term outcome data from real-world studies on the implementation of a two-drug dolutegravir plus lamivudine (DTG+3TC) regimen for the rapid antiretroviral therapy of human immunodeficiency virus (HIV) infection remain limited. This study evaluated the real-world effectiveness and safety of DTG+3TC in rapid antiretroviral therapy initiation (defined as initiating antiviral treatment within 7 days) patients in Southwestern China.

Method: This was an observational, single-center, retrospective study that enrolled antiretroviral therapy (ART)-naïve (n = 65) patients with HIV who initiate antiviral treatment within 7 days between May 2020 and December 2022. Data on therapy and virological response were documented. Treatment success was determined as the proportion of patients with suppressed viral load (VL) <50 copies/mL. The primary endpoint was a VL <50 copies/mL at week 48.

Results: The group was predominantly male (67.7%), with a age of 57.12±1.82 years, with 31 (47.7%) patients aged ≥60 years. In this group, six patients (9.23%) had a baseline HIV VL >500,000 copies/mL, and 28 patients (43.1%) had a baseline CD4 count of <200 cells/μL. The prevalence of cardiovascular disease and AIDS-related opportunistic infections was 21.5% and 23.1%, respectively. The main reasons for choosing DTG+3TC included a low potential for drug-drug

interactions (33.9%), dyslipidemia (23.1%) and renal impairment (23.1%).

The proportion of treatment-naïve PLHIV with a VL <50 copies/mL at 48 weeks was 92.3% (60/65). One patient achieved virological inhibition at 8 weeks and then HIV VL had increased to 220 copies/mL at 48 weeks. One patient achieved virological inhibition at 12 weeks and then HIV VL had increased to 74.9 copies/mL at 48 weeks. Three patients had a VL >50 copies/mL at 48 weeks due to discontinuing DTG+3TC during the follow-up. The CD4 count increased significantly by 132 cells/μL (P < 0.001) in the ART-naïve patients, and the CD4+/CD8+ ratio increased by 0.36 (P < 0.001). Serum creatinine (Scr), high-density lipoprotein cholesterol (HDL-C) increased significantly (P < 0.001, P < 0.001, respectively), and the alanine aminotransferase, aspartate aminotransferase and chronic kidney disease epidemiology collaboration-based serum creatinine (CKD-EPI Scr) decreased significantly (P = 0.003, P < 0.001, P < 0.001, respectively). There were no significant changes in body weight, body mass index, total cholesterol, low-density lipoprotein cholesterol (LDL-C), and triglyceride (TG) from baseline to week 48 (P > 0.05). The estimated rates of drug-related adverse events in the patients were 13.8%. No adverse effects led to the discontinuation of DTG+3TC at week 48.

Conclusion: The results of this study suggest that DTG+3TC is a safe option to achieve and maintain virological suppression in rapid antiretroviral therapy initiation patients. This study also demonstrated a low prevalence of drug-related side effects.

Keywords: dolutegravir plus lamivudine, HIV infection, rapid initiation-ART, antiretroviral therapy



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Effectiveness and safety of Dolutegravir + Lamivudine for late detection of people infected with HIV

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Effectiveness and safety of Dolutegravir + Lamivudine for late detection of people infected with HIV

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Background: The efficacy and safety of dolutegravir+lamivudine (DTG +3TC) have been demonstrated in clinical trials of treatment-naïve therapy. However, real-life data are lacking. We investigated the virological outcomes and safety of DTG + 3TC for late detection of people living with HIV (PLWH).

Research Design and Methods: We performed a retrospective cohort analysis of PLWH who were late identification of human immunodeficiency virus (HIV) and initiated the antiretroviral regimen of DTG + 3TC from February 2019 to January 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. Late detection of people living with HIV defines as: 1) Surviving HIV infected persons and acquired immune deficiency syndrome (AIDS) patients with CD4+T count <200 cells/μL; 2) Surviving AIDS patients with CD4+T count ranges from 200 to 499 cells/μL.

Results: A total of 111 participants were included. Most participants were men (77.5%), and the median age at baseline was 65.0 (IQR: 68.0, 72.0) years. The viral load was higher than 500,000 copies/mL in 18.9% (21/111) of participants, the median CD4+T cell count was 123.0 (IQR: 52.5,

168.0) cells/μL, and 44.1% of cases were complicated by opportunistic infections. The prevalence of cardiovascular disease was 53.2%. At week 48, the proportions of participants with HIV-1 RNA < 50 copies/mL were 87.4% (97/111) for DTG + 3TC. The main reasons for choosing DTG+3TC included a low potential for drug-drug interactions (53.2%), Easy to take (15.3%) and renal impairment (13.5%).

In terms of immunological changes in the DTG + 3TC, CD4 increased by 122.0 cells/μL, and CD4/CD8 increased by 0.2 (P < 0.001). The changes in alanine aminotransferase, aspartate aminotransferase were minimal, and the clinical significance was limited. In terms of renal function, after 48 weeks of treatment, the creatinine clearance rate of patients decreased compared with the baseline (P < 0.001). Serum creatinine (Scr), high-density lipoprotein cholesterol (HDL-C) and total cholesterol (TC) increased significantly (P < 0.001, P < 0.001, P = 0.005, respectively). There were no significant changes in low-density lipoprotein cholesterol (LDL-C), blood sugar and triglyceride (TG) from baseline to week 48 (P > 0.05).

There were 16 (14.4%) adverse events (AEs) and 5 (4.5%) drug-related side effects reported in the study. One patient had SAEs (renal impairment) that required hospitalization, and the SAEs were non drug-related hospitalizations. During the study, none of the participants stopped taking drugs because of a lack of efficacy or adverse reactions.

Conclusions: The two drug regimen showed high Virological suppression and tolerability in late detection of people living with HIV.

Keyword: Dolutegravir plus lamivudine, HIV infection, late detection, antiretroviral therapy



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Outcomes of bictegravir/emtricitabine/tenofovir alafenamide versus Tenofovir/lamivudine/efavirenz in north China: a single center, real-world assessment

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Background: Integrase strand transfer inhibitor (INSTI)-based regimens, have emerged as the predominant treatment modality worldwide. Bictegravir/Emtricitabine/Tenofovir (B/F/TAF) has been endorsed as the preferred choice for treatment-naïve patients by the 2021 edition of the China Acquired Immune Deficiency Syndrome (AIDS) Diagnosis and Treatment Guidelines. Nevertheless, the predominant first-line regimen in China for most patients remains as Tenofovir/lamivudine/ efavirenz (TLE) which is free. we conducted a single-center, retrospective study to provide real-world data for the clinical ART of treatment-naïve patients in China.

Method: The data were collected from sixth Hospital of Qingdao, from January 2022 to Dec 2023. We analyzed viral response rates and changes of CD4+ counts. Subgroups analyzed in late presenter defined as baseline CD4+ cell counts <350 cell/ μ L.

Results: We enrolled 262 treatment naïve people, including 200(76.4%) on TLE and 62(23.6%) on B/F/TAF. The Average age was 38y, most are males, 14.4% people in TLE and 11.3% in B/F/TAF were married, 55.2% in TLE and 41.9% in B/F/TAF were on the job ($p=0.02$), same as the people's education level were higher in B/F/TAF than TLE (79% VS 59%, $P=0.025$). There is no significant different on baseline viral load and CD4+ counts. At week 12, Viral response(VR) rate was higher with B/F/TAF 96.9% than TLE 60.9% ($P <0.001$), and there was no difference at week 24 (93.3% vs 82.7%, $p=0.131$) and week 48 (89.1% vs 90.4%, $p=0.803$). This trend held in subgroup. The CD4+

counts and CD4+/CD8+ ratio were similar in B/F/TAF and TLE at week 12, week 24 and 1 year. Nevertheless, the changes of CD4+ for TLE and B/F/TAF from baseline to 12week (115 vs 198, $P=0.021$) and to 1 year(139 vs 234, $P=0.025$) were significant different.

In late presenter group, the VR rete were significant higher in B/F/TAF group than TLE (100% vs 63%, $p=0.001$) at week 12. The changes of CD4+ counts were also significant different between TLE and B/F/TAF from baseline to 12week (median 97 vs 164, $p=0.008$) and to 1 year(133 vs 159, $p=0.043$).

At 1 year of treatment, there were 4 people with lower level of viremia and 2 developed resistance among 9 people who haven't got VR in TLE group, in addition, 3 people discontinued treatment. Only 5 people with lower level of viremia in B/F/TAF group, no resistance and treatment discontinuation. People were asked to be routinely monitored viral load at 1 year after treatment initiated. There were 57.2% of people came back for viral test at 1 year in TLE group and 74.2% in B/F/TAF group($p=0.016$).

Conclusion: In this real word study, compared to TLE, the predominant treatment regimen in China, B/F/TAF led to earlier VR rate, much more CD4+ counts rise at first 3 month and 1 year. The same results also be found in late presenter group. There were few people developed LLV but no resistance and treatment discontinuation. And much more people were well monitored at 1 year of treatment. B/F/TAF shows a good profile of efficacy and better follow-up in people live with HIV.



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The efficacy and safety of switching to dolutegravir/lamivudine versus continuing on abacavir/lamivudine/dolutegravir in adults with virologically-suppressed human immunodeficiency virus-1 (HIV-1) infection: the first report of a real world experience from Singapore

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Background: Randomised controlled trials (RCTs) such as the TANGO (van Wyk, Ajana et al. 2020) and SALSA (Llibre, Brites et al. 2023) trials have demonstrated the non-inferiority of dolutegravir/lamivudine (DTG/3TC) compared with a 3- or 4-drug regimen in HIV-1 treatment. Observational data (Sabin, Worm et al. 2008) suggest an increased risk of cardiovascular events with abacavir (ABC) exposure. Real world evidence on the efficacy and safety of switching from abacavir/lamivudine/dolutegravir (ABC/3TC/DTG) to DTG/3TC is lacking in Asia. We present the findings from our cohort of PLHIV who were switched to DTG/3TC from ABC/3TC/DTG.

Material and Methods: We conducted a retrospective, single-centre observational study that included all virologically-suppressed PLHIV (defined as HIV RNA < 200 copies/ml) who were switched to DTG/3TC from ABC/3TC/DTG since 1 Feb 2022, and had at least 1 post-switch HIV-1 RNA by 15 Mar 2024. Those who met inclusion criteria were assessed clinically, and underwent monitoring of HIV-1 RNA, renal function and lipid biomarkers at intervals in accordance with standard clinical practice. These PLHIV were compared to a control group who were

virologically suppressed, and maintained on ABC/3TC/DTG over the same time period.

Results: Between 1 Feb 2022 and 15 Mar 2024, 33 PLHIV were switched from ABC/3TC/DTG to DTG/3TC, while 51 PLHIV remained on ABC/3TC/DTG. Baseline characteristics including age, gender, race, frequencies of comorbidities, renal function (estimated glomerular filtration rate and serum creatinine) and levels of lipid biomarkers were similar between the 2 groups. Specifically, baseline mean low-density lipoprotein (LDL) was 3.01 mmol/L (SD = 0.80) among those who were subsequently switched to DTG/3TC, while baseline mean LDL was 3.24 mmol/L (SD = 1.15) among those maintained on ABC/3TC/DTG ($p=0.324$).

The mean duration of follow-up from time of regimen switch was 4.66 months (SD = 1.31) for those switched to DTG/3TC, and 5.94 months (SD = 2.56) for those maintained on ABC/3TC/DTG. As of 15 Mar 2024, the proportion of PLHIV who maintained virologic suppression were similar between the 2 groups (100.0% of those on DTG/3TC vs 98.0% of those on ABC/3TC/DTG). Mean LDL was lower among those switched to DTG/3TC compared to those maintained on ABC/3TC/DTG (2.62 mmol/L vs 3.35 mmol/L, $p=0.004$). At follow-up, there was no significant difference in the mean serum creatinine, triglyceride and high-density lipoprotein between the 2 groups. After switching to DTG/3TC, 1 PLHIV developed nausea which resolved spontaneously without need for regimen change. There was no treatment discontinuation in both groups. One PLHIV developed stroke 3 months after switch to DTG/3TC. One PLHIV in the ABC/3TC/DTG group experienced virological failure due to medication non-compliance.

Conclusions: Among virologically-suppressed PLHIV in our centre, switching from ABC/3TC/DTG to DTG/3TC was well-tolerated, and virologic suppression was maintained through a mean of 4.66 months. Continued recruitment and follow-up are needed to determine if switching from ABC/3TC/DTG to DTG/3TC is indeed associated with a LDL-lowering effect. A longer period of follow-up would provide useful real-world evidence on the durability of the virologic suppression, and the impact of removing ABC on cardiovascular events incidence.



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Efficacy and Safety of dolutegravir plus lamivudine versus efavirenz plus tenofovir and lamivudine in HIV-1 infected and ART-naive patients in West China

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Introduction: This retrospective real-world study evaluated the antiviral efficacy and safety of dual therapy with dolutegravir plus lamivudine (DTG/3TC) in comparison to the standard regimen of efavirenz plus tenofovir and lamivudine (EFV+TDF+3TC) as initial antiretroviral therapy (ART) in HIV-1 infected patients.

Methods: Antiretroviral-naive HIV-1 patients were enrolled from the People's Hospital of Chongqing Banan District, West China, between January 2022 and April 2023. Participants received either DTG/3TC (D3 group) or the national free drug regimen EFV+TDF+3TC (TLE group). Data on viral load (VL), CD4+ T-cell count, and other laboratory indicators were collected at baseline, week 24, and week 48. The primary endpoint was the proportion of patients achieving HIV-1 RNA < 50 copies/mL at week 48, with secondary endpoints including immune recovery and safety outcomes.

Results: A total of 111 patients were treated with DTG/3TC, and 121 received EFV+TDF+3TC. By week 24, 96.6% of the D3 group achieved HIV-1 RNA < 50 copies/mL, compared to 44.3% in the TLE group. At week 48, 100% of the D3 group achieved this target, versus 89.8% in the TLE group, with both differences being statistically significant ($p < 0.05$). Changes in CD4 cell counts from baseline to weeks 24 and 48 were comparable between groups. The D3 group had significantly higher low-density lipoprotein levels at week 24, whereas the TLE group had significantly higher transaminase levels at both week 24 and week 48 ($p < 0.05$).

Conclusions: The DTG/3TC regimen demonstrated superior efficacy and comparable safety to the

EFV+TDF+3TC regimen at weeks 24 and 48. The impact of DTG/3TC on lipid profiles warrants cautious consideration, highlighting the need for further research.



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Changes in weight and blood pressure and its association in treatment naive People Living with HIV (PLHIV) who initiated antiretroviral therapy (ART) in a tertiary care hospital in Malaysia

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Background: Dolutegravir (DTG) use has increased in Malaysia due to the rollout of generic DTG in 2023. DTG regimens are found to be associated with weight gain and hypertension. We aimed to assess how weight changed and hypertension developed among Malaysian PLHIV.

Material and Methods: We conducted a retrospective review of adult (≥ 18 years old) PLHIV who were diagnosed from 1 Jan 2014 to 31 Dec 2021 and initiated on either EFV- or DTG-based ART and remained on their regimen throughout. PLHIV who have received at least 3 years of care with available baseline weight and blood pressure (bp) data and actively followed up at the University of Malaya Medical Centre up till 31 July 2023 were included. We evaluated how weight and bp changed after initiating ART. Weight change was calculated by comparing their weight at Month (M)6, M12, M24, and M36 with baseline weight. We identified high bp as systolic bp ≥ 140 mmHg and/or diastolic bp ≥ 90 mmHg, and hypertension as two consecutive readings of high bp. We excluded those who were hypertensive at baseline. Multivariate linear regression and multivariate logistic regression models were conducted to identify variables associated with weight gain and hypertension.

Results: Among 283 PLHIV (261 men, 21 women, 1 transgender woman), 242 were initiated with EFV and 41 with DTG. The median age of the study population was 39 (IQR=35-47). The median baseline weight, systolic, and diastolic bp were

64.2kg (IQR=55.7-71.9), 126mmHG (IQR=116-138), and 77mmHG (IQR=70-85) respectively. 64 PLHIV were excluded when assessing hypertension development. In multivariate analysis, weight gain at M12 was associated with DTG ($\beta=1.275$, $p=0.01$) and low baseline CD4 count (<200 cells/ μ L) ($\beta=1.649$, $p<0.001$). Hypertension was associated with age (OR:1.059, 95%CI:1.027-1.092) and weight gain at M36 (OR:1.067, 95%CI:1.019-1.118). The association between hypertension and ART, gender, and low baseline CD4 count were not statistically significant ($p>0.05$).

Conclusions: A statistically significant association was found between DTG and weight gain but not between DTG and hypertension. Age and weight gain were associated with hypertension. As more Malaysian PLHIV are being started on DTG and people are aging with HIV, close monitoring of weight, bp, and hypertension in the early stage is crucial.



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Prevalence and influencing factors of dyslipidemia among HIV/AIDS patients receiving antiretroviral therapy in Henan region

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Prevalence and influencing factors of dyslipidemia among HIV/AIDS patients receiving antiretroviral therapy in Henan region

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Background: Antiretroviral therapy (ART) has significantly reduced AIDS-related deaths and greatly improved survival rates for people with HIV/AIDS. However, the metabolic abnormalities associated with long-term ART therapy have received increasing attention. Henan is the earliest region in China to carry out national free ART, with a long treatment duration, a large cohort, and a large number of long-term survivors. It is of great significance to explore the prevalence of dyslipidemia and its risk factors in HIV/AIDS patients receiving ART in Henan to improve the effectiveness of ART in patients.

Methods: Adult HIV/AIDS patients who received ART for more than 1 year in the high prevalence area of AIDS in Henan Province were enrolled in the study. Their basic characteristics and clinical data were collected to analyze the total prevalence of dyslipidemia, and the prevalence of high total cholesterol (TC), high triglyceride (TG), high low-density lipoprotein cholesterol (LDL-C)

and low high-density lipoprotein cholesterol (HDL-C) in the included subjects. The influencing factors of dyslipidemia were analyzed using multivariate Logistic regression model.

Results: A total of 744 patients with HIV/AIDS were included. The rate of dyslipidemia was 62.76%, among which 80.30% was male and 19.70% was female. The ratios of high TC, high TG, low HDL-C and high LDL-C were 28.6%, 44.8%, 22.8% and 17.7%, respectively. The results of multifactor analysis showed that female and age ≥ 60 were independent risk factors for high TC. Overweight, obesity, ART regimen containing protease inhibitors and ART treatment time > 10 years were independent risk factors for high TG. Low cluster of differentiation 4 (CD4) cell count and ART regimen containing integrase inhibitors were risk factors for low HDL-C. ART regimens containing integrase inhibitors are risk factors for high LDL-C.

Conclusion: The prevalence of dyslipidemia in HIV patients receiving ART in Henan province is high. Gender, age, BMI, CD4 value, ART regimen and ART treatment duration are risk factors for dyslipidemia. It is recommended to dynamically monitor blood lipid levels in patients receiving ART for HIV/AIDS, and to intervene in the treatment or adjust the ART regimen as early as possible for patients with dyslipidemia.

Keywords: HIV/AIDS; dyslipidemia; antiretroviral therapy; prevalence; influencing factors



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Prevalence and risk factors of metabolic syndrome among HIV patients in a medical center of Northern Taiwan -- a cross sectional study

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Background: HIV acquisition has been found to be associated with increased risk of cardiometabolic syndrome in the past. In this study, we attempt to delineate the risk factors of metabolic syndrome among persons living with HIV in a single medical institution in Taiwan using mostly integrase inhibitors as HAART.

Methods: A cross-sectional study involving all HIV positive patients aged > 18 years who visited MacKay Memorial Hospital, Taipei, Taiwan between September 7, 2022 to January 31, 2023 was performed. A modified National Cholesterol Education Program ATP III definition of metabolic syndrome was used to define metabolic syndrome and body mass index was used as surrogate for waist circumference.

Results: 809 PLWH participated in the study, in which 81.3% of patient were on integrase inhibitor-based HAART regimen. The prevalence of metabolic syndrome was 10.0%, which is markedly lower than those reported previously. Age was a significant risk factor for metabolic syndrome. HIV-related factors (CD4, viral load, HAART regimen) did not affect the presence of metabolic syndrome.

Conclusions: Prevalence rate of metabolic syndrome appeared to have declined among PLWH compared to previous reports, possibly secondary to widespread use of integrase inhibitors. Age remains a strong risk factor for the development of metabolic syndrome among PLWH.



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FEASIBILITY AND OUTCOMES OF PCI WITH NOVEL TAPERED CORONARY STENT IN PEOPLE LIVING WITH HIV: A PROSPECTIVE, SINGLE-CENTER STUDY WITH LITERATURE REVIEW

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Background and Aims: Patients with chronic human immunodeficiency virus (HIV) infection have a high risk of premature coronary atherosclerosis, which is partly attributed to their requirement of a continuous highly active antiretroviral therapy (HAART) regimen. Their high predisposition to various opportunistic infections increases the complexity of percutaneous coronary intervention (PCI). Importantly, people living with HIV have thicker, stiffer, more tapered, and highly tortuous coronary vasculature, stiffness, and tapering compared to non-HIV CAD patients. Currently, there is no evidence of the clinical outcomes of patients with HIV undergoing PCI using tapered stents. This study aimed to assess the clinical outcomes of PCI with the novel tapered Morph sirolimus-eluting coronary stent (SES) system in patients with HIV in a real-world setting.

Methods: A prospective, single-arm, nonrandomized study was performed at a tertiary cardiac care center that included 15 people living with HIV and acute coronary syndromes. PCI was performed in these patients using the study device for de novo coronary lesions with significant size disparity between the reference vessel segments. The cumulative incidence of major adverse cardiovascular events (MACE), defined as a composite of cardiac death, myocardial infarction, and clinically driven target-lesion revascularization (CD-TLR) at the longest available follow-up was considered as the composite safety and effectiveness endpoint.

Results: Since 2018, a total of 15 people living with HIV with a mean age of 50.67 years underwent PCI with the study device for the revascularization of de novo lesions. Despite the patients having cardiac risk factors and presenting with type B or C lesions, 100% procedural and device success was achieved after the index PCI with restoration of myocardial flow (thrombolysis in myocardial infarction [TIMI] flow III). Over a median follow-up period of 40 months, no incidence of MACE or other adverse events was recorded for any of the patients.

Conclusions: The current study presents fresh evidence on the use of a long, tapered stent — Morph SES — for treating people living with HIV, in whom highly occluded vessels were successfully stented with favorable long-term outcomes. To the best of our knowledge, this is the first-ever report on obtaining such high success rates of PCI with long-term outcomes using a long, tapered SES in people living with HIV.

Keywords: Coronary artery disease, Drug-eluting stent, Human immunodeficiency virus, Tapered coronary stents, Percutaneous coronary intervention.



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Quality of Life and Nutritional Status in HIV-1 Infected Patients on Maintenance Hemodialysis

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Background: There is limited data on quality of life and nutritional status in HIV-1 infected patients with hemodialysis. The main objective was to investigate the quality of life (HIV/AIDSQOL-46 questionnaire) in HIV-1 infected patients with hemodialysis and analysed varied by different antiretroviral therapy (ART) regimens. We also evaluated differences of nutritional status between the patients with integrase strand transfer inhibitors (INSTIs)-containing ART regimens and non-INSTIs ART regimens.

Methods: This is a retrospective cohort study included HIV-1 infected patients with hemodialysis at the hemodialysis center of the Public Health Clinic Center of Chengdu, China, between July 2010 and October 2020. The primary outcome was the proportion of patients with HIV/AIDSQOL-46 scores over 161 points, a score of more than 161 is defined as a satisfactory quality of life. Subjective Global Assessment (SGA) is an assessment scale for evaluating the nutritional status of patients. According to the SGA screening, the nutritional status was defined as 4 grades: good, mild, moderate and severe respectively.

Results: A total of 94 patients were included in the study who received maintenance hemodialysis for at least three months, 61 and 33 patients performed INSTI-containing ART regimens and non-INSTI ART regimens, respectively. The mean HIV/AIDSQOL-46 scores was 174 points (IQR, 164 to 183), 78(83.0%) patients were very satisfied with the current quality of life evaluation and over 161 points by HIV/AIDSQOL-46 scores, 50 of 61 and 28 of 33 patients over 161 points with INSTI-containing ART regimens and non-INSTI ART regimens. Malnutrition was observed in patients with mild to moderate, mild malnutrition were recorded with SGA, 15(16.0%) and 5(5.3%), respectively. 14 (14.9%) versus 6

(6.4%) ($\chi^2=0.291$, $P=0.590$) patients with malnutrition in patients had INSTI-containing ART regimens and non-INSTI ART regimens, respectively. None of the patients were severely malnourished.

Conclusions: Our study exhibited that most patients reported satisfaction with their quality of life in maintenance hemodialysis who received ART. On another hand, the nutritional status of maintenance hemodialysis patients still needs to be improved.



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Navigating Challenges: PTMC in People Living with HIV with Severe Mitral Stenosis

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Background: Patients with chronic infections and compromised immune systems are at risk of developing valvular heart diseases, potentially influenced by opportunistic infections. Although the prevalence of rheumatic fever has decreased, mitral stenosis (MS) remains a significant global cause of morbidity and mortality. Percutaneous mitral balloon commissurotomy (PTMC) has transformed the treatment of MS. This study explores PTMC as an alternative to open surgical commissurotomy for mitral valve stenosis in People living with HIV.

Material and Methods: The study evaluates the immediate impact and outcomes of PTMC in 13 people living with HIV with mitral stenosis, utilizing two-dimensional echocardiography and Doppler tissue imaging (DTI).

Results: The study, conducted between May 2016 and January 2024, included 13 people living with HIV undergoing PTMC for severe MS. Patient age ranged from 21 to 43 years, with a mean age of 28 ± 6 years. Most patients (51.5%) were in the 21-30 age group, and 60.2% were female. Breathlessness was the predominant symptom (87.1%), and 80.2% reported a history of paroxysmal nocturnal dyspnea. Pre-PTMC, the mean Mitral Valve Orifice Area (MVOA) was 0.61 ± 0.36 , increasing to 1.81 ± 0.17 post-PTMC. Pre-PTMC mean Mitral Valve Gradient (MVG) was 18.42 ± 3.47 , reducing to 5.21 ± 1.1 post-PTMC. The mean Pulmonary Artery Systolic Pressure (PASP) decreased from 47.91 ± 12.04 pre-PTMC to 27.57 ± 7.21 post-PTMC. The mean Left Atrium (LA) size was 45.2 ± 4.2 mm, with the majority having adequate LV function (EF >50%). The mean Ejection Fraction was $61.0 \pm 4.8\%$. Wilkin's score ranged from 5-9, with a mean score of 6.7 ± 0.8 .

Conclusions: This study highlights an association between valvular heart diseases and clinical stages of HIV infection. Regular echocardiographic evaluations are crucial, even for mild disorders. PTMC, performed by an experienced operator in carefully selected patients, proves effective and safe for treating MS in people living with HIV.

Keywords: PTMC, 2D Echocardiography, HIV, Rheumatic Heart Disease, Mitral Stenosis



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Hospital Outcomes among People Living With HIV with Opportunistic Infections in a Tertiary Government Hospital

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Background: Human immunodeficiency virus (HIV) causes a decrease in CD4+ cell count levels leading to profound immunodeficiency and increased susceptibility to opportunistic infections (OIs), the primary causes of morbidity and mortality among people living with HIV (PLHIV). This study determined the association of socio-demographic, clinical and laboratory profiles to the outcomes of PLHIV with OIs in a tertiary hospital.

Methods: A retrospective cohort study design was utilized that included 93 newly diagnosed HIV patients with opportunistic infections during hospitalization at EVMC from January 1, 2019 to December 31, 2021. All data collected were analyzed descriptively and inferentially using the Chi-square test.

Results and Discussion: Majority of the patients belonged to age group 19-29 years old (60%), males (95%), homosexual (85%) and unemployed (57%). Bacterial pneumonia (69%), pneumocystis pneumonia (59%), oral candidiasis (58%) and pulmonary tuberculosis (50%) were mostly observed opportunistic infections. Almost all (93%) patients had CD4+ count levels of less than 200 cells/mm³ upon diagnosis. The presence of pneumocystis pneumonia (p-value 0.013), bacterial pneumonia (p-value 0.014), and high aspartate aminotransferase (AST) level (p-value 0.050) were significantly associated with in-hospital mortality.

Conclusion: Findings of the study were consistent with the Philippines' data on newly diagnosed HIV cases in 2023, with majority belonging to younger population, males and homosexuals. Presence of bacterial and pneumocystis pneumonia was associated with the patient's outcome in terms of in-hospital mortality. OI is a common cause of HIV-

related hospitalization, with a significant percentage of cases occurring in newly diagnosed HIV-positive patients with low CD4+ cell counts and not yet on antiretroviral therapy (ART).



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A Case Report of Concurrent Infections in a 17-year-old male: Acquired Immunodeficiency Syndrome, Pulmonary Tuberculosis, Treatment Failure T/C Multiple Drug Resistant Tuberculosis, COVID-19 confirmed severe; Cerebral Toxoplasmosis, Paradoxical Immune Reconstitution Inflammatory Syndrome

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This case report details the clinical course of a 17-year-old male Filipino patient admitted to San Lazaro Hospital in January 2021 with a history of generalized body weakness for one month. The patient presented with a movable, non-tender neck mass, high-grade fever, and significant weight loss. Initial treatment from another hospital included ceftriaxone, clindamycin, and azithromycin, which resulted to slight improvement. A year ago, patient had engaged in unprotected sexual activity and had a history of pulmonary tuberculosis treatment completed for 6 months. However, with development of neurological symptoms and a reactive HIV screening prompted transfer to San Lazaro Hospital. On admission, he exhibited severe malnutrition, aphasia, and generalized weakness.

The patient was diagnosed with acquired immunodeficiency syndrome (AIDS) and cerebral toxoplasmosis by MRI. He was treated with antiretroviral therapy (ART), co-trimoxazole, and specific antimicrobials for other infections. Recurrent healthcare-associated pneumonia, COVID-19, severe and immune reconstitution inflammatory syndrome (IRIS) complicated his hospital stay. Despite these challenges, the patient's condition improved and was discharged.

This case highlights the complexities of diagnosing and managing opportunistic infections in a young patient with AIDS. It underscores the importance of early diagnosis, targeted treatment, and a multidisciplinary approach to optimizing outcomes in complex clinical scenarios.



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Abstract 259 has been withdrawn.



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Improving coverage of viral load testing through a referral system led by People Living with HIV (PLHIV) in Greater Metro Manila (GMM), Philippines

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Background: Viral Load (VL) testing coverage in the Philippines stood at 27% by the end of 2022. The limited number of facilities performing VL testing and lack of information among eligible PLHIV about accessing the service contributed to this. The USAID-supported Meeting Targets and Maintaining Epidemic Control (EpiC) Project in the Philippines piloted the “VL for ALL” in Greater Metro Manila (GMM) to increase VL testing coverage.

Description / Methods: EpiC and Pinoy Plus developed “VL for ALL” pilot, streamlining referrals using their PLHIV Response Center (PRC); linking clients to three pilot facilities regardless of their treatment hub origin: Tarlac Provincial Hospital and Social Hygiene Clinics in Caloocan City and General Trias. The referral system was integrated into EpiC’s online booking platform, Quickres.org, and promoted in facilities and online from May to September 2023. Data from the National HIV information system (OHASIS) and the PRC log confirmed the results.

Lessons Learned / Results: Pinoy Plus successfully linked 345 eligible PLHIV to VL testing, contributing to increasing coverage from 44% in March to 52% in September in EpiC sites. Results also showed significant demand for VL testing among PLHIV residing outside GMM. This showcased optimization of Caloocan City SHC’s testing capacity increasing coverage from 48% in December 2022 to 69% in September 2023. Beyond the pilot period, the facilities continued to

accept eligible clients even outside their catchment areas.

Conclusion: A streamlined referral system and demand generation optimized facilities to upscale demand for VL testing, efficiently facilitate access of PLHIV., and increase VL testing coverage. Lessons will be used in 2024 to motivate other facilities to follow suit.



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From bench to bedside: Elucidating the diagnosis of acute HIV in complex DADA2 case with serial 4th generation HIV serology, HIV RNA viral load, and Line Immunoassay

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Background: Diagnosing acute HIV infection, especially in complex cases like Deficiency of Adenosine Deaminase 2 (DADA2), poses significant challenges due to overlapping symptoms and diagnostic uncertainties. This study explores the diagnostic utility of serial 4th generation HIV serology, HIV RNA viral load, and Line Immunoassay (LIA) in identifying acute HIV infection in complex DADA2 case.

Materials and Methods: A meticulous analysis was conducted on a case of DADA2 presenting with fever, sore throat, and rash, complicating the diagnostic process and leading to a dilemma between acute HIV and full-blown DADA2 manifestations. Despite initial considerations for full-blown DADA2 and the possibility of a false-positive HIV result, the culmination of investigations consistently pointed towards the diagnosis of acute HIV infection. Integrating clinical evaluations with 4th generation HIV serology, HIV RNA viral load, and LIA enabled a comprehensive approach, ultimately leading to the diagnosis of acute HIV.

Results: Serial 4th Generation HIV serology unveiled evolving serological patterns indicative of acute HIV infection. Despite the initial low reactivity in the screening test detecting both antigen and antibody, and a negative supplementary PA test, the assessment of HIV RNA

viral load provided compelling evidence with a viral load of 7.42×10^6 million. Additionally, the Line Immunoassay (LIA) revealed positivity for p24 antigen and gp41, while testing negative for p31. The evaluation is suggestive of Fiebig laboratory stage V of early HIV-1 infection. Subsequent repeat testing of 4th generation HIV serology confirmed positive antigen, antibody, and supplementary tests. The corroborative results of HIV serology, HIV RNA viral load, and LIA aid in the timely diagnosis and management of acute HIV in a complex DADA2 case.

Conclusion: Serial 4th Generation HIV serology, HIV RNA viral load, and LIA emerge as indispensable tools in navigating the diagnosis of acute HIV infection, particularly in intricate clinical scenarios like DADA2. Integrating these advanced diagnostic modalities into clinical algorithms holds promise for early detection and intervention, ultimately enhancing patient outcomes.



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Abstract 262 has been withdrawn.



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Real World Experience on the Use of Two-Drug Antiretroviral Therapy Regimens in Older People with HIV: Clinical Parameters

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Background: Two-drug regimens (2DRs) may reduce potential long-term drug toxicity and drug-drug interactions for people with HIV (PWH) on antiretroviral therapy (ART). 2DRs could be particularly beneficial to older PWH, who usually have more co-morbidities. However, PWH older than 50 (PWH \geq 50) were under-represented in key 2DR studies. This retrospective study evaluated the changes in clinical laboratory outcomes in PWH \geq 50 who switched from standard three-drug ART to 2DRs in real-world settings.

Material and Methods: PWH \geq 50 on suppressive standard ART who switched to 2DRs at the HIV clinic of the Queen Elizabeth Hospital, Hong Kong SAR, China were identified through electronic records. Their 2DR formulations, along with their last clinical laboratory results before the switch and the first laboratory results at or after 48-week post-switch, were retrieved. Laboratory tests included blood T-lymphocyte counts, complete blood count, kidney and liver function tests, fasting blood glucose and lipid profile. Longitudinal outcomes were compared using Wilcoxon signed-rank tests accordingly.

Results: Between January 2014 and December 2023, 113 PWH \geq 50 switched to 2DRs; 97 (86%) were male, with a median age of 59 (IQR 55–66 years). The median duration of ART was 14 (IQR 7.2–18.7 years). All but one received Integrase strand transfer inhibitors (INSTI)-based 2DRs; 97 (86%) combined with a nucleoside reverse transcriptase inhibitor (NRTI), 10 (9%) with a

protease inhibitor (PI), and 5 (4%) with a non-nucleoside reverse transcriptase inhibitor (NNRTI). Six of them were unable to maintain the 2DRs for 48 weeks, including two discontinuations due to adverse effects, one due to virologic failure (VF, HIV RNA >200 copies/mL) and three deaths unrelated to VF. Of the 107 (95%) who maintained their 2DRs over 48 weeks, their blood CD4+ T-lymphocyte count, CD4/CD8 ratio, haemoglobin, total white blood cell count, platelet count, creatinine, total bilirubin, alanine transaminase (ALT), alkaline phosphatase (ALP), fasting glucose, high-density lipoprotein (HDL) and low-density lipoprotein (LDL) cholesterol remained statistically unchanged at or after 48 weeks post-switch. The median triglycerides decreased from 1.6 (IQR 1.2–2.4) to 1.5 (IQR 1.1–2.1) mmol/L ($p=0.02$) while the median total cholesterol from 5.1 (IQR 4.5–5.7) to 4.7 (IQR 3.9–5.6) mmol/L ($p=0.04$). The decline in triglycerides and total cholesterol was no longer observed when users of lipid-lowering drugs ($n=56$, mostly HMG-CoA reductase inhibitors) were excluded.

Conclusions: In this group of male-predominant, virally suppressed PWH \geq 50 who switched to 2DRs, the rates of discontinuation and virologic failure at week 48 post-switch were low, along with stable key clinical parameters. The reductions in blood triglycerides and total cholesterol level at or after 48-week post-switch might have been due to lipid-lowering drug use.



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Optimization of treatment outcomes using client segmentation: Differences between clients who missed and adhered to clinical appointments.

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Background: Missed appointments for antiretroviral therapy (ART) are associated with negative consequences among HIV clients. To gauge ART adherence and continuity, the USAID/PEPFAR-funded Meeting Targets and Maintaining Epidemic Control (EpiC) project collaborates with the Vietnam Administration for HIV/AIDS Control to conduct routine client tracking. We analyzed client records to determine the characteristics of ART clients who missed an appointment in Dong Nai and Tay Ninh provinces to tailor and optimize strategies to improve ART adherence and continuation.

Materials and Methods: We analyzed de-identified data for ART clients from October 2022 through September 2023. We defined clients with missed appointments as those exceeding 28 days since their expected appointment. Demographic data and appointment-related variables were extracted from client records. Univariate and multivariate logistic regression were used to calculate odds ratios (OR) reflecting associations between clients who missed appointments and those who did not.

Results: Of 8,577 clients, 5.7% were categorized as having at least one missed appointment, 80.3% of whom were males. Mean age was 33.9 (± 10.0), and mean duration of treatment was 55.7 months (± 52.1). For clients reached after missed appointments ($n=280$), the primary reason was relocation for work in another province (30.4%), followed by no social health insurance or no validation of social health insurance (12.6%). Age was directly associated with missed appointments,

with a 1.3% increase in odds per year of age (OR=1.013, 95% CI: 1.002-1.025, $p=0.05$). Similarly, longer ART duration was associated with a 0.6% increase in missed appointment odds per month (OR=1.006, 95% CI: 1.004-1.008, $p<0.05$). Notably, sex was not significantly associated with missed appointments (OR=0.933, 95% CI: 0.713-1.220, $p=0.613$).

Conclusions: In Vietnam, tailored and enhanced support may be needed for older clients, those on long-term ART, clients working away from home, and those lacking valid social health insurance. Strengthening data systems to address factors contributing to missed appointments, and putting greater effort in patient tracking, are crucial for optimizing adherence and ensuring continued treatment. In addition, prioritizing the unique needs of each population is essential for improving healthcare services and overall well-being. This may involve development of specialized support services, personalized treatment plans for better medication access and management, targeted interventions to enhance medication adherence, and initial and periodic follow-up client consultations to ensure continuous health insurance coverage.



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Concurrent Testing for COVID-19 and HIV Infection at Udon Thani Hospital, Field Hospital, and Prison Field Hospital for Ending the HIV Epidemic in Udon Thani Province, Thailand

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Concurrent Testing for COVID-19 and HIV Infection at Udon Thani Hospital, Field Hospital, and Prison Field Hospital for Ending the HIV Epidemic in Udon Thani Province, Thailand

Background: In 2021, access to healthcare services was difficult due to the early pandemic of COVID-19 which caused people with HIV infection to get delayed diagnoses of opportunistic and HIV infection. Our team routinely tested the HIV infection in all COVID-19 cases aiming to detect the immunocompromised status that was one of the risk factors of severe COVID-19 and to normalize HIV testing.

Methods: Anti-HIV testing was routinely done in all adult patients who were diagnosed with COVID-19 in line with COVID-19 diagnosis and treatment guidance in Thailand. The anti-HIV positive result consisted of previously diagnosed HIV infection and newly diagnosed HIV infection. The previously diagnosed HIV infection individuals were asked about antiretroviral therapy (ART) compliance, and the newly HIV-diagnosed individuals received post-HIV test counseling and evaluation for early ART initiation.

Results: COVID-19 cases in Udon Thani Hospital from Jan-Oct 2021 were 11,480 cases with 1,119 cases admitted in Udon Thani Hospital, 5,111 cases in the field hospital, and 5,250 cases in the central prison of Udon Thani(prison field hospital). These cases were checked for anti-HIV with the positive results of 126 cases(1.1%). 46 cases were admitted to Udon Thani Hospital with 8 of them new HIV diagnoses, 38 cases in the field hospital with 17 of them new HIV diagnoses, and 42 cases in the central prison of Udon Thani(prison field hospital)

with 3 of them new HIV diagnoses. Of these 126 cases, 86(68%) were patients who were previously diagnosed with HIV infection and well-controlled disease, 12(10%) were patients who were previously diagnosed with HIV infection and lost to follow-up, and 28(22%) were newly diagnosed HIV infection and 16 of them were initiated ART within that admission. 11/126(8.7%) had severe COVID-19. Almost all cases(93.6%) received favipiravir as the COVID-19 antiviral. 5/126(3.9%) who did not take ARV had pulmonary TB co-infection, 1/126(0.8%) had pneumocystis pneumonia co-infection, 1/126(0.8%) had pulmonary tuberculosis and pneumocystis pneumonia co-infection. At 1 month after discharge, 87(69%), 19(15%), 19(15%), and 1(0.8%) of patients were retention in care in Udon Thani hospital, referred to community hospitals, lost to follow up, and died, respectively. At 3 months, the retention rate was 97%.

Conclusion: In the era of the COVID-19 pandemic, the new HIV diagnosis and identification of previously diagnosed HIV patients are difficult. Implementation of normalized HIV testing in patients who have COVID-19 infection shows benefit in new diagnosis, early starting ART, continuing ART, and retention in care.



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Willingness to receive the 4-component meningococcal serogroup B vaccine for gonorrhoea prevention in a trial setting among men who have sex with men

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Purpose: The real world effectiveness of gonorrhoea prevention by using the 4-component meningococcal serogroup B (4CMenB) vaccine has yet to be established. A randomised controlled trial is being conducted on men who have sex with men (MSM) in Hong Kong. The aim of this analysis is to determine their willingness to participate.

Methods: A cross-sectional survey was conducted on MSM from December 2022 to May 2023, covering demographics, sexual behavioural practice, HIV and gonorrhoea risk perception and diagnosis history, and perception about vaccination against gonorrhoea. Towards the end of the survey, they were asked about their interest in joining the 4CMenB trial with three options: yes, wishing to know more, and no. Participants answering yes were regarded as willing to participate. Associated factors were assessed using bivariable analysis.

Results: Of 481 participants, 138 (28.7%) expressed willingness to join the trial, 104 (21.6%) wished to know more, and 239 (49.7%) were uninterested. Those interested in participation in the trial were more likely to be older ($p=0.04$), living with HIV (PLHIV; $p=0.048$), and using PrEP ($p<0.001$). They were more likely to have history of transactional sex ($p=0.03$) and group sex ($p<0.001$). Their odds of condomless sex ($p=0.008$), chemsex ($p<0.001$), and sexually transmitted infection (STI) diagnosis ($p=0.005$) in the past 6 months were higher. Their perceived risk of STI ($p=0.02$) but not HIV ($p=0.27$) was higher. Those

who were not willing to join the trial were concerned about the side effects ($p=0.006$) and price ($p=0.002$) when choosing an STI prevention tool. Efficacy ($p=0.15$) and drug approval status ($p=0.27$) did not affect their willingness.

Conclusion: MSM with higher risk of STI were willing to join the 4CMenB trial probably because of the potential advantage of enhancing prevention of gonorrhoea. Sufficient information should be provided to the community members, especially PLHIV, to support making an informed decision on STI prevention options.



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High prevalence of gonorrhoea among Thai adolescent and young adult men who have anal sex: A cross-sectional study

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Background: Routine annual testing of *N. gonorrhoeae* (NG) and *C. trachomatis* (CT) by nucleic acid amplification testing (NAAT) is recommended in guidelines. However, in clinical practice, access is limited due to cost and availability. The objective of this study was to examine the prevalence of NG and CT among adolescents and young adults (AYA) at high risk of sexually transmitted infections (STIs).

Materials and Methods: A cross-sectional study of AYA aged 15-to 24-years engaging in anal sex was conducted. Inclusion criteria included (1) presented symptoms of urethritis or proctitis (2) > 3 sex partners in preceding 6 months (3) never been screened for NG and CT infections within 6 months prior to the study. STI screening was performed by pooled specimens collected from urethral, anal and pharyngeal swabs. NAAT testing for NG and CT were performed using GeneXpert assays. Prevalence rates were reported with 95% confidence intervals. Associated factors were analyzed with multivariate logistic regression.

Results: From May 2023 to March 2024, 124 Thai AYA with a median (IQR) age of 22 (20 to 23) years were enrolled. Median (IQR) age of sexual debut was 17 (15 to 19) years and 68 (55%) reported >6 sex partners in the preceding 6 months. 116 (93.5%) participants were men who have sex with men. Self-reported sexual roles included 59 (47.6%) being both insertive and receptive partner; 46 (37.1%) receptive only and 19 (15.3%)

insertive only anal partners. 19 (15.3%) participants were living with HIV and 37 (29.8%) were HIV pre-exposure prophylaxis users. Prevalence of NG was 21.8% (95%CI 14.9 to 30.1). Prevalence of CT was 24.2% (95%CI 17.0 to 32.7). 8 (6.5%) had dual infection. Among the 18 participants reporting urethritis symptoms, 7 (38.5%) had NG. Among the 45 participants who reported STIs in the preceding year, 18 (40.0%) had NG. Among the 59 participants who were played both insertive and receptive anal partner roles, 19 (32%) had NG. Among the 19 participants living with HIV, 9 (47.4%) had NG.

Multivariate analysis of factors associated with NG infection was being both an insertive and receptive anal partner (adjusted odds ratio (aOR) 3.1, 95%CI 1.2 to 8.1) and diagnosis of STI in preceding year (aOR 4.0, 95%CI 1.4 to 11.1).

Conclusions: One in five AYA were diagnosed with NG, with those reporting both insertive and receptive anal partner roles and STI in preceding year being at particular risk of getting NG. In highly limited resource settings, targeted NAAT testing and prompt treatment for NG should be considered in these groups to reduce transmission and risk of HIV acquisition.



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Identifying individuals at high risk for HIV and sexually transmitted infections with an artificial intelligence-based risk assessment tool

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Introduction: We have previously developed an artificial intelligence-based risk assessment tool to identify the individual risk of HIV and sexually transmitted infections (STIs) in a sexual health clinical setting. Based on this tool, the study aims to determine the optimal risk score thresholds to identify individuals at high risk for HIV/STIs.

Methods: Using 2008-2022 data from 216,252 HIV, 227,995 syphilis, 262,599 gonorrhoea, and 320,355 chlamydia consultations at a sexual health centre, we applied MySTIRisk machine learning models to estimate infection risk scores. Optimal cut-offs for determining high-risk individuals were determined using Youden's index.

Results: The HIV risk score cut-off for high risk was 0.56, with 86.0% sensitivity (95% confidence interval (CI): 82.9-88.7%) and 65.6% specificity (65.4-65.8%). Thirty-five percent of participants were classified as high-risk, which accounted for 86% of HIV cases. The corresponding cut-offs were 0.49 for syphilis (sensitivity 77.6%, 76.2-78.9%; specificity 78.1%, 77.9-78.3%), 0.52 for gonorrhoea (sensitivity 78.3%, 77.6-78.9%; specificity 71.9%, 71.7-72.0%), and 0.47 for chlamydia (sensitivity 68.8%, 68.3-69.4%; specificity 63.7%, 63.5-63.8%). High-risk groups identified using these thresholds accounted for 78% of syphilis, 78% of gonorrhoea, and 69% of chlamydia cases. The odds of positivity were significantly higher in the high-risk group

than otherwise across all infections: 11.4 (9.3-14.8) times for HIV, 12.3 (11.4-13.3) for syphilis, 9.2 (8.8-9.6) for gonorrhoea, and 3.9 (3.8-4.0) for chlamydia.

Conclusions: Risk scores generated by the AI-based risk assessment tool MySTIRisk, together with Youden's index, are effective in determining high-risk subgroups for HIV/STIs. The thresholds can aid targeted HIV/STI screening and prevention.



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Significant obstacles to Women Commercial Sex Workers' (WCSWs') access to HIV and STD programs during the COVID-19 pandemic in Rajshahi, Bangladesh

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Background: Women Commercial Sex Workers (WCSWs) who engage in hazardous sexual activity run a much higher risk of contracting HIV and other STDs. Testing and counseling are essential components of behavior change, treatment admission, and aftercare. This exploratory study aimed to record how the nation addressed the need for people living with HIV/STD and vulnerable to risk during the COVID-19 pandemic, as well as to look into obstacles that WCSWs faced in accessing, using, and staying in treatment.

Methods: During the peak of the COVID-19 pandemic, the study was conducted in Rajshahi, Bangladesh, from July 2021 to June 2022. The study comprised the following: (1) a review of official statements from the Bangladeshi government (2) in-person interviews with 650 WCSWs (3) in-person interviews with 24 service providers (4) in-person and telephone interviews with 14 key informants, and (5) a one-day negotiation workshop with 40 participants from the WCSW and service provider groups.

Results: During the pandemic's peak, WCSWs reported that they were denied access to medical facilities for almost 18 months and that they were not given any tests or treatments. According to nearly 94% of WCSWs, the pandemic made life more difficult for them and increased the number of instances in which they were marginalized and underserved. They also reported facing obstacles in obtaining social services and health treatment. However, for those who are currently at continuous risk of infection, annual HIV/STD testing is advised. More than 90% of the group as a whole said they had never had an HIV or STD test. The government's failure to apply a justice

lens in implementing its response to the nation's inept healthcare systems was pointed up by the key informant interviews and service providers.

Conclusions: Public health experts and HIV/STD service providers need to be aware of how the COVID-19 pandemic has affected HIV/STD care and be ready for any rises in HIV/STD-related morbidity and mortality in the upcoming years. The government will need to focus on identified policy and programmatic priorities for urgent HIV/STD screening, diagnosis, and treatment as well as educating patients and healthcare providers about COVID-19's impact on sexual health services.



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Impact of human papillomavirus vaccination on anal HPV infection and anal dysplasia among HIV-positive men who have sex with men

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Background: The risk of anal cancer increases among men who have sex with men (MSM) and people with HIV (PWH). Human papillomavirus (HPV) vaccination has recently been expanded to the male population for the prevention of anal cancer, but the impact of HPV vaccination on anal HPV infection and anal dysplasia is not well studied. The study aimed to assess the incidence and clearance of anal HPV infection and anal dysplasia following HPV vaccination.

Methods: During February 2021 to December 2023, the prospective study enrolled HIV-positive MSM aged 20-45 years without a history of HPV vaccination and suggested that they undergo three-dose 9-valent HPV vaccination at months 0, 2, and 6. Specimens were collected at the baseline visit and at months 3, 7, 12 for participants receiving HPV vaccination, while for those not receiving HPV vaccination, specimens were collected at the baseline visit and at month 12. At each follow-up visit, anal HPV genotyping, cytology, concurrent sexually transmitted infections, and microbiome were determined. Dynamic changes in anal HPV infection and anal dysplasia were observed.

Results: We enrolled 95 HIV-positive MSM, with 39 receiving HPV vaccination and 56 not receiving. All vaccinees had completed the third dose of HPV vaccine and 12-month follow-up, but non-vaccinees had not yet undergone testing at month 12. The participants had a median age of 34 years, with a median CD4 count of 680 cells/mm³, and 98.9% had achieved an HIV RNA viral load of <200 copies/mL. At baseline, 37.9% and 18.9% of participants had prevalent high-risk and low-risk HPV infections, respectively. While 7 (7.4%) participants exhibited low-grade squamous intraepithelial lesion (LSIL) in anal cytology, 4

(4.2%) showed high-grade squamous intraepithelial lesion (HSIL). Among vaccinees, the incidence rates of various HPV genotypes ranged from 2.1 to 6.7 per 1000 person-months, with persistence rates varying between 21.0 and 76.6 per 1000 person-months, and clearance rates ranging from 14.4 to 100.0 per 1000 person-months. The positivity rates for genotypes covered by the 9-valent HPV vaccine were 41.0%, 35.9%, 33.3%, and 43.6% at the baseline visit, and at months 3, 7, and 12, respectively. The rates of any anal cytology abnormalities were 17.9%, 20.5%, 15.4%, and 15.4%, respectively. Four (10.5%) participants had progression of dysplasia, but no vaccinees developed anal cancer during the 12-month. The anal microbiome showed a significant decrease in *Corynebacteriaceae*, *Peptostreptococcus* spp., and *Prevotella* spp. after HPV vaccination.

Conclusion: A significant prevalence of HPV infection and over 10% occurrence of anal dysplasia were observed among HIV-positive MSM. Participants experienced clearance of HPV infection, regression of anal dysplasia, and changes in anal microbiome following HPV vaccination. However, the rates should be compared with that in non-vaccinees.



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Designing a model of HIV Community-Based Services to address the disruption of HIV services during Covid-19 Pandemic among MSM community in South Sulawesi, Indonesia: An Implementation Study

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Background: The COVID-19 pandemic disrupts HIV services and impacts service access by the MSM community. The innovations in expanding HIV services reduce clinic visits, and physical contact is recommended. Community-based HIV service (CBS) is an HIV service conducted outside health facilities by trained peers. We intend to design an HIV CBS model that can overcome barriers to accessing HIV services, especially by the MSM community during the COVID-19 pandemic.

Methods: Focus group discussions (FGDs) and in-depth interviews (IDIs) were conducted from December 2022 to January 2023, involving the MSM communities, community-based organization members, health workers, stakeholders, and academicians. The participants were purposely selected and located in South Sulawesi, Jakarta, Yogyakarta, and Bali Province. We collected the informants' perceptions regarding preparing and designing an HIV CBS by adopting the KPLHS (Key Population Led Health Services) model in Bangkok, Thailand, with some adjustments to the Indonesian national HIV program and local context. FGDs and interviews were audio-recorded, transcribed verbatim, and analyzed deductively following the thematic framework approach.

Results: Sixty-three informants (49 men and 14 women) aged 21-57 participated in eight FGDs and 22 IDIs. The HIV CBS design included training for

community health workers, competency testing, internship, CBS implementation, and evaluation. The duration of training was set to 24 hours (three days), consisting of theory and practice with the Basic Level training (HIV and STI Screening) curriculum. Training materials are divided into three categories: core training materials, compulsory training materials, and additional training materials. The core training material consists of two modules: basic information on HIV and related infections and HIV counselling. The compulsory training material consists of only one module, namely HIV and STI screening and testing. The additional training material contains one module: promoting HIV STI services and client referral to health facilities. The trainees must pass the theoretical knowledge and practice skills test and score 80% or higher to be competent and get a certificate. After passing the assessment, all the trainees should join a one-week internship in Puskesmas (public health care). The services in HIV CBS will include screening and testing for HIV and syphilis, treatment, referral, and prevention programs by implementing static and mobile services. The HIV CBS will also perform management and supervision functions to ensure the quality of the services. Monthly evaluations will be conducted to monitor progress and constraints during service implementation.

Conclusion: The HIV CBS model will be implemented through several processes. By providing more flexible services in time and place, CBS is expected to overcome barriers to HIV services during Covid 19 and possible pandemics in the future. Government involvement is urgently needed, especially related to the regulation of blood-based HIV testing by non-health workers.



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Cracking the Code to Boost HIV Testing Uptake: A Comprehensive Model Integrating E-commerce Accessibility and Treatment Referral.

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Background: The rate of new HIV infections in Vietnam is concentrated mainly in key high-risk populations and ranges from 7% to 15% in men who have sex with men and drug users. Meanwhile, ensuring successful referrals in high-risk groups still poses significant barriers. Furthermore, community members are starting to prefer self-testing modalities in the privacy of their own homes. To address this, WeCare Social Enterprise, in collaboration with the Sexual Health Promotion Clinic (SHP) at Hanoi Medical University Hospital and the Community-Based Organizations (CBOs) network, introduces an innovative model leveraging e-commerce for self-testing accessibility and seamless referral to PrEP services and HIV treatment.

Methods: WeCare has made our rapid HIV test kits available on popular e-commerce platforms, Shopee and Lazada. Through collaborations with Community-Based Organizations (CBOs) and the Sexual Health Promotion Clinic, we have devised a strategic approach to ensuring these kits effectively reach high-risk communities.

Utilizing the extensive networks of 24 CBOs, we share purchase links for the test kits on their online platforms, ensuring broad access among vulnerable populations. Our communication

experts play a crucial role in enhancing outreach efforts, leveraging trust built through prior interactions with hotspot owners, community leaders, and CBOs.

Each kit includes brochures supporting confirmatory testing and free HIV treatment information for positive cases. It also includes a list of facilities offering free PrEP medication and a support hotline from the SHP clinic. For clients who initiate PrEP through our test kits at the SHP, we offer a refund for the test kit purchase and facilitate seamless referral to the SHP at Hanoi Medical University Hospital. This integrated approach ensures that individuals not only have access to testing but also receive the necessary support and follow-up care.

Results: Since the model's launch in May 2023, 685 self-test kits have been sold, connecting approximately 13.44% (92 individuals) to PrEP services, identifying approximately 6.72% (46 cases) of new HIV-positive cases, and successfully referring approximately 5.54% (38 individuals) to ARV treatment. Additionally, 5 cases (6.25%) returned to their provinces for treatment due to their insurance registration, with only 3 cases (3.75%) lost to follow-up.

Conclusion: The success of our model underscores the effectiveness of collaborative efforts between a social enterprise, a medical institution, and community organizations in bolstering HIV testing, prevention, and treatment. A key aspect of our model is expert outreach, which plays a significant role in providing detailed insights to inspire and guide others in implementing similar programs at their respective institutions. Moving forward, we will explore the continuation and adaptability of this model to other social enterprises and community-based organizations.



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Acceptability, Feasibility, and Effectiveness of HIV Community-Based Services among MSM Community in Indonesia: An Implementation Research

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Background: As one of the most rapidly growing HIV epidemics in Asia, Indonesia has failed to achieve the UNAIDS targets, even though it has various services and programs. The World Health Organization (WHO) has recommended to expand HIV testing outside the clinical setting. Community-based HIV service (CBS) is one approach recommended. Adopting the KPLHS (Key Population-Led Health Services) model in Thailand, we implemented an HIV CBS pilot project. We aimed to determine this approach's acceptability, feasibility, and effectiveness among the MSM community in Indonesia.

Methods: A cross-sectional study using a concurrent mixed-method design was conducted from Mei to November 2023 in South Sulawesi, Indonesia. We collected quantitative data using questionnaires among the MSM population and qualitative data with focus group discussions (FGDs) and in-depth interviews (IDIs) to gather information from HIV service beneficiaries, community health workers, health workers, and stakeholders to assess the acceptability, feasibility, effectiveness, and evaluation of the HIV CBS model. We analyzed quantitative data descriptively and qualitative data deductively following the thematic framework approach.

Results: A total of 423 MSM participated and accessed the HIV CBS during the implementation phase. 2.8% (12) of the total were screened for HIV reactive and 1.9% (8) Syphilis reactive. All HIV and Syphilis reactive were successfully referred for confirmatory tests in health facilities. 100% of

participants expressed that community members were acceptable to perform HIV and Syphilis rapid tests in the community, 98.8% preferred rapid testing in the community rather than in health facilities, 99.3% were willing to support HIV CBS, 79.2% were willing to recommend the CBS, 67.4% had willingness to pay if CBS was not free, and 68.3% were very satisfactory about the CBS. All group informants in qualitative data collection stated that the CBS was acceptable, possible, and necessary to develop in other areas, community members were worthy of conducting HIV services in CBS, and the CBS has a significant impact on the HIV program and the community.

Conclusion: The HIV community-based service is acceptable and feasible to implement, and it is effectively supporting the HIV program. Multisector support, regulations from the government related to capillary-based HIV testing by non-health workers, and relevant pilot projects in other areas are needed to escalate this service model as a national program in Indonesia.



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Boosting HIV Self-Testing Kit Uptake: Leveraging Mpox Vaccination Opportunities in Taiwan

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Since 2016, Taiwan has initiated an pilot HIV self-testing program. Initially, it involved traditional face-to-face manual distribution and the setup of self-service machines in health units, LGBT-friendly centers, and pharmacies, etc. In 2017, the program expanded to include online ordering and 24-hour convenience store pickup services to increase service capacity. By 2023, there were 575 execution points, 79 self-service machines, and over 10,600 convenience stores providing services. In both 2021 and 2022, an average of over 50,000 self-screening test kits were distributed, equivalent to 217 self-screening tests per 100,000 individuals. The initial HIV testing self-reported positive rate was around 1% in 2017 and has ranged between 0.4% and 0.5% in 2021 and 2022.

In February 2023, Taiwan began to report domestic cases of Mpox. Epidemiological investigations found that over 60% of these cases were HIV-infected individuals. This indicates a significant overlap between high-risk groups for Mpox and HIV infections. Therefore, shortly after the domestic outbreak in February 2023, during planning of vaccination services, HIV self-testing kits were planned to distribute alongside with Mpox vaccination opportunities.

A total of 141 vaccination sites cooperated in this effort, and distributing work was done to facilitate the public, with a limit of one kit per person per vaccination. The process of obtaining the kits was integrated into the vaccination workflow of Mpox vaccination hospitals, clinics or health stations, with providing a testing kit directly, and recorded the number of testing kit at the top right of the consent form or registered in the list for accounting process, to reduce the extra effort from service sites for Mpox vaccination.

Distribution began on June 1, 2023. By December 31, 2023, a total of 18,274 self-screening test kits were distributed through Mpox vaccination sites, reaching 79,851 individuals in total. This represented an increase of 25,413 individuals, or a 47% increase compared to 2022. The initial screening positive rate recorded at Mpox vaccination sites was 0.7%, higher than the average HIV positive rate in 2021 and 2022.



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Rapid Development of Neurological Infection in an HIV Patient Following Schistosomiasis

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Background: HIV-1 and schistosomiasis infections pose significant challenges to global public health. The neurological infection caused by these two pathogens is easily misdiagnosed due to its rarity. Thus, accumulating experience to manage such cases is crucial.

Case presentation: We present a case of a 36-year-old AIDS patient who was initially diagnosed with HIV-1 infection four years ago without antiretroviral therapy (ART). Approximately one year ago, the patient was hospitalized due to the diagnosis of tuberculosis and subsequently initiated ART. After one year of treatment, the patient achieved virological suppression of HIV-1. However, he was readmitted to the hospital, presenting with high fever and headache. Although tuberculosis was considered based on clinical performance and brain imaging features, his symptoms did not improve after antituberculosis therapy. Further investigation confirmed an intracranial infection caused by schistosomiasis. Following anti-schistosomiasis treatment and optimized ART, the patient experienced complete recovery and was subsequently discharged.

Conclusions: we reported the first case in Asia of a patient afflicted with HIV who rapidly developed neurological infection subsequent to schistosomiasis acquisition. Thorough medical history inquiries, comprehensive analyses, and the provision of timely and accurate treatment can significantly benefit patients.



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Outcomes of rapid initiation of antiretroviral therapy among HIV-positive patients: real-world experience from a single-center retrospective cohort

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Objectives: Rapid initiation of antiretroviral therapy (ART) engenders faster viral suppression as reported by clinical trials. But real-world experience with rapid ART initiation remains limited in China as different medical policies and various known about the benefit of it.

Main outcome measures: This is a retrospective study enrolled patients from 2022 Jan to Dec in Medical records, Qingdao 6th Hospital. Rapid ART initiation was defined as starting ART within 7 days after HIV diagnosis confirmation. HIV diagnosis, ART initiation and viral suppression dates and clinical outcome data were collected by reviewing medical records. The time for viral suppression started counting from the day treatment initiation.

Results: There were 432 treatment naive people with HIV (PWH) enrolled, the average age was 39y, 93.5% were male, 81.7% were homosexual transmission. 50.2% PWH initiated TDF+LAM+EFV (TLE) treatment, and 15.5% were under B/F/TAF, 14% were under DTG/3TC. All of those patients, only 44.2% PWH initiated ART within 7 days. Compared with PWH those without rapid ART initiation, there were no significant difference in age, sexual, marriage status, ART regimens, ways of transmission, education status. There were much more people detected HIV infected through passive checking (66.2% vs 48%, $p=0.003$), and more be workers (57.3% vs 41.9%, $p=0.01$) in rapid initiation group.

There was no significant difference for virological results at 90 days between those two groups, even numerical lower in rapid initiation group (66.7% vs 82.7%). The logistic regression for 90 days viral

suppression rate showed that only ART regimens were significant risk ($P<0.001$). The viral suppression rate was 93.3% for B/F/TAF, 83.3% for DTG/3TC, and 50% for TLE, separately, in rapid initiation group and significant different ($P=0.043$). Similar results for adherence rate at 1 year, no difference found between people with or without rapid initiation. The logistic regression showed that only ART regimens were significant risks ($P=0.001$). The adherence rate was 74.2% for B/F/TAF, 60.7% for DTG/3TC, and 57.2% for TLE, with significant different ($P=0.006$).

Discussion:

1. Nearly half of PWH initiate with 7 days, we should do more to have them known the benefit of rapid initiation. Especially for those PWH who are unemployed, and active come to clinic.
2. It is reasonable to find no significant difference of viral suppression between PWH with ART rapid initiation or not, as the time counting from the day ART started. And as the high resistance barrier and efficacy, B/F/TAF shows the highest viral suppression rate than others. Learned that the regimen also plays an important role in rapid initiation.
3. 1 year adherence rate is another important result for treatment and also only related to treatment regimens. It shows B/F/TAF has the highest rate of adherence rate, the regimens choice should be taken into consideration for rapid initiation for a better treatment result and adherence.



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The clinical prognostic risk stratification system for HIV infected hepatocellular carcinoma

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Background: Patients with human immunodeficiency virus (HIV) are more susceptible to liver cancer because of their compromised immune system. There is no specific prognostic model for HIV-infected hepatocellular carcinoma (HCC) patients.

Methods: Clinical data of 85 patients with HIV-infected HCC was divided into a 7:3 ratio for training and internal validation sets, while the data of 23 patients with HIV-infected HCC was served as the external validation set. Data of 275 HIV-negative HCC patients was considered as external HIV-negative validation set. Variables associated with overall survival (OS) in the training set were used to develop the HIV-infected HCC prognosis (HIHP) model. The model was tested in the internal and external validation sets. The predictive accuracy of the model was assessed with conventional HIV-negative HCC prognostic scoring systems.

Results: The HIHP model demonstrated a significant association with OS in the training set, with a median OS of 13 months for low risk, 7 months for medium risk, and 3 months for high risk ($p < 0.001$). The HIHP model showed a significant association with OS, and exhibited greater discriminative abilities compared to conventional HIV-negative HCC prognostic models both in the internal and external validation sets. In the external HIV-negative validation set, the HIHP model did not show better discrimination than conventional HIV-negative HCC scores.

Conclusion: The new model presented in the work provided a more accurate prognostic prediction of OS in HIV-infected HCC patients. However, the model is not applicable to patients with HIV-negative HCC.



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Enhancing private sector's role in providing comprehensive person-centered care and HIV treatment services to people in need.

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Background: With strong understanding of their clients, private clinics play a vital role in delivering HIV services to key populations (KPs) by offering a wide range of HIV-related services in accommodative ways, including confidentiality, flexible working hours, and continuously improving to meet the needs of targeted clients.

To strengthen private sector engagement in providing comprehensive person-centered care and HIV treatment services, the USAID/PATH Support for Technical Excellence and Private Sector Sustainability in Vietnam (STEPS) project delivered a complete package of technical training and continuous quality improvement (CQI) to two private clinics, named Glink and Galant in Ho Chi Minh City, Vietnam.

Description: Since 2022, STEPS has been providing technical assistance to private clinics in delivering comprehensive healthcare for ART clients including same day antiretroviral therapy (ART), HIV viral load testing, prophylaxis and treatment for opportunistic infections; as well as providing other client centered services such as screening and linkage to mental health, non-communicable diseases such as dyslipidemia, diabetes, hypertension etc. In addition, STEPS provides training and tools for CQI to clinics by regularly collecting client feedback on service delivery, and offering solutions to address areas that need improvement.

Lessons learned: From October 2022 to September 2023, 1,518 clients received ART at

Glink and Galant clinics (commercial clients: 731; clients with Social Health Insurance (SHI): 787) out of which 509 were new clients. Most clients were men who have sex with me (MSM) (94.5%) with an average age of 27 years. In terms of socio-economic status, the majority of clients had a college or higher education level (57%), were currently employed (82.2%) and were office workers (44.2%). As of 2023, treatment effectiveness was very high with viral suppression of 99.8%, much higher than the national rate of 96%, and the treatment retention rate of ARV clients is at 85.3%.

Conclusions/Next steps: Private clinic participation in providing comprehensive ART services contributes an important role to diversify choices to meet the needs of clients. Besides ensuring treatment according to standard care, holistic health care needs are comprehensively being taken care of as an integral part for such populations.



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Reaching the unreached vulnerable population with HIV prevention and care services: Learning from National AIDS Control Programme in India

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Background: India's National AIDS Control Programme (NACP), has been pivotal in addressing the country's significant HIV epidemic, particularly among key populations (KPs) including men who have sex with men, female sex workers, and people who inject drugs. Despite substantial progress, the program faced challenges due to changing practices among key population and gaps in linkages to antiretroviral therapy (ART). In 2018, with the support of the World Bank, the NACP underwent strategic revisions to enhance its effectiveness.

Methods: The revised strategy introduced the Differentiated Prevention Model (DPM), segmenting KPs into five risk groups to prioritize services for those with higher risk and vulnerability, including new KPs. A Peer Navigation initiative was implemented, wherein role model peers assisted KPs through the processes of HIV diagnosis, treatment, and care. Additionally, the Differentiated Care Model was adopted to customize patient treatment services, reducing hospital visit frequency and waiting times.

Results: These strategic changes led to substantial improvements in coverage and behavior among KPs. Condom use increased significantly from 2013 to 2020: among female sex workers (FSW) from 80% to 96%, and among men who have sex with men (MSM) from 45% to 85%. Safe drug injection practices increased from 45% to 88% among people who injected drugs. The strategy also enhanced the linkage of HIV-positive individuals to treatment, increasing the number of people receiving HIV treatment in India from 1.05 million in 2017 to 1.38 million in 2020. Further, by 2023,

coverage among FSWs and MSMs increased to more than 95%, among IDUs to 72%.

Lessons learnt: The adoption of differentiated prevention model (DPM) and segmenting KPs not only contributed in expanding the coverage and improved behavioural outcomes among vulnerable groups but also increased the number of individuals linked to HIV treatment. These achievements highlight the effectiveness of targeted, peer-led interventions and differentiated care models in managing concentrated HIV epidemics.

Conclusions: With changing dynamics of HIV and decline in financial resources, it's become very important that HIV prevention and care services, are continuously modified to respond to changing context. The learnings from successful implementation and scale-up of Differentiated Prevention Model (DPM) in India, can help other countries too.



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Development and delivery of an online HIV pre-exposure prophylaxis (PrEP) training for community pharmacists for the implementation of pharmacy-based PrEP service in the Klang Valley, Malaysia.

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Background: Study has shown that some key population members prefer to access HIV pre-exposure prophylaxis (PrEP) through pharmacies. As community pharmacists are recognized as widely accessible and trusted healthcare professionals, there is potential to expand PrEP access through a demedicalised, differentiated service delivery model in the community pharmacy setting. In preparation to pilot a pharmacy-based PrEP service delivery in Malaysia, an online self-paced PrEP training program for community pharmacists was developed and evaluated for its effectiveness.

Methods: This study was conducted between May and June 2023. A PrEP training committee consisting of 5 experts from professional medical and pharmacy societies, and academia developed

an online self-paced training program covering the fundamentals of PrEP. This included efficacy, safety, eligibility criteria, initial assessment, HIV testing and other baseline tests, prescribing PrEP, and special situations. The training modules were adapted from the HIV Connect training program for general practitioners, based on current best evidence, and tailored to the needs of community pharmacists. Program effectiveness was evaluated through pre- and post-training knowledge tests, followed by post-training feedback form. Both tests comprised of 20 questions each, with correct answers scoring 5 points with a maximum score of 100 points. The tests were pilot tested with 5 pharmacists and the passing mark was determined as 55% based on pre-test median score. Paired t-test was performed to determine the difference between pre- and post-training knowledge scores (significance level of $p < 0.05$).

Results: A total of 18 community pharmacists completed the online training via the Edpuzzle platform over 2 weeks. The mean age of the participants was 32 years, with a male-to-female ratio of 1:3 and an average of 7.9 years of work experience. All participants surpassed the 55% passing mark for the post-test. The mean (standard deviation (SD)) scores for pre- and post-training knowledge scores were 64.72% (9.77) and 78.89% (7.96), respectively. The mean difference was 23.61% and statistically significant ($p < 0.001$). Majority of the pharmacists agreed that the training covered the expected content; the content was organized, easy to follow and easy to understand; the duration of training was appropriate; the additional resources were helpful; overall they were satisfied with the training; the training will be useful for their work; and they would recommend to others.

Conclusions: The novel approach of using an online self-paced training program to train community pharmacists for PrEP service delivery is an effective tool to increase the community pharmacists' knowledge of PrEP. This approach can be expanded to train community pharmacists nationwide to provide greater access to PrEP in Malaysia.



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PrEPPY Spaces: Community-led initiation of PrEP using self-testing kits among men who have sex with men using online social networks in Metro Manila, Philippines

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Background: The Philippines has been identified as having the fastest-growing HIV epidemic in the Western Pacific region, diagnosing 48 cases per day as of May 2023. To ease testing access for everyone, collaborations with community-based organizations were strengthened to expand HIV testing services. Increased HIV-specific programs, especially PrEP initiation, are needed for communities to become more aware and produce better engagement. Capacitating providers for telemedicine and tapping other social networks are possible steps to increase PrEP utilization even in rural areas. This project made use of online dating apps to provide differentiated testing services and demedicalized PrEP distribution through individual meet-ups with PrEPPY Spaces volunteers.

Description: PrEPPY Spaces started in May 2023 upon the release of the simplified WHO guidelines on PrEP initiation. The project was piloted in the greater Metro Manila area where the majority of the volunteers of the project are residing. The volunteers used location-based online dating apps to initiate contact with potential participants. The volunteers were trained in the use of HIV self-testing kits and key messages for PrEP. An algorithm was created for the assessment of PrEP eligibility and enrollment.

Lessons learned: In total, 610 self-testing kits were distributed with instructions on how to report their results and linkage to care should they choose to do testing alone. A total of 104 men who have sex with men were enrolled in the

project and all participants were PrEP naïve. Out of the 106 that were enrolled in the program, 21 participants were able to have their on-site refill at a facility convenient for them to visit. On-site visits were scheduled for an STI workup and a creatinine test.

Conclusions: Tapping transgender volunteers in the next phase of the project might also increase HIV testing access and PrEP enrollment among the population. Other location-based social networks may also be explored especially when targeting different key populations. Monitoring the participants' preferred dosing is also important to track adherence and refills for programmatic implications. Alternative ways of follow-up and refills should also be explored (use of couriers for deliveries, or partnerships with other facilities for STI workups).



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A Comparative Analysis of the Willingness to Access PrEP Among Cisgender and Other Gender-diverse Individuals of Iloilo Province

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Introduction: Pre-Exposure Prophylaxis (PrEP) is a highly effective method of preventing HIV acquisition and was made available in the Philippines in 2017. Despite its availability, transmission continues due to a lack of knowledge, gender stigma, financial limitations, and inadequacies in the healthcare system. This study sought to understand Ilonggos' willingness to utilize PrEP in light of their varied gender identities in order to increase accessibility and provide gender-sensitive interventions with the goal of lowering HIV transmission and improving health outcomes in the locality.

Method: A cross-sectional survey was conducted between January and February 2024 among 178 sexually active individuals in Iloilo Province. The survey used a 10-point Likert scale to assess the willingness of cisgender and other gender-diverse individuals to access PrEP. Descriptive statistics were used to analyze the data.

Results: In this study, results showed that other genders are more inclined to take daily HIV prevention medications (38.8%, 19 out of 49), utilize Pre-Exposure Prophylaxis (PrEP) if it is free (61.2%, 30 out of 49), and adopt PrEP when it becomes available (40.8%, 20 out of 49). On the other hand, cisgender people indicate that they are willing to take PrEP (36.4%, 47 out of 129), continue taking pills consistently to prevent HIV (38%, 49 out of 129), and continue using PrEP in spite of its side effects (32.6%, 42 out of 129). Comparable willingness to participate in PrEP is

shown by both groups (37.2% or 48 cisgender, 36.7% or 18 other genders). Comparably, they both exhibit low willingness to take PrEP if it is not a hundred percent effective (27.9% or 36 cisgenders; 34.7% or 17 in other genders). Overall, 48.8% of cisgenders showed high willingness, 43.4% showed low willingness, and 7.8% showed no willingness, while 59.2% of other gender-diverse individuals showed high willingness, 36.7% showed low willingness, and only 4.1% showed no willingness.

Conclusion: This study revealed the diverse willingness levels toward HIV prevention among genders, thus emphasizing the need for gender-sensitive and gender-transformative interventions. While other genders exhibit a higher overall willingness compared to cisgender individuals, customized strategies are essential to meet a range of needs and guarantee that Pre-Exposure Prophylaxis (PrEP) has equitable access and uptake for people of all gender identities.



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Stakeholder insights on implementing pharmacy-based HIV pre-exposure prophylaxis (PrEP) service delivery model in the Klang Valley, Malaysia

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Background: Despite the evidence supporting pre-exposure prophylaxis (PrEP) to prevent HIV and the high unmet need, <5000 people in Malaysia have accessed free medication available in government health clinics in 2023. To address this implementation gap, we explored the feasibility of leveraging the private community pharmacies to provide demedicalised and differentiated PrEP service delivery through a collaborative stakeholder consultation.

Description: In April 2023, a one-day meeting was held in Kuala Lumpur with 31 stakeholders from community pharmacies, professional medical and pharmacy societies, telemedicine provider, non-governmental organisations (NGOs), and HIV implementation science researchers. Stakeholders first reviewed the barriers and facilitators stated by key populations, PrEP prescribers, and community pharmacists in the Klang Valley (an urban region including the state of Selangor and federal territories of Kuala Lumpur and Putrajaya) from a recently completed qualitative study. Stakeholders considered how the pharmacy-based

PrEP service might fill the implementation gap and identified ways to overcome barriers related to core components of pharmacy-based PrEP service (promotional activities, HIV testing, pharmacist assessment and counselling, physician prescribing, PrEP dispensing, and follow-up). Attendees also reviewed a proposed implementation protocol, care pathway, workflow, assessment tool, training needs and competencies for community pharmacists as well as implementation site selection and preparation needs. Key discussion points were summarized.

Lessons learned: Community stakeholders suggested ensuring privacy during consultation; ensuring affordable PrEP pricing; establishing a feasible workflow for pharmacy-based PrEP service; implementing digitalised checklist-based assessments to reduce opportunities for stigma, streamline workflow and facilitate documentation; incorporating the use of HIV self-testing; simplifying laboratory testing requirements; ensuring collaboration with NGOs, PrEP prescribers, and laboratory providers; and ensuring strict confidentiality of client information.

Stakeholders perceived that pharmacists would need additional training including adequate education about PrEP, how to reduce stigma during eligibility screening, PrEP initiation and follow-up visits, strategies to optimize referrals for supplemental clinical services (e.g., HIV care, sexually transmitted infection (STI) services, Hepatitis B virus (HBV) care, etc.) and effective communication skills addressing cultural competency when communicating with key populations who are socially stigmatized in Malaysia. Necessary competencies included knowledge on HIV and STI; risk behaviour assessment; professional, stigma-free and non-judgmental behaviour; and using person-centred language. Six implementation sites were selected based on availability of a private consultation room, willingness of pharmacists to provide PrEP service, availability of telemedicine, location in the Klang Valley, and proximity to PrEP clinics. Preparation needs included ensuring the availability of HIV self-test kits, PrEP medication, PrEP leaflets, trained pharmacists, and partnering PrEP clinics within 10km for referrals and laboratory testing needs. Findings were used to refine and finalise the implementation plan.

Conclusion: Stakeholders were supportive and enthusiastic about the pharmacy-based PrEP service delivery model as an alternative access to PrEP in the Klang Valley, Malaysia. Future research



is essential to evaluate the sustainability of this novel implementation strategy to increase PrEP uptake in Malaysia and other similar settings. Streamlining the approach to be simplified, person-centred, and demedicalised will be pivotal for successful implementation.



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Knowledge, perception, and willingness to access PrEP among individuals in Iloilo, Philippines

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Introduction: The human immunodeficiency virus (HIV) in Iloilo, Philippines, is a health threat that ascends among individuals in Iloilo, Philippines, hence, alarms for an urgent need to address the escalating rates of HIV transmission. As the region grapples with rising HIV cases, particularly among the mentioned key populations, the exploration of effective preventive measures becomes paramount. Among these strategies, Pre-Exposure Prophylaxis (PrEP) represents a pivotal advancement, offering a proactive approach towards HIV prevention. However, the extent of awareness, perceptions, and willingness of individuals to access PrEP remain a significant gap in current understanding. Grounded in the Health Belief Modell, this research delves into the intricacies surrounding the PrEP utilization, aiming to uncover valuable insights and understanding among individuals in Iloilo, Philippines. The insights derived from this inquiry bear a potential lead to enhance the interventions aimed at augmenting the PrEP accessibility, ultimately paving the way to reduce HIV transmission rates and an improvement in health outcomes among the individuals in Iloilo, Philippines.

Method: In this study, a descriptive cross-sectional survey was conducted between January 08, 2024 and February 10, 2024 among 178 individuals residing in Iloilo, Philippines. The survey used dichotomous questions answerable by "True" or "False" and Likert scales to assess the level of knowledge, perception, willingness of the individuals towards accessing HIV Pre-Exposure Prophylaxis (PrEP). Inferential statistics were used to analyze the data.

Results: In this study, there are 178 respondents which majorly consists of 50.56% adults (22-36 years old) and 44.49% young respondents (18-21 years old). More than half of the respondents or 55.62% have a high level of knowledge about Pre-Exposure Prophylaxis (PrEP) when they are classified according to age, sex, gender, sexual orientation, place of residence, educational attainment, employment status, and monthly income. Majority of the respondents (80.34%) strongly agreed that they might be infected with HIV if their sex partner is having unsafe sex with others and 55.62% of the respondents strongly agreed that PrEP will provide the option to get early prevention from acquiring HIV. For the correlation between knowledge, perception, and willingness of the respondents there is no significant correlation. However, respondents (22.47%) have shown to strongly disagree that they are concerned about separation from their friends and families if they access PrEP due to the stigma associated with it. Majority of respondents (68.5%) are more willing to use PrEP if they have more information. But, some of the respondents (41%) are less willing to use PrEP even if it was made available in the Philippines.

Conclusion: Understanding the correlation of knowledge, perception, and willingness to access Pre-Exposure Prophylaxis (PrEP) among individuals in Iloilo, Philippines, is crucial for designing targeted interventions and improving public health outcomes. The findings underscore the importance of tailored education programs, destigmatization efforts, and enhanced accessibility to PrEP services to effectively address HIV prevention in these communities.



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Overcoming Barriers and Harnessing Opportunities: Lessons from Mongolia's PrEP Demonstration Project for MSM Populations

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The introduction of Pre-exposure Prophylaxis (PrEP) in Ulaanbaatar, Mongolia among men who have sex with men (MSM), was led by the National Center for Communicable Disease (NCCD) and the Ministry of Health (MOH), in collaboration with the Youth for Health Center (YFHC) and Health Equity Matters. This demonstration project, conducted between 2021 and 2022, aimed to assess the feasibility of PrEP to prevent HIV transmission in high-risk populations and contribute to the national goal of 95-95-95 for HIV prevention and treatment. The project's success was evidenced by notable participation and completion rates among MSM, leading to the integration of PrEP into the revised National STI, HIV, and AIDS Diagnosis and Treatment Guideline in April 2023.

The global health community recognizes PrEP as a critical tool in HIV prevention strategies, particularly for populations at substantial risk of infection. Mongolia's demonstration project, led by the NCCD and YFHC, aimed to address the high HIV and syphilis prevalence among MSM and TGW populations, as well as tackle issues related to stigma, discrimination, and low condom use. The project's findings underscore the urgent need for comprehensive HIV prevention strategies, including PrEP, to mitigate the risk of new HIV transmission networks.

Despite the project's positive outcomes, which included high acceptability, engagement, and no reports of HIV seroconversions or serious adverse effects, the implementation revealed significant barriers to PrEP accessibility. The primary barrier is the lack of PrEP medication registration as well as inclusion in the list of Essential Medicines with the Medicine and Medical Device Regulatory Agency

(MMRA), coupled with challenges in the private healthcare market and the absence of PrEP in the Health Insurance General Officer (HIGO) scheme, Mongolia's healthcare reimbursement system. HIGO scheme is a recent reform in health sector financing of Mongolia. In addition, the law of medicine is under revision.

The pilot indicated a pressing need for urgent, comprehensive HIV prevention strategies that include PrEP, especially given the higher rates of HIV infection among MSM and transgender women (TGW), as opposed to the general population. However, due to the lack of registration, as well as inclusion in the essential medicines' list, and unstable policy environment, an anticipated delay in PrEP registration poses a strategic challenge that demands immediate attention. Therefore, the main objective now is to find the right strategy to secure registration for PrEP and inclusion in the list of Essential Medicines beyond the regulatory obstacles due to these challenges.

In conclusion, for PrEP to be effectively integrated into Mongolia's HIV prevention strategy, efforts must now focus on expediting its registration as an essential medication. Simultaneously, there must be an increase in community awareness and demand, improved healthcare services that are client-centered, and an enhanced supportive environment that assures safety and confidentiality for potential PrEP users, especially within hidden networks such as MSM.



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Dysbiosis of Gut Microbia and Changes of Immune Markers in HIV Pre-Exposure Prophylaxis (PrEP) Users

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Background: PrEP, the daily or event-driven use with the fixed-dose agents, consisting of tenofovir disoproxil fumarate (TDF) and emtricitbine (FTC), has been regarded as a method to reduce the risk of HIV acquisition. Gut microbial dysbiosis and subsequently chronic immune activation, induced by TDF and FTC, in HIV-infected patients has been widely explored. However, the impact of TDF and FTC on gut microbiota and immune markers in HIV-uninfected individuals has not been clarified. Thus, we conducted a prospective observational study to investigate the effects of PrEP on the gut microbiota and immune markers.

Method: Participants aged 18 years or older, who were HIV-uninfected, were recruited in Cardinal Tien Hospital in Taiwan from June 2023 to August 2023. These participants were divided into the PrEP group and the Non-PrEP group, respectively, according to the use of PrEP (daily or event-driven, ≥ 8 pills in the previous month) or not. Individuals who had taken antibiotics or probiotics, or experienced digestive symptoms within the past month were excluded. Serum immune makers, including interleukin(IL)-1 β , 6, 8, 10, 17A, and oxidized LDL(oxLDL) were measured. Stool samples were collected and DNA extraction was performed for 16S rRNA gene amplicon sequencing to analyze the gut microbiota.

Result: 17 participants were enrolled, with 6 in the PrEP group and 11 in the Non-PrEP group. The alpha diversity of the gut microbiota was significantly higher in the PrEP group. Regarding the bacterial composition profiles, the results of PCoA analysis showed that the distribution between the PrEP and Non-PrEP groups was significantly different. The PrEP group revealed expansion of Prevotella genus and a drop in the

proportions of Bacteroides genus, implying mucosal inflammation. The mean values of the pro-inflammatory makers, including IL-1 β , 6, 8, 17A, and the anti-inflammatory IL-10 were higher in the PrEP group, though only the level of IL-10 reached the statistical significance. The mean level of oxLDL is also statistically higher in the PrEP group, suggesting increased risk of cardiovascular diseases and metabolic syndrome for individuals in the PrEP group.

Limitation: There were some limitations in this study. First, only 17 participants were included. Second, other factors that affect gut microbiota, such as sexual preference and diet, were not considered.

Conclusion: We showed the gut microbial dysbiosis and changes of immune markers in PrEP users so that further studies to evaluate the inflammation-driven complications in PrEP users is needed.

Keywords: gut microbiota, inflammation, pre-exposure prophylaxis, tenofovir disoproxil fumarate, and emtricitbine



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Abstract 287 has been withdrawn.



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The Hidden Crisis: The Causes and Consequences of Sexualised Drug Use ('Chemsex') amongst Key Populations in Pakistan

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With the aim of developing a first national level evidence base study on the effects of Chemsex in Pakistan where it remains unspoken. Those working in HIV sector with key populations and transgender community demanded for evidence-based research in Pakistan.

Because of the sensitive nature of the topic, it was important to practice discretion and caution when reaching out to respondents. For this purpose, 100 interviews were conducted at National level in person through a structured questionnaire. Using a snowball sampling, relied mostly upon community-based organizations (CBOs) in 05 major cities and community networks in the other cities where such CBOs do not exist in order to access research participants. Written consent was taken from all participants and anonymity was ensured. Respondents were selected based on whether they were currently engaging or had previously engaged in the practice of chemsex. Duration July 2021-February 2022.

Respondents were between the ages of 17 and 54 with the largest number of respondents between the ages of 20 and 30. Out of which 65% identified as Key Population (MSM) and 35% Transgenders. 90% reported currently practicing chemsex while 10% said that they previously practiced chemsex. Considering 90% of the people involved in the study were still engaged in chemsex and those who stopped never reported doing so as a result of fear or punishment, clearly the punitive approach is ineffective.

Study demonstrate a clear link between the practice of chemsex and a variety of negative mental and physical health consequences. Because crystal meth is known to reduce sexual inhibitions,

high levels of group sex and unprotected sex were reported by the respondents thus raising the risk of contracting STIs including HIV. Apart from this, those who practiced chemsex reported higher rates of mental health issues including anxiety, depression, and suicidal tendencies. This behavioral issue is increasing unsafe practices and increase in HIV positive cases.

The findings of the report clearly demonstrate there are no formal structures developed for community-based rehab and support, there is a need for urgent action on the part of policymakers, donors, families, peers and civil society organizations to support transgender community and key populations in accessing support for physical and mental health services in order to reduce the harm being caused by the practice of chemsex. Unfortunately, HIV sector at the moment in Pakistan is unable to take any formal initiative/action for this behaviour and thus causing higher risk for spreading HIV and STIs.



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Client and Provider Perspectives on Mental Health Screening and Linkage to Care in Key Population HIV and Sexual Services in Thailand: A Pre-Implementation Qualitative Study

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Background: Mental health (MH) disorders are highly prevalent among people with HIV and key populations in Thailand. However, MH screening within HIV and sexual health services, and linkages to MH specialists are limited. The Pribta Tangerine Clinic, a sexual health clinic in Bangkok, Thailand, currently offers depression screening, psychosocial counseling and referral services. Other MH services (e.g. anxiety, substance use, suicide, psychosis) are not yet available.

Method: Fourteen semi-structured interviews with people with HIV (n=8) and healthcare providers (n=6), were conducted between June-December 2023. People with HIV were a quota sample while providers, including clinicians, psychologist, nurses, and counsellors, were enrolled based on roles involved in MH service provision. Guided by the Consolidated Framework for Implementation Research (CFIR) and using thematic analysis, interviews were audio-recorded, transcribed, translated and analyzed in Dedoose.

Results: All study participants agreed that a comprehensive MH screening and linkage to care intervention was essential in increasing access to MH care for people with HIV. Providers and people with HIV concurred that offering screening at HIV diagnosis could reduce risks of severe MH symptoms and treatment interruption among people with HIV. People with HIV aged 18-25 years showed stronger interest in receiving the screening than people with HIV aged 60+ years.

Key inner setting facilitators included clients' confidence in the clinic's confidentiality policy (culture) and professional services in a welcoming environment (recipient-centeredness). People with HIV also suggested online availability of screening tools and extending services to parents of youth with HIV (domain innovation, construct adaptability). Key potential Outer Setting barriers included perceived stigma towards mental health and HIV-positive status (local attitudes) and associated costs (local conditions). Providers anticipated barriers in the Outer Setting, including lack of specialists with HIV expertise (local conditions), and in the Innovation domain, including sensitivity of screening tools to be used at the clinic (evidence base).

Conclusion: Both clients and healthcare providers emphasized the need to integrate a comprehensive mental health screening and linkage to care intervention for people with HIV. Whilst this integration might be supported by the clinic's policy and environment, several barriers were identified, including stigma towards mental health and HIV-positive status, and associated costs.



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Young Trans People First: Youth-inclusive gender-affirming services facilitate access to HIV and sexual health services among young transgender women in Bangkok, Thailand

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Background: Globally, young key populations are disproportionately affected by HIV. In order to address the gaps, the Tangerine Clinic, a transgender-led gender-affirming sexual health clinic in Bangkok, integrated youth-inclusive gender-affirming care into HIV services. This approach aims to minimize the harms of self-medicated hormone treatment, as gender-affirming care had yet to be covered under the Thailand's Universal Health Coverage, and to facilitate access to HIV and sexual health services among young transgender populations. We conducted an observational cohort examining access to HIV and other sexual health services among young transgender clients of the Tangerine Clinic.

Methods: We analyzed data collected from clients of the Tangerine Clinic during November 2015-September 2023. Data on HIV and sexually transmitted infections (STI) services accessed by transgender women aged ≤ 24 years, who used gender-affirming care as a service entry point, and service outcomes were reported. Gender-affirming care at the Tangerine Clinic included gender-affirming care counseling, hormone treatment and hormone level monitoring.

Results: Of 6,280 transgender women clients of the Tangerine Clinic, 2,839 (45.2%) aged ≤ 24 . Among them, 2,012 (70.9%) reported gender-

affirming hormone treatment as their primary reason for a clinic visit. Of those, 1,924 (95.6%) received HIV testing and 39 (2%) who tested HIV-positive, 35 (89.7%) initiated same-day antiretroviral treatment and 28 (71.8%) achieved virologic suppression. Pre-exposure prophylaxis was prescribed to 390 (20.7%) and post-exposure prophylaxis to 65 (3.4%) individuals who tested HIV-negative. Psychoactive substance use was reported by 7 (0.3%) and 188 (9.3%) engaged in sex work. Syphilis testing by TPHA was conducted in 1,665 (82.8% of 2,012), 23 (1.4%) were confirmed by VDRL to have active syphilis, and 21 (91.3%) received treatment. Of 256 (12.7% of 2,012) who tested for chlamydia/gonorrhea by nucleic acid amplification testing, 59 (23%) tested positive and 52 (88.1%) received treatment.

Conclusions: Integration of youth-inclusive gender-affirming care into sexual health services successfully facilitated access to HIV prevention and treatment, STI testing and treatment, and safe hormone treatment among young transgender women. It is crucial to nationally scale up the youth-inclusive gender-affirming HIV service intervention for young transgender populations in Thailand in order to accelerate an ending AIDS goal by 2030.



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Strengthening integrated HIV/STD testing services among MSM in China: Qualitative findings from co-creation groups

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Background: Despite the need for integrated HIV and other sexually transmitted disease (STD) testing services, many clinical services remain siloed. Co-creation is a participatory research method that brings community perspectives into public health research. We used co-creation involving different stakeholders involved in sexual health and HIV prevention of men who have sex with men (MSM) to promote integrated chlamydia (CT) and gonorrhea (NG) testing services within existing HIV testing services at community-based organizations (CBOs) in Guangdong Province, China.

Methods: We conducted formative research for a cluster randomized trial to promote STD testing among MSM. From August 2021 to August 2023, we held 10 one-hour co-creation sessions involving 2 doctors and 15 MSM community members, including 5 CBO representatives. The purposes of FGDs were to (1) understand their experiences of integrating CT/NG testing within existing HIV testing services and (2) explore barriers and facilitators of HIV/STD integrated service delivery. All co-creation sessions were conducted in Mandarin and documented through audio recordings or written meeting notes. Qualitative data were analyzed through rapid inductive thematic analysis.

Results: The co-creation sessions elicited three key themes related to integrated services: lack of integrated testing, limited knowledge of STDs other than HIV, and the need for policy advocacy.

1. The limited availability of CT/NG self-testing options complicates HIV/STD services integration. Co-creation participants iterated that decentralized testing options like HIV/syphilis self-testing and CT/NG self-sampling could facilitate service integration.
2. Most MSM presenting for testing had limited knowledge of CT/NG compared to HIV. CBO representatives highlighted the need for developing educational materials that emphasize the relationship between CT/NG acquisition and HIV risk to promote HIV/STD awareness.
3. Without research funding, CBOs and the government lacked CT/NG testing funds as it is not a national priority area. It was suggested that researchers should advocate for including CT/NG in the national STD screening guidelines for MSM.

Conclusions: Our study revealed through co-creation that lack of access, education, promotion, and policy advocacy hampered the development of integrated HIV/STD testing. Further research and development of interventions to address these areas are warranted.



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The fourth 90: Qualitative study on improving quality of life of young PWH men who have sex with men living in Metro Manila, Philippines

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Background: In the Philippines, there are a recorded 48 cases of people being diagnosed with HIV daily. This translated from wider access to HIV testing services, from local government units to community-based organizations. Linkage to care is an important aspect of the HIV cascade of care, where people diagnosed with HIV are linked to treatment with the goal of viral suppression. However, should viral suppression be the end goal for both PWH and the providers? Here, qualitative data were gathered from 15 young PWH for interventions in improving quality of life after viral suppression.

Description: A qualitative interview of 15 young men who have sex with men aged 18-24, diagnosed with HIV in the past 12 months, and virally suppressed at the time of the interview was done. The interviews included family relations, school/work life, romantic/sexual relations, HIV diagnosis, financial capacity, and assistance they would potentially need to have an optimal quality of life.

Lessons: All participants grew up in unconventional family dynamics: separated parents (8), parents were migrant laborers (1), or one or both parents were already deceased (6). 13 of the 15 participants were not comfortable disclosing HIV status among family members citing lack of awareness about HIV, and since dynamics at home was not well established, they would rather not disclose at all. They were highly reliant on friends or significant others in terms of social support. Financial support is the primary concern of the 12 out of the 15 who are still studying. Expenses to support their education and treatment were identified challenges. Since

disclosure is a concern for them, 10 of them prefer periodic counseling for psychosocial support.

Conclusions: Upon diagnosis, an interview by a social worker or trained staff could be done to assess the psychosocial needs of newly diagnosed PWH. Among treatment facilities in limited resource settings, linkage to social services should be readily available. Counseling and other mental health interventions should also be easily accessible even for virally suppressed PWH. Family dynamics should also be included during discussions with PWH, especially among the youth, to help in formulating interventions and disclosure should they decide to.



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Navigating facilitators and barriers to establishing chemsex services in Thailand: Qualitative findings from the CLYMAX study

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Background: Despite the growing prevalence of chemsex, there remains a lack of dedicated services for people who use chemsex and those involved in chemsex use in Thailand. We explored facilitators and barriers to establishing and accessing comprehensive chemsex services encompassing physical, mental, and social health aspects for men who have sex with men (MSM) in Thailand.

Material and Methods: Semi-structured, in-depth interviews were conducted with 60 key informants, comprising 40 MSM aged 16-35 who use chemsex, 10 peers/family members, and 10 healthcare providers. Interviews were conducted in person, recorded, and transcribed verbatim. A codebook was developed integrating a priori themes from the interview guide and emergent themes identified from transcripts. Analyses were conducted using Dedoose software.

Results: All informants highlighted stigmatization, discrimination, and the uncertainty of law enforcement practices related to chemsex as key barriers to establishing or accessing comprehensive chemsex services. The feeling of intersectional stigma – being a person who use drug, a gender minority, and, for some, living with HIV – along with anticipated discrimination in healthcare settings, legal uncertainties, and fear of arrest were reasons why people who use chemsex may hesitate to access chemsex services. For healthcare providers, barriers included a lack of

knowledge and confidence in providing care, particularly due to the variety of substances used and multifaceted chemsex-related harms, and competing priorities within health centers. Disparities in views on harm reduction between informants and the country's policy, which focuses on abstinence, were another crucial barrier. Facilitators included integrating technology for online-based services and public campaigns to destigmatize chemsex. People who use chemsex and peers/family members emphasized the benefits of including former users in consulting sessions and the importance of legal services and protection to make clients feel safe accessing services. Healthcare providers expressed a strong willingness to move forward with the services, highlighting the need for well-established training and specialist consultation to build confidence in providing chemsex services to their clients.

Conclusions: Establishing comprehensive chemsex services presents a challenging yet crucial task to improve the health of people who use chemsex. Addressing identified barriers is essential to enhance and expand chemsex services tailored to the needs of this population.



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Transcending healthcare: Exploring tailored service packages to boost transgender key-populations' access and return rate to HIV service deliveries.

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Background: The transgender key-populations' access to HIV services is among the top challenges faced in the Philippines. Amidst the Philippines' fastest-growing HIV epidemic globally, transgender people are placed in worse vulnerabilities with an estimated 49 times more prevalence to HIV compared to the general adult population. This is the motivator of the two first-ever transgender-specific HIV hubs in the Philippines, Victoria and Lily, initiated by the transgender community of LoveYourself.

Description: Exploring the behavior of transgender people towards accessing HIV services, we have found out that among their barriers is the neglect of service deliveries for their primary healthcare priority which is the realization of their gender identities through gender-affirming hormone therapy (GAHT). Even upon this recognition, there is a lack of funding for transgender-specific programs in the Philippines prompting Victoria and Lily to be limited on employing the service package available to its current resources; free GAHT consultation, free laboratory tests, free HIV testing and combination prevention. Both clinics operate on both onsite and telemedicine modes of delivery (MOD) in response to the geographic barriers. The service delivery process involves setting an appointment online, conduct of consultation on both MOD, onsite HIV testing or delivery of self-testing kits, conduct of laboratory tests, prescription of GAHT, enrollment to free hormones and HIV treatment if applicable.

Lessons Learned: Currently, the program has a total of 320 enrollees for its service packages, 67.5% coming from transgender women and

32.5% from transgender men. From this data, 82 (25.6%) are enrolled in free pre-exposure prophylaxis (PrEP) which, due to current policy implementations in the Philippines, are transgender women alone. These service packages boosted the data of transgender key-populations accessing HIV services in LoveYourself Inc. with a more than 50% return rate. This also contributed in streamlining visibility and targeted-response for transgender peers in the Philippine HIV service delivery.

Conclusion/Next Steps: Gender-affirming service packages equipped with demand generation campaigns are effective generators of transgender demand in accessing HIV services. The program also contributed in mapping the transgender key-population which could provide more insights to support future data that could help in advancing transgender-specific healthcare landscape of the country.



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Navigating pathways towards Thailand's Universal Health Coverage on transgender health: the importance of catalytic funding, concerted community-led efforts, and political advocacy.

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Background: The Tangerine Clinic as the first transgender-led health clinic in Thailand has proven that the integration of gender-affirming care into sexual health services increased access to HIV services among transgender populations. However, despite HIV testing, treatment, and pre-exposure prophylaxis being covered under Thailand's Universal Health Coverage (UHC), gender-affirming care is not included. We describe community-driven efforts to advocate for the inclusion of gender-affirming care under UHC by using data to inform policy change discussions.

Description: Established in 2015, Tangerine Clinic provides gender-affirming care and HIV services to transgender population where data were collected as part of a prospective cohort study, and positive outcomes were published in the Lancet HIV, JIAS, and Transgender Health. The Tangerine Clinic partnered with Chulalongkorn University in establishing the Center of Excellence in Transgender Health and developed the Thai Handbook of Transgender Healthcare Services as a tool to guide the development and expansion of transgender-competent care service models in Thailand and the region. In 2020, Tangerine Clinic and a sex worker-led SWING Foundation proposed the inclusion of

gender-affirming care under Thailand's UHC using these community-collected data. The proposal was selected and proceeded to a two-year effective coverage study being conducted in 2023. Together with persistent advocacy from rights-based civil society organizations and the Foundation of Transgender Alliance for Human Rights to all political parties for transgender-inclusive policies, following the General Election in 2023, the government announced to support gender-affirming care as their priority and anticipated to include it as part of UHC within 2024, in parallel with the effective coverage study.

Lessons learned: International funding was vital for the entire policy change process, including the establishment of a transgender-led health service model, data collection, feasibility demonstration, and evidence-based advocacy for sustained and scalable programs. Concerted stakeholder efforts were crucial for amplifying the needs and requiring changes. Engaging with political bodies was important as they played a decision-making role.

Conclusions/Next steps: Community-driven, evidence-informed policy change processes can enhance health equity towards an ending HIV goal. Countries receiving international funding must use them in a catalytic way from demonstrating feasibility of innovative models to advocate for sustainability/domestic financing.



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The Unassisted HIV Self-Testing Tag-o-war: A review on Philippines' health system response to community-led HIVST implementation among key populations.

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Background: Getting HIV testing in your own convenient space and time has encountered barriers in implementation, and crossing the conventional HIV testing approaches in the Philippines had been seen as a peak to climb. This review gears towards showing different levels of approaches and partnership exploration to reach responsiveness and acceptance of the unassisted HIV self-testing in the Philippines.

Description: By demonstrating the feasibility of HIV self-testing during the peak of COVID-19 Pandemic, LoveYourself's (LY) 2020 formative study paved the way for the implementation of a community-led unassisted HIV self-testing program in the Metro Manila. With the study's promising results, the Department of Health (DOH) created a TWG to establish an interim guideline for HIVST. With reasonable but conventional issues and concerns of most health facilities and offices, Philippines have been behind in taking advantage of this testing modality. During the fourth quarter of 2021 of the Global Fund PROTECTS Project, Pilipinas Shell Foundation Inc., (PSFI) and LY mobilized four sites to pilot community-led HIVST implementation and collect their experiences for scaling up. Community-based organizations (CBOs) played a crucial role in proving the good reception of the key populations (KPs) they cater towards this new HIV testing modality.

Initially, there were 4 pilot sites, divided among the three major island group, Luzon, Visayas, Mindanao, and Metro Manila; but towards the middle of 2022, an evident clamor among regional health offices of DOH and other local government

units, who were initially nonchalant about HIVST, were then seeking for orientations and trainings about HIVST. This clamor pushed PSFI and LY, and in collaboration with DOH Central's Disease Prevention and Control Bureau (DPCB), in creating series of trainings and orientations across all project sites.

Lessons learned: By the end of 2023, all 11 regions under the PROTECTS Project are already implementing Unassisted HIV Self-testing. This demonstrated the potent combination of a formative study, community demand generation, pilot implementation, and multi-sectoral collaboration which brought about inclusion and acceptance of the HIVST in Philippine's health system.

Conclusions/Next steps: The review established the efficacy, further, the KPs and the health system as a whole benefit in more community-led and multi-sectoral approaches to upscaling innovations.



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Examining participant satisfaction in service-based research: Prevalence and risk factors of cervical dysplasia and HPV transmission in women living with HIV in Bali, Indonesia

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Cervical cancer is frequently detected in women living with HIV and classified as an AIDS-related disease. Women with HIV have a sixfold higher risk of developing cervical cancer than those without HIV, attributed to their compromised immune system making them susceptible to HPV, thereby increasing the risk of cervical dysplasia. Cervical cancer screening is crucial to avoid complications. Hence, the Faculty of Medicine at Udayana University conducted a service-based research to provide services and delve into risk factors and the needs of participants in cervical cancer screening for women with HIV.

To ensure the program's sustainability, a participant satisfaction study was conducted. User's satisfaction was explored from five dimensions of healthcare quality including tangible, reliability, responsiveness, assurance and empathy. Data was analyzed using measurement followed Kaplan and Norton's theory, and participant data were calculated using specific formulas to obtain average satisfaction values.

Data collection utilized a Likert scale questionnaire that underwent validity and reliability tests. The accessible population comprised women living with HIV participating in the service-based research organized by the Faculty of Medicine at Udayana University. Sampling was done consecutively (non-probability technique), enrolling all samples meeting the inclusion and exclusion criteria, with a sample size of 168 subjects. The research analysis results showed

tangible variables at 4.48 (very satisfied), reliability at 4.36 (very satisfied), responsiveness at 4.33 (very satisfied), assurance at 4.41 (very satisfied), and empathy at 4.51 (very satisfied). The percentage of participants willing to attend the program again was 98.81%. Based on the conducted research, the variable with the highest satisfaction level was empathy, while the lowest was responsiveness.

In conclusion, participants were highly satisfied with the service-based research program across all dimensions. Almost all participants expressed a willingness to participate in future cervical cancer screening programs. These research findings are expected to serve as a foundation for the government in developing cervical cancer prevention programs, especially for the more vulnerable population which is women with HIV.



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Low incidence of directly observed stigmatizing behaviors but high prevalence of attitudes that contribute to stigma, an analysis of nationwide stigma survey in healthcare settings in Indonesia.

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Indonesia ranks among the nations in the Asia-Pacific region where the incidence of new HIV infections among key populations, especially among Men who have Sex with Men (MSM), remains alarmingly high. The country's HIV care continuum is characterized by a notable percentage of individuals living with HIV (PLHIV) who are unaware of their HIV status, alongside a pronounced decrease in the number of PLHIV who initiate treatment and achieve viral suppression.

Stigma and discrimination stand as significant obstacles, severely hampering efforts to combat HIV by hindering effective prevention strategies and the management of the condition. This study is dedicated to examining the extent of HIV-related stigma and discrimination within healthcare environments.

This research examines quantitative data obtained from a pioneering mixed-methods study of national scope, carried out at the close of 2023. Garnering insights from 2,198 participants, which included a mix of individuals working in healthcare, the study deployed comprehensive surveys across twelve districts/cities spanning six provinces, executed by trained enumerators. The survey instrument was derived from Thailand's stigma and discrimination survey, which is rooted in the foundational Health Stigma and Discrimination Framework.

The investigation revealed a modest yet consistent incidence of stigmatizing behavior among healthcare providers towards PLHIV and key populations, with a prevalence below 5%. Transgender women, closely followed by MSM, have been identified as the groups encountering the most severe forms of stigma. Notably, such behaviors were more prevalent among health professionals than their non-professional counterparts and among personnel working in HIV-related services. Although the frequency of observed stigmatization was low, the adoption of unnecessary safety measures was significantly higher, reaching 35.5%, particularly in services not directly related to HIV. In terms of attitudes, a substantial number of respondents exhibited a fear of contracting HIV, with this concern markedly more pronounced (59.2%) among staff in non-HIV-related services than those engaged in direct care (36.7%).

Furthermore, a considerable segment of the survey participants harbored stigmatizing views towards PLHIV, with 59.2% of non-professionals and 56.6% of health professionals agreeing with one or more of the following statements: PLHIV are indifferent about transmitting the virus to others, they should feel ashamed of their status, or HIV infection results from irresponsible or immoral actions. When addressing workplace health policies, it was found that only 59.8% of respondents were aware of their employer's written policies aimed at safeguarding clients from stigma and discrimination. Additionally, around 11.8% expressed disagreement with the policy that HIV testing should only be conducted with the client's informed consent.

The study's findings highlight that, despite the relatively low incidence of directly observed stigmatizing behaviors, the prevalence of attitudes that contribute to stigma remains significantly elevated. These outcomes underscore the necessity for a comprehensive strategy, necessitating the engagement of not just medical personnel but also a wider societal mobilization. This includes educational initiatives on HIV, gender, and sexuality, alongside the active participation of religious and community leaders to transform societal attitudes and norms. To support such measures, the pivotal importance of organizational policies, and leadership cannot be overstated.



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Fear of progression among people living with HIV was positively associated with a negative medical coping strategy: a cross-sectional study

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Background: Due to the chronic nature of HIV, their mental health has become a critical concern. However, little knowledge exists about the fear of progression (FoP) in people living with HIV (PLWHIV) in China.

Methods: PLWHIV were consecutively enrolled in from February to June, 2022. A total of 303 PLWHIV were included and their demographic, clinical and psychological information was collected. The Fear of Progression Questionnaire-Short Form (FoP-Q-SF), Social Support Rating Scale (SSRS), Internalized HIV Stigma Scale (IHSS) and Medical Coping Modes Questionnaire were utilized.

Results: Of the participants, 215 PLWHIV were classified into the low-level FoP group, and 88 were grouped into the high-level FoP group based on their FoP-Q-SF scores, according to the criteria for the classification of dysfunctional FoP in cancer patients. The high-level group had a higher proportion of acquired immunodeficiency syndrome (AIDS) stage ($P=0.005$), lower education levels ($P=0.027$) and lower income levels ($P=0.031$). Additionally, the high-level group had lower scores in social support ($P<0.001$) and its three dimensions, with total SSRS scores showing a negative correlation with two dimensions of FoP-Q-SF, namely physical health ($r^2=0.0409$, $P<0.001$) and social family ($r^2=0.0422$, $P<0.001$). Further, the high-level group had higher scores in four dimensions of internalized HIV stigma, and a positive relationship was found to exist between IHSS scores and FoP-Q-SF scores for physical

health ($r^2=0.0960$, $P<0.001$) and social family ($r^2=0.0719$, $P<0.001$). Social support ($OR=0.929$, $P=0.001$) was identified as an independent protective factor for FoP, while AIDS stage ($OR=3.795$, $P=0.001$) and internalized HIV stigma ($OR=1.028$, $P<0.001$) were independent risk factors for FoP. Furthermore, intended medical coping modes (MCMs) were evaluated. The high-level group preferred a negative avoidance mode ($P<0.001$). FoP were positively correlated with avoidance scores ($r^2=0.0886$, $P<0.001$) and was validated as the only factor for the mode of confrontation ($OR=0.944$, $P=0.001$) and avoidance ($OR=1.059$, $P=0.001$) in multivariate analysis.

Conclusion: The incidence of dysfunctional FoP in our study population was relatively high. High-level FoP was associated with poor social support and high-level internalized HIV stigma and predicted a negative MCM among PLWHIV.



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Lived Experiences of Young Professionals Living with Human Immunodeficiency Virus (HIV)

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The Philippines is one country with the fastest-growing number of HIV infections and majority of the newly infected individuals are young adults who can still make valuable contributions in the society as most of them are young professionals who are just about to establish their career.

The purpose of this phenomenological study was to explore the life experiences of young professionals living with HIV. Descriptive phenomenology was used in this study to vividly illustrate the life experiences of the participants.

The study participants were selected using purposive and snowball sampling and they are composed of eight (8) male HIV infected individuals aged 21-35 years old, who has a bachelor's degree of any profession and are currently employed full-time in any institution. The researcher conducted series of in-depth interviews with all the participants using an online platform. Limited observation of nonverbal cues was also done during the interview session.

The analysis of data was guided by Colaizzi's 7-step descriptive phenomenological method. After analyzing the data gathered, four (4) interrelated themes and nine (9) sub themes emerged to give meaning to the life experiences of the participants. The main storylines include: (1) Chain of Limitations and Uncertainties ([a] Receiving the Bad news, [b] Carrying the Heavy Burden, [c] Feeling Lost in Career Path) that they have encountered which eventually affected how they fought their (2) Battles in the World of Work ([a] Dealing with Issues in the Workplace, [b] Adapting to Changes in their Professional Career, [c] Driving their Own Career Growth). In those battlefields, they have developed (3) A Warrior's Mindset ([a] Embracing the New Normal, [b] Positive Career

Mindset, [c] Developing Personal Advocacy) that encouraged them to take the first step towards (4) Breaking the Chains of Stigma and Discrimination in the Workplace. The study findings conclude that (1) HIV significantly affects the psychosocial aspect of young professionals as they enter the world of work, (2) young professionals living with HIV encounter many challenges, problems, and hindrances in the workplace in spite of the existing laws, policies, and programs on HIV/AIDS, (3) strong support system in the workplace, shared life stories of other successful PLHIV, and their healthcare providers help young professionals living with HIV to overcome different obstacles and develop a positive career mindset, and (4) lack of standard policies and programs on HIV in the workplace leads to growing stigma and discrimination among young professionals living with HIV.

In this regard, this study recommends that the (1) government revisit and update the existing laws, regulations and programs concerning the PLHIV; (2) employers should implement standard policies and programs on HIV in the workplace to ensure and maintain a healthy and safe working environment; (3) nurse practitioners should render a more holistic approach in the care and management of patients with HIV; and (4) future researchers to explore other aspects of PLHIV, increase sample size, include a more diverse set of participants, and utilize other research designs that will further explore more impactful ways of eradicating this social problem.



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Lessons learnt: Challenges of setting up a PrEP clinic in a tertiary hospital in Singapore

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HIV pre-exposure prophylaxis (PrEP) is an effective strategy against HIV infection. A clinic, run by an infectious diseases physician, was set up in February 2023 in Changi General Hospital for the management of sexually-transmitted infections (STIs) and the provision of HIV PrEP. Educational talks targeting healthcare providers (HCPs) within the hospital and general practitioners (GPs) were conducted to promote the new service. Details of the clinic were included on the hospital's website.

Over a period of 14 months between February 2023 and Mar 2024, only 19 clients were seen at the clinic. The mean age was 50.2 years old (SD = 19). All were male. 15 out of 19 identified as heterosexual, 3 as homosexual and 1 as bisexual. Almost all (17 out of 19) were referred following the diagnosis of a STI. Two clients were referred for non-occupational post-exposure prophylaxis against HIV. There was no self-referral. No HIV co-infection was detected on screening. All 20 clients were assessed for PrEP. Only 2 out of 19 (10.5%) were initiated on PrEP (1 daily PrEP, 1 on-demand PrEP). The main reasons cited by the clients for declining PrEP, apart from no longer being sexually active (n=8) are high cost of medication (n= 6), and opting for sexual behaviour modification (n=4). Both clients who were on PrEP discontinued PrEP use subsequently.

The low clinic load is due to both low referral numbers from HCPs and low self-referrals. Referral to a new centre is a unfamiliar process for many HCPs. Furthermore, promotion of the service is also limited to educational talks to HCPs, listing on a complicated hospital website and occasional public health campaigns. Lack of awareness of official PrEP services has resulted in clients obtaining their PrEP supply through unregulated websites.

Among those in whom HIV PrEP is indicated, the high cost of the medication (around 400 SGD or 300 USD for 1 month's supply) is a huge barrier to PrEP uptake and PrEP persistence. This is in contrast to other countries, including in Asia, where PrEP is heavily subsidised or even free of charge. Several clients turned to purchasing PrEP online or through buyer's clubs, which retails PrEP at less than 20% of the hospital's price. This results in a lack of a HCP's oversight, leading to improper PrEP use and delayed or missed diagnoses of HIV infection and other STIs.

While there have been efforts at de-stigmatising HIV in Singapore, the limited marketing avenues available to the HCP and the lack of government subsidy for PrEP may be partly attributed to the still-present stigma against HIV. PrEP should not be seen as encouraging promiscuity, but rather as an effective risk mitigation strategy against HIV transmission. It would be a missed opportunity for Singapore if those who are at risk are unable to access PrEP services. Greater effort at combating HIV stigma at the societal level, including more open public health messaging on PrEP and more subsidies for the medication, would be crucial steps towards improving PrEP access and ultimately, HIV elimination.



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Three decades growing up together with HIV in Thailand: Lessons learned

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The Thai Youth Living with HIV Group is made up of approximately 400 young people living with perinatally acquired HIV who have received care at Chulalongkorn University, Thailand. To date, 150 youth from the clinic are now aged >25 years. In March 2024, 8 representatives aged between 27-34 years came together to share their wisdom from a lifetime living with HIV with healthcare providers, carers, and fellow youth on how to live with HIV and thrive.

In 1988, Thailand reported infants being born with HIV. WE were those infants. Most of our families didn't know we had HIV, until our parents died from AIDS, or we got sick.

Childhood

We just weren't like other kids. They called us orphans. Kids weren't allowed to play with us. We got ill a lot but didn't know why. After recovering, we STILL had to take huge and bitter tablets. To stop us dying like our parents they said. By the end of primary school, we learned what HIV/AIDS was. We were afraid. Sad. But relieved to finally know what was wrong.

Teenage years

Having HIV didn't mean having AIDS anymore. We learned more about HIV/AIDS, the medication we were taking, and met others who also had HIV. The fear and isolation reduced. Some got tired of taking tablets. Some suffered side effects so stopped taking them. And got sick again.

Adulthood

U=U. Life is more stable. Some of us have even disclosed to loved ones without fear. It broke down the fearful silence. Our partners and children are free from HIV. But discrimination persists. Some workplaces don't take people with HIV. Some career dreams are still not possible.

We thank our carers who took us to see doctors and helped us take our medication. Thank you to our doctors who made the medications easier to take, were not quick to judge why we weren't taking our medications, but listened and helped us to find a way through. Thankyou medical team, for your care from childhood to adulthood – you looked after us, counseled us, never discriminated against us. Some of us had no family, but you were beside us. We don't expect you to understand everything. Having just one person who will listen and create a safe zone for us is all that we need. We thank ourselves for loving ourselves, setting our own life goals, and our own tenacity. Our lives started with curiosity, illness, and helplessness. We were helped to understand and establish our lives, set goals, and go forward. As you stayed beside us, we became stronger and more self-sufficient.

For future generations of kids with HIV: You'll be fine. We've lived with HIV for over 30 years. If you don't want to tell anyone, you don't need to. If your life is not ok and you're fed up of medication, it's okay – there's a way through. Have patience with your family. Sometimes it seems like they're not helping, but look closely, they may be helping in their own way.



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Learning from the expansion of HIV-Related Stigma and Discrimination (S+D) Reduction Quality Improvement (QI) Project in Government Primary Health Clinics Malaysia

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HIV-Related S+D Reduction QI Project in Malaysia started as a tripartite collaboration between the national HIV technical advisor (HIV/STI/Hep C Sector, Ministry of Health (Sector)), the ministry's research institute leading the QI training (Institute for Health Systems Research (IHSR) and the Malaysian AIDS Council (MAC) as the non-governmental advisor in 2020 to reduce S+D among HCW using QI approach in government health facilities. The project was expanded to 55 clinics in Phase 2, representing 14 states and federal territories from only 10 MOH healthcare facilities in Phase 1. Here are some of the lessons learned from the process.

An established governance is paramount in delineating roles between the parties for proper project management. The Sector set the direction and ensured regular updates to the top managers through Special Meetings between the Director-General of Health, Head of programmes and state directors, fostering support from early adopter state directors. The IHSR provided QI training and learning tools like a locally developed QA workbook and a template guide slide for presentation; the MAC facilitated the engagement of caseworkers with PLHIV in the clinics. The core implementation team in clinics consisted of but was not limited to the family medicine specialist, a staff nurse, and an assistant medical officer, with the state AIDS Officer serving as a crucial link between the states and the Sector. AIDS officer is

a medical officer in charge of HIV Unit in the state health office.

Strengths-based learning in which change champions from Phase 1 were invited to share their experience to be emulated accordingly by the clinics in Phase 2. A scalability assessment tool explored input from the successful examples and perception of clinics in Phase 2 to identify the facilitators and the barriers to be overcome in the expansion preparation.

Establishing a national centralized data collection system for the indicators monitoring since Phase 1 improved the data collection efficiency, and was continued in Phase 2. Baseline assessment was rolled out virtually before the first training with a standardized tool to assess knowledge, attitude, and practice previously used in Phase 1.

As the total facility approach was adopted, team coordination was improved as staff of all services available in the clinics was required to answer the survey, observe their work process to identify potential S+D pitfalls and be involved in designing and implementing the remedial measures. This leverages an understanding of the different procedures that exist across the various services.

Staggered regional implementation in Phase 2 enhanced organizational learning via targeted facilitation through training sessions, progress presentations at specified milestones, and ongoing virtual QI coaching; all aligned with the regional timeline. Concurrently, inter-clinic learning was fostered either in understanding analysis or intervention designing. A Compendium of best practices published from Phase 1 experience also guided the facilitation.

However, the sustainability of response in the survey and intervention involvement of PLHIV and staff needs improvement. The possibility of using community-led monitoring for the survey should be explored.



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Perspectives from Thailand's National Stakeholders on implementation of key population-led hepatitis C virus test and treat: A qualitative pre-implementation study

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Background: Due to high Hepatitis C virus (HCV) prevalence and low linkage to treatment with direct acting antivirals (DAAs) among key populations in Thailand, we plan on implementing HCV test and treat services in two community-led clinics in Bangkok. HCV testing and DAA treatment will be conducted and delivered by key population lay providers experienced in providing HIV and related health services. We explored perspectives from national HCV stakeholders to inform implementation strategies.

Methods: From September–November 2023, we conducted in-depth interviews with national HCV stakeholders from the Ministry of Public Health's Department of Disease Control (DDC), National Health Security Office (NHSSO), Bangkok Metropolitan Administration (BMA), and the Thai Association for the Study of the Liver (THASL). Semi-structured interviews were audio recorded, transcribed and analyzed using selected thematic analysis guided by the Consolidated Framework for Implementation Research. Data were coded in Dedoose program.

Results: All (n=10) stakeholders agreed that implementing key population-led HCV test and treat at community-led clinics was feasible. All noted key facilitators within the construct Culture in the domain Inner Setting: the subconstructs human equality-centeredness and recipient-centeredness (proven track records of community-led clinics of providing stigma-free HIV and sexual

health services and of identifying and recruiting members of key populations). Identified barriers were: 1. Outer Setting domain, construct Policies and laws (legal challenges in keeping DAA stocks in community-led clinics), 2. Inner Setting Domain, construct Structural Characteristics, subconstruct Work Infrastructure (lack of standard operating procedures - SOPs), and 3. Individuals domain, Characteristics subdomain (capability of lay providers to conduct physical examinations).

Conclusions: Thailand's national HCV stakeholders showed support and confidence in implementing key population-led HCV test and treat at two community-led clinics. Community-led clinics can play instrumental roles in providing stigma-free health services beyond HIV and have the capacity to integrate HCV as part of comprehensive service package. Identified barriers will inform the design of multi-level implementation strategies, including capacity-building interventions and certification for lay providers, SOP-development, arranging teleconsultations with physicians, and advocating for policy changes related to DAA stock, to support successful implementation of the key population-led HCV test and treat service.



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Collaborative Surveillance Strategies against Alarming HIV Prevalence among TGs and MSM in Multan, Pakistan

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Background: Since 2018, Wasaib Sanwaro has partnered with key organizations such as Global Funds, National AIDS Control Program, Green Star, and UNDP, securing vital funding support. The collaborative effort targets the pressing issue of soaring HIV prevalence rates among young transgender individuals (TGs) and men who have sex with men (MSM) in Multan, Pakistan. Facing a staggering 12% prevalence rate for TGs and a concerning 5.7% for MSM, significantly surpassing general population rates, pervasive stigma, legal obstacles, and a lack of tailored prevention and treatment strategies pose substantial challenges. With financial support from these collaborative organizations, Wasaib Sanwaro strives to implement targeted interventions, aiming for a substantial reduction in HIV prevalence rates among young TGs and MSM in Multan.

Description: Collaborating with Global Funds and other partners, Wasaib Sanwaro has executed a comprehensive project since 2018 to combat high HIV prevalence rates among young TGs and MSM in Multan. Conducting targeted community outreach programs in busy bazaars, backward areas, and tea cafe, the project focuses on raising awareness about HIV prevention, testing, and treatment. Peer education initiatives are established in diverse settings, and stigma reduction campaigns span locations such as religious institutes, beauty salons, parks, bus stands, roadsides and trans hostels. Utilizing technological solutions, including mobile apps, social media accounts, Wasaib Sanwaro ensures accessible information and virtual counseling services, overcoming geographical barriers.

Lessons Learned: Over the years, collaborative efforts between Wasaib Sanwaro and Global Funds, along with other partners, have significantly enhanced HIV prevention and treatment for young TGs and MSM in Multan. From 2018 to 2023, tailored interventions, including community outreach and stigma reduction, led to an 80% increase in TGs' registration and a 60% boost in testing. Positive cases among TGs decreased by 15% from 2018 to 2023. For MSM, registration and testing rates surged by 65% and 45%, respectively, from 2018 to 2023, resulting in a 10% decline in positive cases. Linkage to care saw marked improvements, with a 58% increase for TGs and a 40% rise for MSM during the same period. These achievements underscore the successful reduction in HIV prevalence rates and improved healthcare accessibility for TGs and MSM in the Multan city.

Conclusions/Next Steps: In conclusion, Wasaib Sanwaro's journey in addressing the challenges of high HIV prevalence rates among young TGs and MSM in Multan has been marked by resilience, adaptation, and continuous improvement. Evolving strategies through data analysis, the organization has achieved significant increases in TGs' and MSM's registration and testing rates, coupled with reductions in positive cases. As Wasaib Sanwaro looks ahead, enhancing the linkage of HIV individuals to antiretroviral therapy (ART) centers emerges as a crucial next step, further strengthening the organization's impact and ensuring continued progress in reducing HIV prevalence rates and enhancing healthcare accessibility for TGs and MSM in Multan.



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HIV/AIDS prevention initiatives by rural/tribal community based organizations in rural/tribal Asia

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Purpose: In resource-poor-nations specialized HIV care-services are non-existent. Hence maximum efforts for HIV prevention are advocated by WHO. Primary-Health-Care is backbone of rural/tribal India. Community based organizations [CBOs] cater to this vast gap in urgent and rural/tribal areas. CBOs have limited resources/training. Rural/tribal communities are potentially vulnerable to HIV-risk. Vulnerability of youth results from lack of literacy and knowledge, inadequate protection by adults at home/school/workplace as well as peer/social/early-marriage pressures in risky sexual encounters. Our CBO devised model of peer-education-pattern since 2013. Especially those vulnerable young-people who make choices out of lack of parental-support and ignorance of UNSAFE SEX.

Method: CBO-workers reduce burden of existing healthcare-system. Youth oriented programs achieve more effective results. Lack of skill-building services for youth is reflected in number of youths diagnosed as HIV +ve. This is a policy paper on HIV prevention by our CBO. Our team has 2 nurses, one physician, one psychologists and five traditional faith healers. We covered 23 villages with 41 schools for peer education in HIV prevention, 58 truck drivers, 12 young commercial sex workers.

Results: after 18 months of prevention efforts our team found that 70% participants changed high risk sexual behavior. Launching youth's Peer program with training from CBO's increases awareness on HIV-control. Establishing counseling centers and handing over peer-education-programs to local communities is best suited to resource-poor-developing nations. Our model graphically & pictorially shown to participants

through DVDs . Our approach provides opportunities for reaching youth population by awareness/prevention campaign programs.

Conclusions: Challenge of distance/isolation/poor-infrastructure can be overcome through committed/trained CBO-Peer-Education-Model. BUT we need to provide regular hands-on training at field level to CBO staff.

Recommendations: APACC needs to support/train such CBO-Initiatives in rural/tribal Asian nations. skills and knowledge gained by me by my APACC participation will provide us contacts/tools to make impact on future HIV control projects



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Using chatbot for creating awareness on Sexual and Reproductive Health and Rights (SRHR) and HIV among adolescent from marginalized communities – Learnings from a field project in India

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Introduction: In several world parts of the world, new HIV cases are primarily being detected among key population and young people. While there are several interventions focusing on key population, has been In several parts of the world, Creating awareness on sexual and reproductive health (SRH) and HIV among adolescents is a challenge across most of the developing countries. Adolescents from marginalized communities and adolescents girls face increased challenges in accessing information related to SRH and HIV, specially in country like India where several taboos are associated with SRH, HIV and Comprehensive Sexuality Education (CSE). While there are challenges in reaching out to adolescents and young people, in in-person mode, with information on SRH and HIV, rapid advancement in technology and increasing penetration of mobile and internet presents new opportunities.

Method: In Madhya Pradesh (India's geographically largest state and one of the poorest states), an initiative was undertaken to reach out to adolescents using technology. Discussions were held with adolescents to understand their needs, concerns, and expectations from the technology based solution. A chatbot was developed based on the discussions, and it was hosted on the Facebook Messenger platform. The chatbot was initially field tested with a smaller group of 100 adolescents (50 boys and 50 girls), and further improvements were made, adding more than 12,000 question and answer pairs, including audio and video materials. The chatbot was rolled out primarily for adolescents aged 15-19 in January 2022.

Findings: A survey was conducted in January 2023 with 3,286 adolescents to understand their perspective on the chatbot. The chatbot was appreciated by 92% of the respondents, who preferred it to face to face conversations. 88% of the respondents found it easily accessible, 85% found it to have comprehensive information, and 84% found the content as appropriate.

Conclusion: The finding from the assessments shows that chatbot can be a powerful tool to address adolescents' queries on sensitive issues, including SRH and HIV, as it is easily accessible and makes adolescents feel more comfortable. It can be adopted in other parts of the world too.



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Association of digital media use for information about sex with comprehensive HIV knowledge and awareness of anti-retroviral treatment among adolescents and young adults: Evidence from a middle-income country

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Background: Central to addressing the HIV epidemic is ramping up HIV testing and reducing stigma against people living with HIV. Previous research has shown that enhancing comprehensive HIV knowledge and awareness of anti-retroviral treatment (ART) correlates with more accepting attitudes toward people living with HIV and increased likelihood to undergo HIV testing. While factors influencing HIV knowledge and ART awareness are well-understood in low-income countries, there remains a gap in understanding in middle-income countries where access to the Internet and digital media use for information are more widespread.

Methods: In this study, I measured the association of use of two types of digital media—Internet media and social media—as information sources about sex with comprehensive HIV knowledge and ART awareness among youth aged 15–24. I used a nationally representative probability sample from the 2021 Young Adult Fertility and Sexuality Study in the Philippines (n = 10,949) and adopted the Health Literacy Skills Framework to obtain a parsimonious weighted logistic regression model that controlled for other relevant factors.

Results: Findings show that only a low percentage of adolescents and young adults in the Philippines had comprehensive knowledge about HIV (P = 14.3%, 95% CI = [13.4%, 15.2%]) and were aware of anti-retroviral treatment (P = 8.5%, 95% CI = [7.7%, 9.3%]). Several factors under various components of the Health Literacy Skills

Framework such as demographic characteristics, individual resources, and prior knowledge and experiences were found to be associated with comprehensive HIV knowledge and ART awareness. Regarding different types of media, youth who used print media such as books and newspapers for information about sex were more likely to have awareness of ART (adjusted OR [aOR] = 1.432, p = .046). On the other hand, those who used broadcast media such as TV and radio for sex-related information were less likely to be aware of ART (aOR = .709, p = .049). With a high percentage of youth having access to the Internet (P = 89.5%, 95% CI = [88.2%, 90.7%]), a substantial percentage used Internet media such as on-line news and articles (P = 17.9%, 95% CI = [16.5%, 19.2%]) and social media (P = 28.3%, 95% CI = [26.6%, 30.0%]) for information about sex. Despite this, usage of social media for sex-related information was only associated with improved comprehensive HIV knowledge (aOR = 1.265, p = .002), but not ART awareness (aOR = 1.244, p = .063). Meanwhile, usage of Internet media such as on-line news and articles were not associated with improved comprehensive HIV knowledge (aOR = 1.105, p = .335) nor ART awareness (aOR = 1.025, p = .832).

Conclusion: Given the prevalent use of the Internet among young people in middle-income countries, public health initiatives aiming to increase HIV testing and combat HIV-related stigma should leverage digital media, including Internet and social media, to enhance HIV awareness. This can be done by ensuring that complete and correct information about HIV is available and accessible on-line. Alongside other HIV-related content, information about ART should also be included and emphasized.



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Community-led Research for Enhancing Pre-Exposure Prophylaxis (PrEP) Uptake Among Sex Workers in Thailand

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Background: SWING Foundation, a sex worker-led community-based organization (CBO), led this research in collaboration with BIRD (Bangkok Interdisciplinary Research and Development) to investigate low levels of PrEP engagement among SW – female (FSW), male (MSW) and transgender female (TGSW) despite government policy of free PrEP for anyone who wants it.

Description: From April-December 2023, SWING conducted the largest cross-sectional study of SW in Thailand to assess demand for PrEP and decision-making factors in PrEP engagement. We enrolled 621 FSW, 452 MSW and 438 TGSW (n=1,511) in 7 provinces - Bangkok, Pattaya, Chiang Mai, Kanchanaburi, Phuket, Sakaew and Udonthani. SWING engaged in protocol development and defense with the Ethics Committee. We collaborated with provincial public health offices to obtain permission. National government and other key stakeholders served in the study advisory group. We used our connections and our database to promote the study and facilitate SW participation in face-to-face data collection. We were able to identify hotspots for sex work and recruit SW of all genders. We contributed to questionnaire development and implementation ensuring sensitivity to SW culture.

Lessons learned: The study reveals important findings that can be used to inform advocacy activities, improve SWING interventions for SW and influence Thailand policy on PrEP in line with the SWING strategic plan, 2023-2027. We found evidence of high-risk behaviors, including group

sex (21% of respondents) with 95% of these reporting no use of condoms, low levels of HIV testing with 43% not having been tested in the past 12 months, low levels of PrEP knowledge, but relatively high level of interest in PrEP use. Gender-based violence was found to be pervasive among all sub-populations, particularly from clients but also from strangers.

Conclusions/next steps: Community leadership in policy-relevant research is not only feasible, but also essential to engage successfully with the different and hard to reach SW populations. We will use the findings to drive the development and expansion of PrEP services to cover the needs of SW of all genders and geographical areas. We will advocate for the inclusion of community-led research in the national strategic plan to end AIDS.



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Transcending the Virus: Understanding the Societal Dynamics Shaping the HIV/AIDS Crisis through a Lens of Social Inequality

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Since its emergence in the 1980s, AIDS has persistently challenged global health efforts. Despite incremental strides, AIDS remains a formidable public health concern, particularly among marginalized demographics. Confronting AIDS demands more than medical intervention; it necessitates an understanding of how various social determinants shape the transmission and impact of HIV on individuals and communities.

This research delves into the influence of social factors on HIV infection across 37 countries, including Vietnam, Haiti, South Africa, and Tanzania, drawing from the expansive dataset of 929,005 samples gathered from the Demographic and Health Surveys (DHS). Employing logistic regression and fixed-effects models, the analysis operates on three tiers: national, community, and individual levels.

The findings underscore the profound impact of gender, education, asset ownership, female empowerment, discrimination, urban-rural dynamics, and sexual attitudes on HIV transmission. Notably, gender assumes contrasting roles in HIV susceptibility across regions: while females serve as protective factors in Asia-Pacific nations like Vietnam and India, males play a similar role in African contexts such as Tanzania and Angola. These disparities are attributed to diverse cultural and structural influences, elucidated through frameworks like "structural violence" and "internalized violence."

In the end, we make the policy recommendations encompassing systemic reforms in education, family planning, cultural adaptation, healthcare infrastructure, gender parity promotion, and social network fortification. This endeavor aims to

combat HIV infection by transcending the virus and addressing entrenched social inequalities.



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'KISARA is my second school': A Phenomenological Exploration of Volunteer Motivations, Challenges, and Benefits in KISARA's Sexual and Reproductive Health Advocacy Program in Bali, Indonesia

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Young people aged 10-24 are particularly vulnerable to poor sexual and reproductive health (SRH) outcomes. In Indonesia, peer education has emerged as a significant youth-centered SRH intervention and the study focuses on KISARA, a non-profit organization in Bali, Indonesia that focuses on sexual and reproductive health advocacy.

The study presents an in-depth exploration of the motivations, challenges, and benefits associated with volunteering at KISARA. It seeks to understand how these factors influence volunteerism in youth health advocacy in Indonesia. A qualitative research was utilized, centering on in-depth remote interviews. It employed Schultz's phenomenological sociology and Attride - Stirling's thematic network analysis. These methodologies were used to systematically explore and interpret the experiences of the volunteers at KISARA.

The study identifies three key themes in motivation, namely: access to opportunities, network expansion, and altruistic endeavors; two themes in challenges, namely: organizational challenges and personal challenges; and four themes in benefits, namely: application of academic knowledge to community work, enhancement of soft skills like communication and leadership, broadening personal perspectives on sexual reproductive health (SRH), and personal fulfillment.

The study contributes to the broader understanding of volunteerism in non-profit organizations. It offers insights for improving volunteer management and engagement strategies in similar contexts, emphasizing the importance of addressing the challenges and leveraging the benefits experienced by volunteers.



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HIV PrEP initiation leads to reduced HIV and PrEP stigma and depression severity among GBMSM in Singapore: A prospective cohort study and mixed-methods analysis

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Background: PrEP initiation may be beneficial for emotional well-being among gay, bisexual, and other men who have sex with men (GBMSM) through empowerment as well as reduced fears of acquiring HIV. However, no prior study has explored the impact of PrEP initiation on the mental well-being of GBMSM in Singapore.

Methods: A concurrent mixed-methods study design was employed. Quantitative data were collected at baseline, 6 and 12 months following PrEP initiation at a clinical setting. Outcomes of interest including HIV risk perception, internalised homophobia, depression, HIV stigma and PrEP stigma were measured as the composite score of several Likert scale questions. A longitudinal mixed effect linear model incorporating indicator variables for each time point and controlling for key sociodemographic variables. Participants were purposively sampled to participate in in-depth interviews about their PrEP experience at the end of the study, which were analyzed through inductive thematic analysis.

Results: The baseline cohort consisted of 53 participants, with 40 individuals remaining in the study at the 6-month follow-up and 36 participants at the 12-month follow-up. A total of 13 participants participated in in-depth interviews. At the 6-month mark, HIV stigma (C=-2.13, CI=[-4.00, -0.26]) and PrEP stigma (C=-1.36, CI=[-2.59, -0.14]) decreased compared to baseline. At the 12-month mark, HIV risk perception (C=-1.07, CI=[-1.87, -0.32]), depression (C=-1.55, CI=[-2.81, -0.29]), HIV stigma (C=-2.26,

CI=[-4.20, -0.32]) and PrEP stigma (C=-2.08, CI [-3.35, -0.81]) decreased compared to baseline.

Participants highlighted in interviews that being on PrEP helped them feel less worried and fearful of acquiring HIV and significantly improved their mental health. They also articulated how initiating PrEP gave them more confidence and opportunities to have sex with people living with HIV, and positively shaped their views towards both HIV and PrEP use in the community.

Conclusions: PrEP initiation has a significant positive impact on the mental well-being of GBMSM and has the potential to help in destigmatizing both PrEP use and having HIV in the community. Further research is needed to explore the use of PrEP as a platform for addressing HIV-related stigma.



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Decoding U=U: A Comparative Study on Knowledge and Perceptions toward Undetectable=Untransmittable, and Willingness to HIV testing among Heterosexual and Non-Heterosexual Populations in the Philippines

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Background: The rate of new HIV cases in the Philippines surged by 418% from 2010 to 2022 due to intensified nationwide HIV testing efforts. The global Undetectable=Untransmittable (U=U) campaign has improved HIV awareness and testing, particularly among non-heterosexual populations (LGBTQIA+). Yet, understanding of U=U and HIV perceptions remains limited among heterosexuals. This study aims to compare knowledge, perception, and willingness to undergo HIV testing between heterosexual and non-heterosexual populations in the Philippines.

Methods: A nationwide online cross-sectional survey, conducted from January 6 to 17, 2024, employed a self-made, validated questionnaire. The survey encompassed demographic aspects, including sex at birth (male, female, intersex) and sexual orientation (heterosexual, non-heterosexual). It also gauged knowledge on U=U (10-item, true/false), perceptions regarding U=U and HIV (susceptibility, severity, benefits, barriers; 1-strongly disagree, 5-strongly agree), and willingness to undergo HIV testing (0-not willing, 9=very willing). The inclusion criteria include Filipino residing in the Philippines, at least 18 years old. Data analysis utilized descriptive statistics, composite scoring for knowledge and perception, and multivariable regression analysis.

Results: A total of 334 Filipinos participated in the survey (mean age=28.3 years, SD=7.2). The majority identified as male at birth (84.1%), non-heterosexual (82.6%), and cisgender (60.8%). Respondents scored an average of 7.6 on the 10-point willingness scale (SD=2.5) and 6.9 on the 10-item knowledge questionnaire (SD=1.6). High proportions of the respondents got incorrect answers to the following knowledge-based questions: "When a person achieves undetectable viral load, this means a person living with HIV can stop using condoms when having sex and still protect their sexual partners from HIV transmission" (72.8% answered incorrectly); "Undetectable viral load in the body can stop HIV from spreading through sharing needles during drug use" (40% incorrect); and "U=U is only applicable for behaviors that involve sexual intercourse" (39.8% incorrect). Compared to heterosexuals, non-heterosexual individuals showed higher knowledge on U=U/HIV (91.5% vs 8.46%, $p=0.001$) and greater willingness to undergo HIV testing (90.8% vs 9.2%, $p<0.001$).

Compared to non-heterosexuals, heterosexual respondents had higher proportion of never been tested for HIV (93.1% vs 27.9%, $p<0.001$). Composite scores indicated favorable perceptions: very good for HIV susceptibility (mean=3.54, SD=0.71), excellent for HIV severity (mean=4.27, SD=0.71) and benefits of HIV testing (mean=4.59, SD=0.66), and good for barriers to HIV testing (mean=2.84, SD=1.04). Multivariable regression analysis revealed willingness to undergo HIV testing to be positively associated with sex at birth and perceived benefits (aOR=7.91; $p=0.012$ and aOR=3.28; $p=0.03$, respectively).

Conclusion: In conclusion, findings from this survey provide insights on the disparity of U=U campaign among Filipino heterosexuals. Community efforts should be aimed at mainstreaming the U=U campaign and widen its reach to the general population. Moreover, normalizing HIV testing among the heterosexual populations is necessary to improve their knowledge and perceptions—emphasizing that HIV prevention is a responsibility of all Filipinos.



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Internet-based self-sampled testing for Chlamydia trachomatis (CT), Neisseria gonorrhoeae (NG) and HPV as a tool for expanding testing coverage

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Background: Testing for sexually transmitted infection (STI) facilitates early identification and timely treatment, which potentially reduces ongoing undiagnosed asymptomatic STI transmissions. Internet-based self-sampling for STI test could be an effective means to boost testing coverage. This qualitative study, as a part of a population study, aimed to understand attitudes, concerns and motivations regarding users' STI self-sampling experience.

Material and Methods: Sexually experienced Hong Kong residents aged 18 years or above were invited to join a population study in 2022 by random sampling. Participants could request free self-sampling kits from the online survey platform, including urine specimens, vaginal swab for females and penile swab for heterosexual males and men who have sex with men (MSM), pharyngeal and rectal swabs for MSM, for Chlamydia trachomatis, Neisseria gonorrhoeae and human papillomavirus laboratory tests. After submitting the samples, they were invited for semi-structured individual in-depth interviews, enquiring about their self-sampling experience, concerns and reasons for using self-sampling, and comparison with on-site sampling performed by healthcare workers. All interviews were audio-recorded, transcribed verbatim, and analysed using an inductive approach in NVIVO 12.

Results: Some 21 participants (8 heterosexual female, 7 heterosexual male, 6 self-reported MSM) were interviewed. All participants had a positive attitude towards self-sampling. Minimizing physical discomfort and psychological burden, ensuring privacy, avoiding embarrassment, and perceiving self-sampling procedures simple and convenient were the main advantages of self-sampling over on-site sampling performed by healthcare workers. Participants expected a consultation for follow-up if tested positive once the service is implemented in a real-world setting. Despite concerns about the validity of samples due to unprofessional self-sampling skills and storage conditions during sample delivery reported in less than 30% of the subjects, the majority of the participants were confident in the accuracy of laboratory test results using their self-collected samples. The primary motivation for using self-sampling for STI test was concerns of STI risk while asymptomatic. The acceptable cost range was between 100-1000HKD (~13-130USD).

Conclusions: Our findings suggest that internet-based self-sampling for STI is an acceptable means of testing for asymptomatic individuals. While the validity of samples remains a concern, clear instructions and promising delivery methods may help increasing users' confidence. The development of effective and accessible self-sampling programs would be important for enhancing STI testing coverage.



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“Flourishing like the forest and clear like the sky”: a Photovoice exploration of challenges experienced and resilience resources employed by key populations and people with HIV in Malaysia

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Background: Key populations and people living with HIV in Malaysia experience adversities, including pathologization, stigmatization of intersectional identities, and resource restriction, resulting in deleterious well-being outcomes. While people living with and affected by HIV employ varying strategies in response to stressors, research exploring factors contributing to their resilience is scarce. Resilience is the process of overcoming traumatic events and mitigating the harmful consequences of these experiences. Resilience necessitates two essential components: the presence of adversity(-ies) and promotive moderators that either strengthen positive outcomes or mitigate negative outcomes. Using Photovoice, a qualitative research method that empowers individuals to represent their communities through imagery narratives, we explored the challenges key populations and people living with HIV in Malaysia experience and the repertoire of resilience resources they employ.

Material & Methods: From October to November 2021, individuals across Malaysia aged 18 and above who self-identified as members of key populations, i.e., men who have sex with men, transgender women, female sex workers, people who inject drugs, and people with HIV, participated in an online Photovoice project. A website, available in Malay and English, facilitated the Photovoice data collection, wherein participants were introduced to the project and taught photography skills. Participants submitted photographs with captions responding to the following prompts: (1) what challenges do you face? (2) What makes you happy? (3) What makes you sad? (4) What is important to you? We employed Rapid Qualitative Inquiry to identify themes across the data.

Results: Thirty-four participants took part, including 12 (35.3%) men who have sex with men, 7 (20.6%) transgender women, 7 (20.6%) female sex workers, 6 (17.6%) people who inject drugs, and 8 (23.5%) people with HIV. We grouped the emerging challenges from the data into three domains: (1) Intrapersonal: management of concealable stigmatized identities; perceived stigma, i.e., assessment of beliefs about prejudice, stereotypes, and discrimination among others; securing subsistence resources (e.g., food, safety, access to transportation, and employment); and death-related cognitions and grief; (2) Interpersonal: enacted stigma, i.e., experiences of stereotypes, prejudice, and discrimination; and navigating complexities of relationships with friends, family, and partners; and lastly (3) structural stigma (e.g., absence of legal protection and restriction of resources).

The resilience resources that emerged were creative expression and celebration of self-identities; engaging in prosocial actions (e.g., volunteering, making someone smile, donation); spirituality, religious values, and drawing strength from nature; social support; self-care (e.g., exercise, good food, practicing gratitude); and the role of time as a promotive factor in developing resilience, i.e., quality time dedicated to health promotion and relationships as a buffer against stress and illness.

Conclusion: The study identified stressors experienced by key populations and people with HIV in Malaysia and the resilience resources employed. Taken together, findings suggest that the local and regional HIV response would benefit from examining the protective roles of resilience



resources in the relationship between stressors and well-being outcomes, offering insights into the need for empowerment-based approaches to bolster access to HIV care, guide social justice-related programs and policies as well as cultivating stigma-resistant communities.



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The Positive Perspectives Wave 3 study protocol: co-developing a patient experience study with community to assess unmet needs, engagement in care, and quality of life in people living with HIV

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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. Previous research Waves have contributed to literature on unmet treatment needs, engagement in care, and barriers to communication with healthcare providers and how these impact self-reported health outcomes. Data have helped advance critical initiatives, improving HIV care at country and global levels.

Description: The Third Wave of the study expands on previous research, broadening the population to include adolescents, trans and gender-diverse people and older individuals, increasing the proportion of women (to 50%) and participating countries, and delving further into unmet needs and experiences. Three components are included (Figure).

Patient experience data are important for person-centred healthcare. To increase research utility and applicability, a diverse 16-member steering committee of advocates, people living with HIV, patient organisation representatives and healthcare professionals engaged in HIV care globally co-created study objectives, surveys, and study protocol.

Lessons learnt: We learned the value of engaging broad and diverse groups; demographic differences in culture and experience among committee members enabled creation of surveys with broad relevance and acceptability. The steering committee modified previous objectives to reflect priorities relevant to people living with HIV around the world.

Our interactions enabled identification of several additional areas of research and analysis to better understand experiences of people living with HIV that we would have been unaware of had we not engaged in this way.

Conclusions/next steps: Meaningful engagement with affected communities in research, working in synergy with healthcare providers, has been identified as key to good health and research outcomes. The Positive Perspectives studies have demonstrated that continuous, authentic patient engagement is best able to identify and address unmet needs among people living with HIV. Positive Perspectives Wave 3 enrolls through 2024.

Figure:

PART A: Adult Survey; Quantitative

Target recruitment: 2,890 people living with HIV aged 18+ across 29 countries

Research objectives include capturing perspectives on:

- Unmet Needs
- Treatment Challenges & Aspirations
- Engagement in care
- Impact of quality of care on health outcomes
- Challenges of growing older with HIV
- Belief in and impact of U=U on behaviour change
- Impact of COVID on access to care

PART B: Personnel in HIV Patient Organisation survey; Mixed mode (qualitative & quantitative)

Target Recruitment: 435 people across 29 countries

Research objectives include capturing information on support provided in relation to:

- HIV stigma prevention
- Barriers to accessing support
- Facilitators for sharing U=U



- Community needs around care, support and education

PART C: Youth Survey; Quantitative

Target Recruitment: 50 people living with HIV aged 13-17 years in South Africa

Research objectives include capturing perspectives on:

- Challenges and barriers to care
- Level of understanding of HIV and U=U
- Self-reported health



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Understanding impact of COVID19 on Sex Workers: Findings from a study in Madhya Pradesh, India

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Introduction: Like all humanitarian crises, COVID-19 affected different people differently, highlighting structural inequalities, exacerbating gender inequality and disproportionately impacting the marginalized and dispossessed. Sex workers all over the world were among the hardest hit communities at the start of the COVID-19 pandemic and in India also, COVID-19 pandemic had severe impact on sex workers, intensifying their existing vulnerabilities and challenges.

Method: In order to understand the challenges faced by sex workers during COVID19, a study was done among 156 female sex workers in two districts of Madhya Pradesh.

Findings - Findings from the study show that sex workers have to face increased vulnerabilities and challenges during the COVID19. 83% of respondents reported a decrease in their income and 71% experienced increased mental stress and hardship during the COVID-19 period. 48% of respondents faced challenges in accessing HIV prevention services, and 41% of respondents experienced increased violence in the last two years. 24% of respondents did not receive any support from the government or other agencies during the COVID-19 pandemic. Lack of information, identity documents and proof of address compounded their difficulties. Furthermore, 31% of respondents reported an increase in stigma and discrimination towards sex workers.

Lessons learnt: COVID19 pandemic exacerbated the challenges and struggles of female sex workers, leading to increased violence, decline in income, and difficulties in accessing healthcare, particularly for HIV prevention and treatment services.

Conclusion: The study reveals the multifaceted impact of COVID-19 on sex workers, underscoring the need for inclusive, rights-based responses and support systems. This includes need of addressing violence and discrimination, and integrating sex workers into social protection and humanitarian efforts to foster resilience against future crises. Further, it is also critical to strengthen community systems and social capital to protect against future crises.



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Chemsex as lines of flight? Critical Deleuzian perspectives on chemical intimacies

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Background: Set against a dominant public health and biomedicalist approach, sex among men compounded by illegal drug use, has generated moral panic scripts. Public health scholars have, in their 'rush to risk', over-emphasised the problematic aspects of chemsex, while glossing over how it may be transformative. In a bid to resist a medical-moralist paradigm dominating public health ideologies, critical scholars have been partial to the emancipatory potential of chemical-sexual intimacies. Taking this view as a point of departure, we make a case for understanding chemsex among men in Singapore vis-à-vis Deleuzian lines of flight.

Methods: Semi-structured in-depth interviews were conducted with 33 purposively sampled sexual minority men seeking treatment for chemsex in Singapore. Interview topics included participants' experiences and life histories of chemsex, substance use, incarceration, trauma, and ongoing recovery from chemsex. Interviews were audio-recorded and transcribed verbatim. Data were and analyzed via inductive thematic analysis.

Results: Drawing on in-depth qualitative interviews, we illustrate how chemically inflected sexual encounters can offer deterritorialising flights of fantasy and freedom from a heteronormative social structure that stigmatises gay sex, among other normative regimes. Nevertheless, we argue that these flight lines are not static, neither do they extend indefinitely in space-time. Accordingly, we show how flights of freedom can evolve into lines of fright (or non-flight) when chemsex practitioners are met with critical thresholds that reveal the less-than-desirable aspects of being intoxicated. Consequently, they may eventually consider the reterritorialisation of their lives (i.e. abstinence

and recovery) as a more constructive option. Regardless of their choices to ride on chemically-induced flight lines or to take a step back from such deterritorialising pathways, they have asserted their agency and troubled stereotypical perspectives of drug users as passive automatons.

Conclusions: This paper enriches the chemsex scholarship by presenting a robust and nuanced Deleuzian conceptualisation of chemical-sexual intimacies without romantacising and/or overstating the 'escape'/'freedom' that chemsex can facilitate. Future research in this arena could potentially investigate the complicated, conflicted and protracted intimate relationships that users may have with their drug(s) of choice, as well as the varied lines of (non-)flight that these chemicals can endow over a longitudinal study.



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Primary care providers' knowledge, attitudes, and practice of recommending HPV vaccination to adolescent males in mainland China: a cross-sectional study

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Background: HPV vaccination for boys is effective in preventing HPV-related diseases such as oropharyngeal and anal cancers among adult men and has peripheral benefits for women. The Chinese government has not yet prioritized male population for HPV vaccination but there are increasingly more discussions about including them in HPV vaccination services. It is therefore important to prepare health providers for future inclusion of men in HPV vaccination services in China. This study aimed to understand primary care providers' knowledge, attitudes, and practices of recommending HPV vaccination for adolescent males, and associated factors.

Methods: Between December 2023 and February 2024, we conducted an online questionnaire survey with primary care providers in, including general practitioners, nurses, public health practitioners in community health settings. We used the socio-ecological model to guide the survey instrument design and data on individual-level (e.g., knowledge of HPV and the HPV vaccine, perceived safety of vaccination in adolescent males), interpersonal-level (e.g., embarrassment when discussing HPV with parents of boys), community-level (e.g., focus population for marketing), organizational-level (e.g., vaccine supply and availability), and policy-level factors (e.g., lack of policy or clinical guidelines) were collected. We used a stepwise regression approach to identify factors associated with their previous

recommendation experiences and willingness to recommend HPV vaccines to adolescent males. Gender, age, occupation, professional specialty, job title, years of practice, education, and income were adjusted as potential confounders.

Results: A total of 605 primary care providers completed the survey, including 349 (57.7%) primary care physicians and 256 (42.3%) nurses, with a mean age of 36.3 years (SD=8.0). Participants possessed a relatively good knowledge of HPV and HPV vaccines, with a median score of 8 out of 10 (10 suggests the best knowledge level). Ninety-nine (16.4%) had recommended the vaccine to adolescent males in the past year, and 92.7% reported willingness to recommend in future. Factors associated with recommending vaccination to adolescent males in the past year were: colleagues encouragement (aOR=2.52, 95%CI: 1.52-4.18), supportive organizational policies (aOR=5.11, 95%CI: 2.93-8.90), having incentives for HPV vaccine promotion (aOR=2.36, 95%CI: 1.37-4.06), community discussion that HPV-related diseases are uncommon (aOR=0.53, 95%CI: 0.34-0.83), community perception that HPV vaccine is only for females (aOR=0.33, 95%CI: 0.21-0.53). Factors associated with willingness to recommend vaccination for adolescent males were: the belief that the vaccine was safe (aOR=14.32, 95%CI: 4.16-49.33), willingness to explain the benefits of vaccination to parents (aOR=11.68, 95%CI: 4.47-30.50), existence of vaccination campaigns in non-professional settings (aOR=5.09, 95%CI: 2.50-10.33), personal endorsement of including HPV vaccination in the National Immunization Program (aOR=5.97, 95%CI: 2.81-12.66), the belief that adolescent males were too young (aOR=0.15, 95%CI: 0.07-0.31), and fear of offending parents by discussing HPV-related diseases (aOR=0.25, 95%CI: 0.13-0.48).

Conclusion: Primary care providers' willingness to recommend HPV vaccine is high, but actual recommendation rates for HPV vaccination of adolescent males were low. We identified various associated factors, and these can be used to inform future interventions targeting primary care providers to increase HPV vaccination among adolescent males.



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HIV, hepatitis, and syphilis self-testing among adolescents and young people: A systematic review and meta-analysis

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Background: Adolescents and young people make up a disproportionate share of the world's HIV and sexually transmitted infections (STI). Self-testing can increase testing coverage and strengthen the uptake of HIV/STI prevention and treatment services. We aimed to critically appraise the literature regarding HIV, hepatitis, and syphilis self-testing among adolescents and young people (age 10–24 years, based on definition from the World Health Organization), and assess its acceptability, feasibility, usability, and cost-effectiveness.

Methods: We conducted a systematic review and meta-analysis, searching six databases between January 2010 and October 2023. We included all studies on HIV, hepatitis and syphilis self-testing in adolescents and young people. A random-effects meta-analysis was used to summarise the uptake, proportion of first-time testers and linkage to care. Qualitative data were narratively synthesised.

Results: We identified 104 relevant studies, of which 98 were on HIV, four on hepatitis and two on syphilis self-testing. Among these, six studies focused on adolescents aged 10–14, 96 studies included adolescents aged 15–19, and 96 studies involved young people aged 20–24. A total of 46 studies were included in the meta-analysis. Most studies were conducted in the African region (n= 33/46, 72%) and lower-middle-income countries (n= 17/46, 37%). Approximately 90% (95% confidence interval (CI): 82–96%, I²=99%) of adolescents who were offered any of the three

types of self-test completed the test. Around 78% (95% CI: 26–100%, I²=98%) of adolescent self-testers reporting reactive result subsequently linked to further testing and onward care as needed. In general, there was high acceptability and usability among adolescents and young people towards self-testing. Adolescents aged 10–14 preferred receiving a self-test kit with pre-test counselling or assisted video/audio instructions from a healthcare worker to guide them on how to self-test. Most individuals aged 15–24 liked the confidentiality, convenience and non-invasiveness of self-testing compared to conventional facility-based testing. They also found self-testing easy to perform without assistance and were confident in interpreting the results by themselves.

Conclusions: Self-testing is a safe, effective and accessible way to increase HIV, hepatitis and syphilis testing and treatment in adolescents and young people. Efforts to ensure access to self-testing for this population should be prioritized across disease areas to maximise public health impact.

*Numbers may not add up due to studies with participants from >1 age group.



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A secondary data analysis of HIV testing service database from 2021-2024: Preliminary assessment of risk profiles among clients in four community-based HIV care facilities in Greater Metro Manila, Philippines

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Introduction: Factors associated with HIV infection vary according to country and community contexts. In the Philippines, condomless sex among men who have sex with men (MSM) remains the most prevalent risk of HIV infection. However, other risk factors remain unexplored at the community-level. Save And Improve Lives (SAIL), a key population (KP)-led, foreign aid-local NGO collaborative model, established one-stop shop HIV care facilities in high HIV-burden areas of the Philippines. To effectively plan for sustainable differentiated and KP-centered HIV service provision, this study was conducted to assess the factors associated with HIV among clients of SAIL clinics.

Method: A secondary data analysis was conducted using the entire HIV Testing Service (HTS) database of four SAIL clinics—two located in Metro Manila (Makati City and Caloocan City) and two in CaLaBarZon Region (Calamba and Cavite). Descriptive statistics and multivariable logistic regression were used to analyze the association between an HIV-positive status and specific risk behaviors. The association between HIV result and behavior risks were adjusted for age, sex at birth, education level, civil status, and employment, with level of significance set at $p=0.05$.

Results: From January 5, 2021 to February 6, 2024, a total of 24244 HTS data entries were recorded, showing a mean age of 19.4 years old ($sd=7.79$), male at birth as a majority (94.3%), unemployed

status (49.5%), and 13.7% were current students. Facility-based testing was the most common modality conducted (40.3%) with a highly urbanized, central business district-adjacent clinic (Makati) having the highest proportion of HTS uptake (44%). HIV reactivity, on the average, was 4.9% (1196/24244), with the highest rate demonstrated by a provincial clinic near hot spring resorts and short term vacation houses (Calamba, 5.5%). The highest proportions of risk behavior recorded was sex with males (86.6%), sex with females (16%), paying for sex (3%), and receiving payment for sex (2.9%). Adjusted odds ratios revealed that an HIV-positive result was more likely associated with male sex ($aOR=2.04$, $p<0.001$), paying for sex ($aOR=1.74$, $p<0.001$), and receiving payment for sex ($aOR=1.8$, $p<0.001$).

Conclusion: The secondary data analysis from four SAIL clinics suggests that targeted outreach and education efforts should focus on reaching young males, particularly those who may be out of school or unemployed. The identified factors associated with HIV-positive results, such as male sex, paying for sex, and receiving payment for sex, provide valuable insights for designing combination prevention strategies for people who engage in sex work, receive gifts in exchange for sex. This may include increasing uptake of Pre-Exposure Prophylaxis (PrEP) with a comprehensive STI testing package while addressing unemployment and education support as social determinants of HIV.



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The impact of COVID-19 pandemic on the clinical characteristics of new HIV diagnoses- a retrospective single-centre observational study in Sabah, Malaysia

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Background: The COVID-19 pandemic has had a significant impact on healthcare delivery globally. Disruption of HIV care services and restrictive measures implemented during the pandemic could have altered the disease dynamics of HIV infection. Data on the impact of the COVID-19 pandemic on new HIV diagnoses in Malaysia are lacking. This is a retrospective, single-centre observational study at a tertiary hospital in Sabah, Malaysia, comparing the clinical characteristics of new HIV diagnoses pre- and post-COVID-19 pandemic.

Methods: All adult patients who presented to the Infectious Diseases Clinic at Queen Elizabeth Hospital with newly diagnosed HIV infection in the following 2 time frames were included in the study: from 1st May to 30th November 2019 (pre-COVID-19 period) and from 1st May to 30th November 2022 (post-COVID-19 period). Clinical and laboratory results and demographic data were collected from medical records.

Results: A total of 121 patients were included in the analysis: 66 (54.5%) in the pre-COVID-19 group and 55 (45.5%) in the post-COVID-19 group. The median ages were 31 years for the pre-COVID-19 group and 32 years for the post-COVID-19 group. Male sex was predominant in both groups of patients. There was no difference in terms of risk factors for HIV acquisition in the 2 groups (pre- and post-COVID-19), with men who have sex with men (MSM) being the predominant risk factor. In terms of the median CD4 cell count at diagnosis, there was no statistically significant difference between patients in the pre- and post-COVID-19 groups (median: 285 vs 243 cells/mm³; p = 0.555).

The number of cases of syphilis infection was significantly higher in the post-COVID-19 group (16/55; 29.1%) than in the pre-COVID-19 group (6/66; 9.1%) (p=0.005). Fever was the most common symptom at HIV diagnosis in both groups of patients. Significantly more patients in the post-COVID-19 group (7/55; 12.7%) reported weight loss at HIV diagnosis than those in the pre-COVID-19 group (1/66; 1.5%) (p= 0.023). Hypertension was the most common comorbidity and was observed more in patients in the pre-COVID-19 group (10/66; 15.2%) than those in the post-COVID-19 group (2/55; 3.6%) (p=0.035).

Conclusion: In conclusion, the clinical characteristics of new HIV diagnoses were affected by the COVID-19 pandemic, although larger multicentric studies are needed to examine the real impact. The transmission dynamics of other diseases, such as syphilis, might also be influenced by the pandemic.

Keywords: HIV, COVID-19, Syphilis



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Correlation between High-Risk HPV and Cervical Abnormalities in Women Living with HIV in Bali, Indonesia

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Background: Women living with HIV face a higher risk of developing cervical cancer compared to those without HIV. However, comprehensive cervical cancer screening programs for this population are still lacking in Indonesia. This has resulted in many cases of late-stage cervical cancer being diagnosed, especially in Bali, which has experienced an increase in cases of HIV and cervical cancer. This study aimed to determine the prevalence of and risk factors for cervical abnormalities/dysplasia in women living with HIV in Bali and to explore their relationship with high-risk HPV (HPV-HR) types.

Material and methods: An observational cross-sectional design was used, with eligible women recruited from outpatient HIV clinics in Bali who provided consent to participate. Between July to December 2023, participants were interviewed to collect demographic and historical medical information, followed by a physical examination including a pelvic examination with sample collection and phlebotomy. Pap smear samples and cervical swabs were processed using ThinPrep (Hologic, Inc., USA) for cytology and HPV DNA testing. PCR for detection and genotyping was performed using the Veriti ThermoCycler (Applied Biosystems). HPV-HR types included HPV 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, and 68. Blood samples were analyzed for CD4 and CD8 cell counts.

Results: A total of 245 women with HIV were enrolled (median age 38 years old (IQR 33-44 years)), their median time on antiretroviral

therapy was 7 years (IQR 3-11); 239 (98%) had valid initial results and were included in the analysis. Overall, 26 (11%) of samples showed abnormal cytology: 9 (3.8%) ASC-US, 6 (2.5%) ASC-H, 7 (2.9%) LSIL, and 4 (1.7%) HSIL. Of the 58 (24%) that tested positive for HPV DNA, 18 (31%) had abnormal cytology. HPV 18 was the most common high-risk genotype detected 16 (28%). Bivariate analysis showed a significant association between positive HPV DNA and abnormal cytology, with those testing HPV-positive having a 9.7 times higher risk of ASC-US or greater (OR=9.73; 95%CI=3.95-23.96; p=0.000). Multivariate regression analyses identified having HPV 18 infection as an independent risk factor for abnormal cytology (OR=9.02; 95%CI=1.84 - 44.4; p=0.007).

Conclusion: In our study, 11% of women living with HIV had abnormal cytology and 24% had positive HPV DNA tests. HPV 18 was associated with a greater risk of abnormal cytology compared to other HPV-HR strains, but our sample size was small. These results underscore the need for increased vaccination of younger women and screening of all women living with HIV in Indonesia in order to improve their health outcomes and prevent cervical cancer.



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Diversity of HIV-1 CRF01_AE cluster 4 and its impact on immune recovery during combination antiretroviral therapy

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Background: HIV-1 CRF01_AE cluster 4 has the highest diversity among multiple phylogenetic lineages. We aim to explore the impact of cluster 4 diversity on immune recovery during combination antiretroviral therapy (cART).

Methods: This retrospective longitudinal study enrolled patients newly diagnosed with HIV-1 infection in Jiangsu Province from 2017 to 2018. The pol sequences of CRF01_AE strain were subjected to cluster identification. The patients who have received cART for at least 2 years and maintained virological suppression at all follow-up visits were selected. The immune recovery analysis included CD4+ T cell counts increase rate, risk of immunological non-response (INR), and the progression of immune reconstitution (IR). We used generalized additive mixed model to assess the CD4+ T cell counts increase rate. Univariable and multivariable Logistic regression models were used to determine the association of cluster 4 diversity with the risk of INR. Kaplan-Meier analysis and multivariable Cox proportional hazards models were employed to compare the progression of achieving IR among different CRF01_AE clusters.

Results: A total of 1364 CRF01_AE patients were successfully identified, mainly comprised of cluster 4 (64.74%, 883) and cluster 5 (20.38%, 278). Cluster 4 further diversified into cluster 4a (35.79%, 316), cluster 4b (30.24%, 267) and two novel subclusters named cluster 4c (16.53%, 146) and cluster 4d (17.44%, 154). Among 767 patients with sustained virological suppression, cluster 4a patients showed a slower CD4 increase rate (vs cluster 4b, coefficient: 8.60, 95% CI: 0.05 ~ 17.14, P = 0.049; vs cluster 4c, coefficient: 7.69, 95% CI: -

2.45 ~ 17.83, P = 0.138; vs cluster 4d, coefficient: 20.30, 95% CI: 10.46 ~ 30.14, P < 0.001; vs cluster 5, coefficient: 15.72, 95% CI: 7.15 ~ 24.28, P < 0.001), higher risk of INR (vs cluster 4b, adjusted OR: 0.77, 95% CI: 0.46 ~ 1.29; vs cluster 4c, adjusted OR: 0.89, 95% CI: 0.48 ~ 1.67; vs cluster 4d, adjusted OR: 0.42, 95% CI: 0.23 ~ 0.76; vs cluster 5, adjusted OR: 0.58, 95% CI: 0.34 ~ 0.98), and longer progression of IR (vs cluster 4b, adjusted HR: 1.37, 95% CI: 1.00 ~ 1.88; vs cluster 4c, adjusted HR: 1.18, 95% CI: 0.80 ~ 1.73; vs cluster 4d, adjusted HR: 2.10, 95% CI: 1.46 ~ 3.02; vs cluster 5, adjusted HR: 1.83, 95% CI: 1.34 ~ 2.49). In the subgroup analyses of patients with baseline CD4+ T cell counts less than 500 cells/ μ l, the results that cluster 4a associated with poorer immune recovery remained salient. The proportion of CXCR4 tropism (X4) in cluster 4a was significantly higher than other clusters (cluster 4a: 29.17%, cluster 4b: 18.10%, cluster 4c: 14.71%, cluster 4d: 10.00%, cluster 5: 9.68%; P = 0.001).

Conclusions: The cluster 4 diversity was evolving and was associated with immune recovery. Cluster 4a was associated with poorer immune recovery than other subclusters of cluster 4, which might be due to the high proportion of CXCR4 tropism. Early initiation of cART after diagnosis and clinical monitoring for patients with cluster 4a should be highly emphasized.



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Clinical characteristics, clinical outcome and mortality among people living with HIV in Siriraj Hospital, Thailand.

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Background: Combination antiretroviral therapy (cART) scale-up have been implemented in Thailand since 2002 and significantly decreased HIV-related mortality. We conducted a retrospective cohort study to describe clinical characteristics and clinical outcomes of people living with HIV (PLWH) who had been treated between 2006 and 2015 in Siriraj Hospital, Thailand. We evaluated 5-year mortality and causes of death of PLWH.

Methods: Men and non-pregnant women living with HIV aged > 15 years who were diagnosed and treated at Siriraj Hospital were included in the study. Data were retrospectively reviewed from medical records and death registration.

Results: A total of 869 patients, 602(69.3%) were male and the median age at diagnosis was 38.4 (IQR 29.4-47.4) years. At the time of HIV diagnosis, 60% were in WHO clinical stage 3 and 4, median CD4 was 262 cells/mm³(IQR 150-405). Prevalence of HBV, HCV co-infection, and any stage of syphilis were 98(16.8%), 49(6.1%), and 86(10.2%), respectively. Most common opportunistic infections(OIs) and malignancies were tuberculosis (209; 24.1%) with two-thirds were extra-pulmonary involvement, followed by Pneumocystis jirovecii pneumonia(PJP) (153; 17.6%), and disseminated cryptococcosis(46; 5.2%), and hematologic malignancies(37; 4.6%). 785(90.3%) received cART and 688(93.2%) were virologic-suppressed at 6 months after cART initiation. During 5-year follow-up period, 87 patients developed virologic failure, 48(5.5%) were referred-out, 40(4.6%) were lost to follow-up, 144(16.5%) died from AIDS-related illnesses, and 37(4.2%) died from non-AIDS-related causes or unknown. Mortality rate was 0.14 (95%CI 0.12, 0.16) per 1000 person-years.

Common causes of AIDS-related death were tuberculosis(22%), hematologic malignancies(mostly lymphoma)(16%), and cryptococcosis(7.7%), respectively. Mortality was statistically significant associated with male sex(aHR 1.36), aged > 55 years(aHR 1.44), and WHO clinical stage 3 and 4(aHR 3.94) with p<0.05.

Conclusion: Early diagnosis and early cART initiation are associated with favorable clinical outcomes among PLWH. Common causes of death among PLWH were who were elderly and were diagnosed at late stage, especially presence with tuberculosis, cryptococcosis and hematologic malignancies. Early HIV diagnosis, appropriate OIs management, timely initiation of cART are key strategies to improve clinical outcomes among PLWH. Nevertheless, the study has limitations due to retrospective study, single center, and missing data.



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Molecular epidemiological characteristics and dynamic molecular network analysis of HIV-1 in Nanjing from 2016 to 2018

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Objective: In order to monitor the dynamic changes of key populations in the HIV-1 molecular network in Nanjing and the influencing factors that promote transmission, the intervention strategy was adjusted in time.

Methods: The plasma of newly reported HIV-1 infected patients in 2016~2019 was collected to amplify the genes in the Pol region. Taking the 2016 sequence as the baseline, the sequence was increased year by year to construct a dynamic molecular network, and multivariate analysis was used to find the influencing factors that may drive the dynamic change of the molecular network.

Results: In 2016~2018, the genotypes of newly reported infections in Nanjing were mainly CRF 01_AE (46.57%) and CRF 07_BC (32.73%). The median mean age of the infected patients at the time of diagnosis was 28 [23, 29] years, and the main ones were males (94.75%), unmarried (66.26%), 60.20% with college or bachelor's degree or above, non-students (83.43%), and sexually transmitted by men (78.69%). A total of 489 sequences entered the dynamic molecular network, of which 136 sequences had been present in the network, and univariate analysis showed that there were significant differences in age, sexual history, CD4+ T cell count at diagnosis, and whether they were high-risk transmitters ($P < 0.05$), and multivariate analysis showed that sexual history, CD4+ T cell count at diagnosis, and whether they were high-risk transmitters were the factors affecting the dynamic molecular network.

Conclusion: The dynamic molecular network reveals the characteristics of a certain propagation relationship, and it is found that there is an active network in Nanjing. A variety of factors may affect the network structure, and prevention and control

efforts such as "early detection and rapid testing" are needed to reduce the complexity of the transmission network to a certain extent and prevent the spread of the epidemic.

Keywords: HIV-1; phylogenetic analysis; dynamic molecular networks; Influencing factors



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Meeting 95-95-95 targets in Vietnam: An analysis of decreasing HIV prevalence in Quang Ninh Province over the last decade

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Background: Provincial HIV prevalence and incidence vary considerably in Vietnam, with evidence of emerging and decreasing sub-epidemics. Quang Ninh, a province with previously high HIV prevalence, has made significant progress against 95-95-95 targets. Incidence dropped from 0.7 per 1,000 population in 2006 to 0.1 per 1,000 population in 2022, and prevalence decreased from 0.67% in 2006 to 0.42% in 2022. At the end of 2023, 88.3% of people living with HIV knew their HIV-positive status; among those who knew their status, 89.8% were on treatment; and 99.4% of those on treatment had achieved viral suppression. We focused on trends in HIV testing, new HIV diagnoses, and enrollment in care and treatment over the past 10 years in Quang Ninh to help characterize the province's progress in epidemic control.

Materials and Methods: We reviewed de-identified data for newly diagnosed HIV clients from 2013 through 2023 from the provincial case reporting system and data from HIV testing and care and treatment programs. Linear regression analysis was used to assess temporal trends and Chi-square to identify significant differences.

Results: From 2013 to 2023, 2,465 individuals were newly diagnosed with HIV, of whom 90.6% (2,233/2,465) started treatment. The number of new cases decreased significantly over time, with an annual average change (AAC) of -12.7% (95% CI: -22.0% to -3.4%; $p < 0.05$). Statistically significant decreases were found among most subpopulation analyses, with the largest changes among people who inject drugs (AAC -19.3%, 95% CI: -35.7% to -

3.1%; $p < 0.05$), individuals 35–44 years (AAC -15.2%, 95% CI: -31.4% to 1.0%; $p < 0.05$), and those categorized as other key populations (AAC -8.8%, 95% CI: -25.9% to 8.3%; $p < 0.05$). Overall, the total number of people with permanent residency in the province who were newly diagnosed with HIV decreased as well (AAC -11.8%, 95% CI: -22.8% to -0.8%; $p < 0.05$). The number of HIV tests conducted and number of HIV patients on antiretroviral therapy (ART) increased, with AACs of 3.7% and 2.4%, respectively. ART patients maintained a high rate of viral load suppression (five-year average of 98.3%).

Conclusions: The decrease in newly diagnosed individuals from 2013 to 2023, coupled with increased coverage of HIV testing and treatment uptake in Quang Ninh province, reflect a potentially positive trend toward epidemic control. Recent advancements in HIV programming may be more effectively identifying and targeting populations at higher risk. As an example, while Quang Ninh experienced high HIV incidence and prevalence among PWID, national efforts to scale methadone treatment, and sociological shifts in drug in Vietnam have led to overall reduction in HIV infection among this population. Concomitantly, programming has shifted towards MSM and transgender woman, among proportionate infections are increasing in several provinces in Vietnam. Ongoing efforts in Quang Ninh should concentrate on community-led outreach to determine if risk networks remain untapped, transition to provincially funded community-to-facility models, promotion of biomedical prevention (pre-exposure prophylaxis), and data-driven resource planning.



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Knowledge and awareness on sexually transmitted diseases (STDs) among Women in Kerala

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Background: Knowledge and awareness concerning sexually transmitted diseases (STDs) has become the burning issue of the day. Although STDs pose serious risks to health security, there is very little literature quantifying the knowledge and awareness of these diseases and their principal socioeconomic determinants. The aim of this study is to determine the effect of different socio-economic and demographic factors on knowledge and awareness about STDs among women in India.

Methods: This is a cross-sectional study using data from the Demographic and Health Survey (DHS) 2020. It involves 945 women in six districts of Kerala, India. In this study, the percentage distribution and logistic regression model are used to identify which factors are associated with knowledge and awareness among women in Kerala about STDs.

Results: There is a significant association between geographic division (District 1 : OR = 1.669, 95% CI = 0.89-2.10, District 2: OR = 2.234, 95% CI = 1.2-3.2); places of residence (Rural: OR = 0.363, 95% CI = 0.20-1.08), respondent's age (20-29 years: OR = 1.331; 95% CI = 0.98-2.31); education (Primary: OR = 2.366, 95% CI = 1.98-3.1, secondary: OR = 10.089, 95% CI = 8.98-12.77, higher: OR = 20.241, 95% CI = 18.33-22.65); listening to radio (OR = 1.189, 95% CI = 1.29-3.12) and watching TV (OR = 2.498, 95% CI = 2.22-4.09) with knowledge and awareness among women in Kerala, India about STDs.

Conclusion: There is a need to improve the education in India about STDs particularly among those in the rural areas and older ages of women (30-49 years). Formal, informal and special educational knowledge and awareness programmes may be implemented to educate people concerning STDs. Campaigns and mass

media can be used to increase the knowledge and awareness among the community, especially among women. Policies concerning the issue of STDs need to be improved and can be emphasized in collaboration with government agencies to ensure the success of these campaigns.



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The correlation between NAFLD and PNPLA3 rs738409 gene polymorphism in naïve patients with HIV/AIDS in Nanjing from 2022 to 2023

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Objective: To investigate the correlation between PNPLA3 rs738409 gene polymorphism and NAFLD genetic susceptibility in HIV/AIDS patients.

Methods: The peripheral venous blood of HIV/AIDS patients who were followed up in the outpatient clinic from June 1, 2022 to September 30, 2023 were collected, and nucleic acid extraction and PNPLA3 rs738409 genotyping were performed to explore the relationship between the polymorphism of this gene and the genetic susceptibility of NAFLD.

Results: A total of 249 patients were included in the analysis, and PNPLA3 rs738409 was sequenced with three genotypes: C/C, C/G, and G/G. Compared with the NAFLD group, there was significant difference in genotype frequency and allele frequency distribution of PNPLA3 rs738409 between the two groups (all $P < 0.05$). The results of logistic regression model analysis showed that compared with C/C carriers, G/G carriers at PNPLA3 rs738409 had an increased risk of NAFLD (OR=3.334, 95%CI 1.527-7.281, $P=0.003$); and there was no significant difference in the risk of NAFLD among C/G carriers at NPLA3 rs738409 compared with C/C carriers (OR=1.322, 95%CI 0.754-2.320, $P=0.330$). Carrying the G allele remained a risk factor for NAFLD in HIV/AIDS populations (OR=1.740, 95%CI 1.201-2.521, $P=0.003$).

Conclusion: In HIV/AIDS patients, G/G carriers with PNPLA3 rs738409 have an increased risk of NAFLD compared with C/C carriers, and the G allele at

PNPLA3 rs738409 may increase the risk of NAFLD in HIV/AIDS populations.

Keywords: ART - naïve, HIV/AIDS, NAFLD, PNPLA3



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Quality of Life of patients living with Human Immunodeficiency Virus Infection – Evidence from South India

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Introduction: With anti-retroviral therapy (ART) for human immunodeficiency virus infection (HIV) coming into picture, quality of life (QOL) has gained importance. Knowledge on the factors affecting QOL would be helpful in making important policy decisions and health care interventions.

Aims: The aim of this study is to assess the quality of life of people living with HIV (PLWH) and to identify the factors influencing their QOL.

Materials and Methods: The study was done among 50 PLWH attending a tertiary care hospital, and three Non-Governmental Organizations at Calicut, Kerala, India, from June 2022 to May 2023. QOL was assessed using HIV specific World Health Organization Quality Of Life scale (WHOQOL-HIV) – BREF questionnaire which has six domains (physical, psychological, level of independence, social relationships, environment and spirituality/religiousness/personal belief). Social support and stigma were measured using “Multidimensional Scale of Perceived Social Support” and “HIV Stigma Scale,” respectively, using Likert Scale. Factors influencing QOL were identified using backward stepwise multiple linear regression with the six domain scores as the dependent variables.

Results: Male: Female ratio was 1:1 and 58% were in early stage of the disease (stage I/II). Psychological and SRPB (Spirituality Religiousness and Personal Beliefs) domains were the most affected domains. All the regression models were statistically significant ($P < 0.05$). The determination coefficient was highest for the social relationship domain (57%) followed by the psychological domain (51%). Disease stage and perceived social support significantly influenced all the domains of

WHOQOL. Younger age, female gender, rural background, shorter duration of HIV, non-intake of ART and greater HIV related stigma were the high risk factors of poor QOL.

Conclusion: Interventions such as ART, family, vocational and peer counselling would address these modifiable factors influencing QOL, thereby improving the QOL of PLWH.

Keywords: Human immunodeficiency virus, HIV related stigma, India, people living with HIV, quality of life social support WHOQOL-HIV



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Strengthening systems for meaningful engagement of communities to address HIV Response in India.

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Background: Since the initiation of the National AIDS Control Programme (NACP), the community has been playing a centre role in progressing HIV response in India. Community Systems Strengthening (CSS) is an integral part under the current NACP Phase V (2021-2026) and aimed at developing an informed, capable and coordinated structures within communities to address challenges and needs effectively. It aims to create an enabling environment, generating demand for prevention and testing, providing care and support for those on ART, and ensuring effective program delivery through community monitoring.

Description: CSS is dedicated towards contributing to strategic outcomes of the National AIDS Control Programme through strengthening and establishing National and subnational pool of community resources, strengthening the capacities of community based organizations and amplifying their participation in the national HIV/AIDS response. Master Trainers from communities and over 5000 Community Champions (CC), representing various typologies (FSW, MSM, H/TG, PWID, PLHIV, and KP-Youth), have completed a capacity building programme that included six thematic modules to ensure their comprehensive skill development. Relevant stakeholders and partners have been briefed on this initiative, ensuring their active involvement in implementing CSS activities. The State Community Resource Groups (SRGs) have been established in all 35 States, and over 110 district community resource groups have been constituted and is currently underway nationwide.

Lessons Learnt: Amplifying the involvement of the communities in the HIV response is critical. The unique ability of the Community Champions in interacting and engaging with their peers, reacting to the needs and issues, contributed into improved

uptake of services, health outcomes and reduction of stigma and discrimination. The roles and responsibilities have been delineated for State and District Community Resource Groups (S-CRG and D-CRG), emphasizing on regular meetings, community representation, coordination, documentation, and monitoring of progress. The active involvement and participation of communities has resulted into rapid formation of D-CRGs across the nation.

Conclusions/Next Steps: To optimize CSS, ongoing efforts involve the institutionalization and implementation of Community Led Monitoring (CLM) at the district and State levels. The CLM process ensures issue compilation, facilitation of solutions through work plans, and regular review of "action taken" reports. Continuous support and collaboration with relevant stakeholders, including NACO, are crucial for the success and sustainability of CSS initiatives, which is ultimately focused on expanding the reach of prevention, treatment, and care services and goal of reducing stigma and discrimination.



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Assessing the private health sector's readiness: Private-Sector Engagement (PSE) benchmarking for HIV services in Vietnam.

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Background: Despite achieving over 90% universal health coverage through social health insurance, Vietnam's private healthcare spending makes up 55% of total consumer health expenses. Acknowledging this, Vietnam's Ministry of Health (MOH), with support from USAID/PATH Support for Technical Excellence and Private-Sector Sustainability (STEPS) project, approved a national plan for private-sector engagement (PSE) in HIV services in December 2021. However, there is limited information on the level of PSE, and a national landscape analysis is needed for implementation of a National HIV PSE Plan.

Methods: The PSE benchmark assessment follows the World Health Organization and World Bank PSE framework and was adopted to Vietnam's unique context through multiple revisions for relevance and accuracy. From May to September 2023, STEPS conducted a cross-sectional study, encompassing an online survey across all 63 provinces in the country to gather data from provincial Centers for Disease Control (CDC) and Departments of Health (DOH). A qualitative survey in 12 selected provinces was also conducted to gain deeper insights into provincial PSE.

Results: The PSE benchmark tool tailored for Vietnam encompasses six domains: (1) Policies and planning supporting PSE; (2) Public-private information exchange; (3) Private Healthcare Service Coverage; (4) Provision of public goods and services to the private sector; (5) Financing initiatives for PSE; and (6) Regulations promoting

PSE. With a 92% response rate (58 out of 63 provinces), the average national PSE score was 19.7 out of 43, indicating an overall low level of PSE in Vietnam's HIV prevention program. PSE readiness varied by province, where provinces with robust community organizations, larger populations, and more private facilities scored higher. Regional differences were noted, with the Southeast region, particularly Ho Chi Minh City and Dong Nai, having the highest readiness scores. Weaknesses identified include financing structures heavily relying on external funding, stringent regulations for private health facilities, and a lack of official recognition for PSE in HIV prevention.

Conclusions: The inaugural national HIV PSE benchmark assesses strengths and identifies provinces with high demand for PSE, and provinces with moderate/low readiness. Annual benchmarking will track changes over time, contributing to a sustainable national HIV response by 2030.



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Community-led Testing among People Who Inject Drugs: Exploring new cases of HIV and Hepatitis C in urban Nepal

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Background: People who inject drugs (PWIDs) endure sub-optimal HIV and HCV testing Nepal. We hypothesized and examined a model of testing by Lay Service Providers (LSP), who had similar backgrounds to those of PWIDs in urban Nepal. We assessed the prevalence of HIV and HCV within this study population and the associated risk factors of HCV positivity among PWIDs.

Method: A cross-sectional study was conducted among 1029 PWIDs in urban areas of Nepal from July 2021 to February 2022. Trained LSPs performed the screening for HIV and HCV using Rapid Diagnostic Test (RDT) kits. We assessed the prevalence of HIV, HIV/HCV co-infection and the injecting and noninjecting risk characteristics that influence HCV infection. The association of risk and prevention characteristics with HCV positivity was assessed using multiple logistic regression.

Results: Of total PWIDs (n=1,029), 20.6% were HCV-positive and 0.2% were HIV-positive. HCV positivity was associated with needle sharing (AOR: 1.83, 95% CI: 1.27, 2.64; p=0.001) and reuse of syringe/needle (AOR: 2.26; 95% CI: 1.34, 3.79; p=0.002). In addition, PWIDs were more likely to be HCV-positive who started opioid substitution therapy (OST) (AOR: 1.88, 95% CI: 1.26, 2.80, p=0.002) and attended the rehabilitation center (AOR: 1.66, 95% CI: 1.10, 2.53, p=0.017).

Conclusions: This LSP led test in the urban community was able to screen high percentage of hidden cases of HCV about 20% of hidden HCV and 0.2% of HIV in Nepal and showed the high prevalence of HCV and its association with injecting-related risk behaviors and being users of OST and rehabilitation. The findings highlight the need of LSP led testing in hotspots, OST settings, and rehabilitation centers to screen new HIV and HCV infections.



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Advancing Private Sector Engagement (PSE) in Vietnam's HIV Response: Driving sustainable change in PSE through a National PSE Technical Working Group (TWG).

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Background: Vietnam's private sector plays a critical role in providing HIV goods and services, especially among key population and other communities who prefer to receive services outside of traditional, public-sector facilities. As willingness-to-pay for health-related goods and use of private sector services increase, driven by Vietnam's strong economic growth, the USAID/PATH Support for Technical Excellence and Private Sector Sustainability in Vietnam (STEPS) project has been supporting the Government of Vietnam (GVN) to intentionally increase PSE to develop a more sustainable HIV response.

Description: In December 2021, the Ministry of Health (MOH) issued a five-year National PSE Plan to guide strengthened private-sector engagement and investment in the HIV response and provision of HIV-related goods and services through 2025. USAID/PATH STEPS supported the Vietnam Administration of HIV/AIDS Control (VAAC) and in June 2023, the National PSE Technical Working Group (TWG) was formed, functioning as a coordination platform to exchange information, propose solutions, and serve as an advocacy body to recommend policy initiatives and drive forward key initiatives/activities of the national PSE plan.

Lessons learned: The TWG was a critical avenue for formulating and recommending required policy revisions favorable to enhance PSE and

investment; these recommendations were absorbed by the MOH. As a result, a new Decree detailing some articles of the Law on Medical Examination and Treatment, particularly regulations on telemedicine and HIV clinic licensing that was newly approved by the GVN in December 2023. In addition, a PSE data management platform for tracking, exchanging and updating HIV PSE was developed and coordinated by VAAC. In September 2023, the Dong Nai provinces Department of Health (DOH) promulgated a PSE Plan for 2021-2025 and is in the process of functioning and coordinating provincial PSE TWG with members from DOH, Centre for Disease Control (CDCs) and private sector partners implementing HIV activities in the province.

Conclusions/Next steps: Vietnam's groundbreaking HIV PSE plan codifies the important role of the private sector in Vietnam's HIV response. Moving forward, it will be important to provide continued GVN leadership for public-private partnerships and investment in HIV goods and services to increase domestic resources to meet HIV/AIDS prevention efforts across the country.



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Lesson Learned from HIV Control Program for Dealing with COVID-19 Crisis, 2019-2023, I.R.Iran

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As a global disaster, COVID-19 has affected the health system in the world with successive shocks to the health system of the countries. The global health system was confused, the priorities and needs changed, the health system was worried and inefficient about the control of the new epidemic without access to effective treatments.

At the beginning, each country dealt with the epidemic based on its capabilities and capacities. The faster planning and necessary measures were taken, the more lives would be saved, and what could help was the experiences of dealing with previous epidemics and programs related to disease control.

Since 20 years ago, Iran's national HIV control strategic plan has been developed with the cooperation of 23 organizations. One of the main pillars of the program is the scientific committee for HIV/AIDS care and treatment, which is responsible for compiling and updating all national HIV guidelines.

The characteristics of the committee members included scientific flexibility, continuous studies, knowledge of health care capacities of the country, familiarity with international organizations such as UNAIDS and WHO, and the skill of adapting the latest information to health needs, which was needed for finding the necessary solutions to deal with the COVID-19. By the order of the Minister of Health, five days after the identification of the first COVID-19 case in the country, national COVID-19 committee was formed with the membership of some members of the national HIV/AIDS committee and relevant scientific associations with the aim of developing a national guideline for diagnosis, care and treatment of COVID-19 and unifying the service delivery throughout the country.

On February 27, 2020 (8 days after identification of the first case of COVID-19 in the country), the first guideline of diagnosis and treatment of COVID-19 in outpatients and inpatients settings was published which had a diagnostic flow chart to separate outpatient cases from inpatients, with special attention to high-risk groups and proposed treatment regimen for outpatient and inpatients. During 23 days after the formation of the treatment committee, four version of the COVID-19 care and treatment guide were updated, the 12th edition is available now.

Registry system of cases, disaggregated by the services, was designed and included in the national Health System as electronic health records of individuals. All services were available for Key population, including PLWH and prisoners. During that time, along with national programs, international organizations such as UNAIDS played a very important role in providing personal protective equipment for at risk groups and Anti-Retroviral medication to PLHIV to avoid HIV treatment services interruption.

Development of guidelines with practical and most up-to-date information, efforts to provide necessary items for prevention and treatment based on national guideline, played an important role in reducing treatment chaos and outlined legal responsibilities for providing appropriate care and treatment services to the patients.

Development of a coherent scientific team with the experience of developing national HIV/AIDS guidelines, continuous monitoring and presence of various specialities and related disciplines at field level played very important role in accelerating the actions taken.



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Increasing PrEP uptake among Transgender Women (TGW): Development Journey of Ruby Clinic, a TGW-Led social enterprise in Vietnam.

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Background: Despite the recent emergence of clinics providing gender-affirming healthcare to the transgender community in Vietnam, transgender individuals continue to encounter barriers and stigma when seeking healthcare, leading to growing health disparities, increased vulnerability to HIV and other sexually transmitted infections, and low uptake of pre-exposure prophylaxis (PrEP). Ruby Social Enterprise (SE), a key-population (KP)-led clinic in Hanoi, with USAID/PATH STEPS and Healthy Markets projects, passionate healthcare professionals, and community members/influencers collaborated to improve access to gender-affirming and transgender-competent healthcare and increase PrEP uptake among TGW.

Description: Ruby was established in 2009 as a community based organization with the aim of actively engaging HIV related service delivery and referrals for TGW. Ruby registered as a SE in 2016, and launched its own clinic in Hanoi in 2023, marking a milestone in its efforts to provide comprehensive, transgender-competent healthcare services for TGW. As a result of capacity building efforts and assistance from USAID/PATH STEPS and Healthy Markets throughout their development journey, Ruby SE has: (1) Engaged and directed TGW towards HIV testing, treatment, and PrEP; (2) Distributed HIV-related informative leaflets and products (condoms, lubricants); and (3) co-created and co implemented marketing and awareness-raising campaigns to promote HIV related services among KPs.

Lessons learned: Due to capacity strengthening initiatives and PrEP promotional efforts in collaboration with community networks/influencers, Ruby SE has increased awareness and uptake of PrEP services among TGW, from three TGW enrolled on PrEP at STEPS-supported facilities in December 2017 to 1,013 TGW enrolled on PrEP as of December 2023. In 2021, Ruby SE also implemented the month-long PrEP Ambassador campaign, collaborating with 10 KP influencers to post 60 TikTok videos to raise awareness of and address concerns and questions related to PrEP use. The campaign had 10,000 followers, with more than 8,000 interactions and 80,000 views.

Conclusions/Next steps: By recognizing and understanding the unique challenges faced by TGW, healthcare systems can implement targeted strategies to enhance access, quality, and outcomes of HIV care services. This approach aims to leverage the skills and abilities of KP-led clinics to provide care for TGW and promote the availability of comprehensive care for TGW.



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Influencing factor of HIV positive on anonymous HIV testing in a medical center (2017 to 2023)

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Background: To combat the increasing number of new human immunodeficiency virus (HIV) infections and achieve a consensus goal of "three 95s". A medical center in southern Taiwan has been conducting anonymous HIV tests since 1994 and implemented a series of HIV prevention activities including pre-exposure prophylaxis (PrEP) program in 2017, a comprehensive one-stop HIV screening service for individuals at high risk of HIV infection in 2019, and same-day initiation of antiretroviral therapy (ART) for all persons diagnosed with HIV in 2020.

Purposes: This study aimed to evaluate the trend of anonymous HIV testing at the medical center, and to analyze the influencing factors correlated to HIV positive among HIV test takers.

Methods: A retrospective study design was employed. Given the nature of anonymous HIV testing, the HIV positivity rate per 100 tests was calculated, as repeat tests could not be distinguished. A multiple logistic regression model was used to identify factors influencing HIV positivity among high-risk individuals who underwent anonymous HIV testing.

Results: A total of 15,639 HIV screening tests were conducted at medical center between 2017 and 2023. The proportion of anonymous testing increased from 1,966 tests in 2017 to 2,630 tests in 2020. A slight decreased to 2027 tests in 2023 due to COVID-19 pandemic. While the number of HIV tests sustained around 2000 tests, the percentage of anonymous HIV-positive test results from 1.7% in 2017 to 0.7% in 2023. Overall, HIV positivity rate was 1.04% (164/15,639). Persons with confirmed HIV infection were predominantly men who sex with men, primarily aged mostly between 20-29 years and with a college/university

education. Being over 30 years old, having a lower education level, identifying as homosexual and bisexual, having a history of sexual transmitted diseases (STDs), and recent use of amphetamines, particularly through injection were significant factors for developing HIV infection.

Conclusions: Our findings revealed that the sustained provision of anonymous HIV testing resulted in a low HIV positivity rate, even during the challenging period of the COVID-19 pandemic. The success in maintaining a low HIV infection rate may be attributed to numerous prevention efforts. Future outreach HIV testing efforts should prioritize high-risk groups, including young adults and above, individuals with lower education levels, those who identify as homosexual or bisexual, individuals with a history of STDs, and those who engage in amphetamine use.

Keywords: anonymous, HIV test, HIV



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Project High Five: Effectiveness of Peer-To-Peer Education on HIV Awareness in Iloilo City, Philippines, a Cross-Sectional Study

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Introduction: As of 2023, almost half of the people living with Human Immunodeficiency Virus (HIV) in the Philippines are 15-24 years old (AIDS Epidemic Model-Spectrum, 2023). This trend is evident in Iloilo City, Philippines, where 39% of newly diagnosed with HIV come from the same age group (Western Visayas Center of Health Development, 2023). In line with the 7th AIDS Medium Term Plan, the Philippines aims to prevent new HIV diagnoses and have 95% of young people know about HIV transmission and prevention (Philippine National AIDS Council, 2022). According to a meta-analysis by Restar et al. (2018), HIV knowledge, attitude, and behaviors can improve through HIV prevention programs. A more specific social intervention, peer-to-peer education, has increased HIV knowledge in developing countries (Medley et al., 2009). With this, Team Dugong Bughaw implemented Project High Five, a peer-to-peer awareness campaign formulated specifically for the youth in Iloilo City. This study aimed to assess the effectiveness of peer-to-peer HIV awareness education among young people in Iloilo City, Philippines.

Method: Students (n=428) from 10 Higher Education Institutions (HEIs) in Iloilo City participated in this cross-sectional study. These students belonged to the youth sector of the Philippines (<17 to 25 years old) and have participated in Project High Five. The pre- and post-test questionnaires measured the knowledge of participants on HIV such as statistics, transmission, usage of condoms, and HIV policies. Additionally, these evaluated their awareness and

practices in relation to HIV. Nonparametric Wilcoxon Paired t-test was employed in analyzing the test results of the participants in this study.

Results: In this awareness intervention, there has been a significant increase ($p < 0.001$) in the knowledge, awareness, and practices at 18.97%. The results were disaggregated across age and sex. Specifically, males saw an increase of 20.47% while females were 18.27%. The age group 17 and below saw the highest increase in test scores at 27.48% while the age group 18-21 was the lowest at 18.63%. However, no significant difference has been observed across sex (male-female) and age groups (<17, 18-21, and 22-25). The results suggest that the intervention was nondiscriminatory in increasing the pre- and post-tests scores of the participants regardless of sex or age group included in the study.

Conclusion: Overall, peer-to-peer education has been effective in increasing the HIV awareness of the youth in Iloilo City, Philippines. This study showed that overall peer-to-peer education has been effective in increasing HIV awareness among the youth in Iloilo, City Philippines. It is, therefore, important to innovate learning methods for target age groups so as preventive programs can be optimized.



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Education providers' roles in providing sexual and reproductive health education to international students in Victoria, Australia: A qualitative study

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Background: International education is Australia's 4th largest export, attracting more than 780,000 students in 2023 with a significant proportion coming from the Asia Pacific region, such as China, India, Thailand and the Philippines. Maintaining their overall health and wellbeing during their study is mandated under the Australian Education Services for Overseas Students (ESOS) framework. While there are programs relating to international students' physical and mental health, to date, sexual and reproductive health (SRH) is an overlooked area even though it is an integral part of individuals' health. Previous studies have investigated international students' perspectives on SRH program specific to them. However, there has been no study that specifically focused on tertiary education providers' views on SRH education for international students. We conducted this research to investigate staff perspectives on the issue, and to contrast their opinions with international students' views. We also asked participants of future opportunities to provide international students with SRH education.

Material and Methods: Between August 2022 and July 2023, we conducted online in-depth qualitative interviews with 15 staff working at tertiary education providers (university, Technical and Further Education (TAFE), and English language college), and two focus groups involving 9 international students based in Victoria, Australia. We used a reflexive thematic analysis to

interpret the data. This research was approved by the Alfred Hospital Ethics Committee.

Results: Staff participants worked in student administration including student support, a university medical clinic, and student counselling services. Most of student participants were postgraduate students and came from the Asia Pacific region. We found that nearly all participants felt that education providers should provide SRH education specific to international students, especially when SRH education was not provided in their countries of origin. Staff expressed some barriers, such as limited resources and government funding, personal discomfort talking about SRH to international students, and a lack of SRH knowledge. Staff and students proposed several initiatives to improve SRH knowledge. These include: SRH peer-to-peer education; information session during the pre-departure and orientation program; SRH training for staff and students; a health and wellbeing outreach team that embed SRH; and a dedicated SRH website that can be linked to education providers' websites and student portal as part of international students' health and wellbeing page.

Participants would like to see information on consent, respectful relationships, and SRH prevention strategies to be delivered in plain English and easily accessible to students. All participants believed that a sustainable government funding is needed to support this comprehensive SRH program. Potential benefits to students include reducing SRH-related stigma, increasing SRH knowledge to make informed decisions, and for students to maintain their overall health and wellbeing which would positively contribute to their study outcomes and lived experiences in Australia.

Conclusions: A sustainable government funding is needed to support education providers in developing and delivering a comprehensive SRH program for international students. This program must involve a collaboration between education providers, health organisations, and international student bodies to ensure SRH information is relevant to their cultural norms, practices, and lived experiences.



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A thematic analysis on the awareness and experiences of Ilonggo GBMSM towards the importance of Anti-Discrimination Ordinance (ICADO) in improving sexual health and HIV services in Iloilo City, Philippines

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Background: The Iloilo City Anti-Discrimination Ordinance (ICADO) safeguards Ilonggos from discrimination based on sex, gender identity, and sexual orientation. Yet, there's limited knowledge about how gays, bisexuals and other men who have sex with men (GBMSM) perceive ICADO's impact on sexual health and HIV services quality in Iloilo City. This study explores GBMSM awareness and experiences regarding ICADO's role in enhancing these services.

Methods: Using a qualitative descriptive design, key informant interviews (KIIs) between February 15 and March 2, 2023. The inclusion criteria were GBMSM accessing sexual health services in Iloilo City. Transcripts were thematically analyzed using Braun and Clarke's approach.

Results: A total of 20 participants were included in the KIIs with age ranging from 18-45 years old. There were four three themes identified during analysis: (1) ICADO's role in accessing services—generating mix responses where some GBMSM believed that the ordinance would improve their sense of safety in accessing sexual health services while others claimed that there is much work needed on a city-wide discussion to make sure that GBMSM are fully aware of the ordinance; (2) stigma and discrimination—while all of the respondents reported favorable experiences with their health facilities, some GBMSM experienced discrimination in public venues, workplaces, and

educational institutions but had little idea how to use ICADO for their legal protection; (3) self-care abilities—most GBMSM claimed that their perceived risk and experiencing some symptoms of HIV/STIs are the main factor for them seeking health services while some verbalized embarrassment and self-stigma while accessing sexual health services.

Conclusion: The study reveals diverse perspectives among GBMSM regarding ICADO's impact on accessing services. While some anticipate increased safety, others emphasize the need for widespread awareness. Positive experiences were reported in health facilities but instances of discrimination in public spaces indicate the importance of strengthening legal knowledge among GBMSM. Moreover, the influence of self-care abilities on health-seeking behavior emphasizes the significance of tailoring services to address perceived risks and mitigate self-stigma. These insights have implications for refining ICADO implementation, emphasizing education, and fostering an inclusive environment to promote better health outcomes among GBMSM in Iloilo City.



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Driving peer-to-peer learning and strengthening collaborative key population (KP) organizational networks in Vietnam through Business Innovation Talks and Digital Marketing Forums.

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Background: Empowering community-led services is essential for the sustainability of HIV programs and to ensure the provision of high-quality and acceptable HIV services for KPs in Vietnam. Glink, a KP-led social enterprise (SE) and clinic network, has been a cornerstone of Vietnam's HIV response since 2009. In 2021, Glink established Glink Academy to enhance organizational capacities and sustainability of nascent LGBTIQ+ SEs/clinics in Vietnam. PATH, through USAID/PATH STEPS, supported Glink Academy to introduce Business Innovation Talks (BITs) and Digital Marketing Forums (DMFs) as peer learning resources that foster a vibrant and supportive community of KP-led entities.

Description: Glink Academy offers a multi-modal capacity strengthening platform to support the organizational development of community-based organizations and KP-led entities in Vietnam; this platform provides online and offline trainings, mentoring sessions, e-learning platform, and a business incubation program. In 2022, PATH and Glink Academy introduced BITs and DMFs as mechanisms to foster greater connectivity and build a supportive network among nascent KP-led entities working to strengthen their organizational capabilities and sustainability. BITs are interactive dialogues that offer opportunities for KP-led entities to engage and network with experts across variety of topic areas to turn their ideas into reality, whereas DMFs focus on enhancing KP-led partners' marketing knowledge and skills to

implement effective digital campaigns and increasing visibility among target populations.

Lessons learned: Glink Academy has hosted over 10 BITs since March 2022, with 60 participants attending each session on average, and conducted 8 DMFs since July 2022 on topics including social media trends, video- or TikTok-based marketing, marketing with limited resources, gamification, and Canva. Glink Academy's BITs and DMFs are excellent demonstrations of unique KP-led effort to expand impact and innovation within the KP community.

Conclusions/Next steps: BITs and DMFs provide avenues for KP-led businesses to equip themselves with knowledge and skills to identify suitable solutions for business-related challenges or advance start-up ideas. Mechanisms that promote a collaborative network of KP-led entities engaged in HIV and other healthcare service provision for KPs is critical to enhancing HIV awareness and service uptake while supporting Vietnam achieve sustainable epidemic control.



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Growth of Glink Academy: First key-population (KP) led peer to-peer capacity building program in Vietnam for HIV awareness and service uptake.

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Background: Business start-up and growth, especially in the field of HIV, is a challenge for early-stage LGBTQI+ led organizations in Vietnam. Glink Academy, initiated by Glink key population (KP)-led social enterprise (SE), with 12 years of operating experience in the HIV KP-led clinic chain and community, and USAID/PATH STEPS project, provides a comprehensive peer-to-peer capacity building program to support the establishment and sustainable growth of KP-led SEs and clinics.

Description: Since its inception in 2022, Glink Academy, with support from USAID/PATH STEPS, has grown as an incubator for social enterprises by providing a comprehensive and need-based peer-to-peer capacity-building program. The program offers diverse activities which includes: thematic training; individual mentoring and coaching; resources and tools for start-up development; an e-learning platform; Business Innovation Talks (BITs); Digital Marketing Forums (DMF); and an innovation grant for KP-led SEs and clinics. Glink Academy's capacity building program takes a human centered approach, through selection of innovative, useful, and practical topics requested by the community, unique case studies, and lessons learned from the HIV field.

Lessons learned: Glink Academy continues to drive the growth of a sustainable network of KP-led businesses that provide high-quality HIV services, and have successfully delivered series of activities that expand impact and innovation within the KP community including but not limited to: 3 trainings on business development, demand generation, and marketing and communications; 10 BITs

connecting social impact businesses with speakers and experts; 8 DMFs on digital campaigns to effectively reach target populations; incubated 3 SEs with innovative business models in HIV, of which, one is TG-led clinic and working towards its mission of healthcare promotion for TG communities; and developed an e-learning platform with learning material on social entrepreneurship, legal matters, health service delivery, organizational management, sustainable growth; and a mentoring and coaching program.

Conclusions/Next steps: Glink Academy exemplifies a transformative LGBTQI+ led model for peer learning and incubation. Further advancement of its peer-to-peer capacity building efforts will help diversify and expand a network of community-friendly health social enterprises in Vietnam that are positioned to deliver high-quality, inclusive health services for the LGTBQI+ community creating greater HIV awareness and service uptake.



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Impact of Health Education Intervention on Self-Efficacy among Men who have Sex with Men

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This study examines the impact of health education intervention on AIDS prevention self-efficacy among men who have sex with men (MSM).

A single-group pre/post-test design was utilized, employing structured questionnaires for data collection. Participants consisted of MSM from Taiwan. The intervention involved the dissemination of curated information on pre-exposure prophylaxis through Google Meet during the COVID-19 pandemic. Measurement tools included the Chinese Adaptation of the HIV Prevention Self-Efficacy Scale. Recruitment took place from July 21, 2021, to October 31, 2021, with a total sample size of 158 individuals. This study was approved by the Institutional Review Board of National Taiwan University.

Following prophylactic intervention and health education, there was a significant improvement in AIDS prevention self-efficacy among MSM. Additionally, condom usage frequency increased with non-steady partners. Moreover, post-intervention health education heightened MSM's attention to sexual history and HIV testing status of partners.

After prophylactic administration intervention, health education significantly increased the willingness to use preventive drugs among MSM. This study demonstrates that health education intervention can enhance AIDS prevention self-efficacy among MSM.



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Aspirations and Sustainability of Youth HIV Civil Society Organizations in the Philippines

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Introduction: The global HIV response aims to end AIDS by 2030. However, cases continue to rise in countries like the Philippines. Various stakeholders have acknowledged the work of community and key population-led organizations, including youth groups, in effectively delivering programs and services to key populations. From January to December 2022, young people account for 65% of people living with HIV in the Philippines. With global and local partners highlighting youth participation as an asset, this study explores the roles, aspirations, and sustainability strategies of youth civil society organizations (CSOs) in the HIV response.

Method: This study took on a qualitative approach in data gathering in order to explore and understand the situation of the participants. Given the lack of an established directory of HIV organizations in the Philippines, much less youth organizations working on HIV, data gathering via semistructured interviews was intentionally broad. Eleven youth HIV civil society organizations across the Philippines were asked to participate in semistructured interviews to collect qualitative data for the study.

Results: Youth HIV CSOs do aspire for sustainability and they have existing strategies towards it, amidst internal and external barriers. Alongside this, stakeholders were identified by the participants: donors, national and local government, development agencies, UN agencies, fellow civil society organizations, the private sector, international organizations, and of course, key populations.

What are the roles of youth HIV CSOs in civil society? Youth HIV CSOs work in (1) education and awareness, (2) humanitarian relief, (3) advocacy

and lobbying, (4) monitoring, and (5) service delivery, (6) service referral, (7) shelter, (8) economic empowerment, and (9) educational assistance.

How do youth HIV CSOs define sustainability? Youth HIV CSOs vie for internal capacity, external reach, and community empowerment. These answers align with the financial, programmatic, epidemiological, and political tenets of sustainability in the HIV response Oberth (2016). Do youth HIV CSOs aspire for sustainability? If yes, what are the strategies of youth HIV CSOs towards sustainability? To meet these aspirations, CSOs have taken initiatives towards sustainability. Their strategies based on the interviews are diverse, but these have been categorized by the researcher into accreditation, continuous partnerships, revenue diversification, program expansion, and social contracting.

What are the enablers and barriers towards sustainability that youth HIV CSOs face? External enablers include government support, partnerships and networking, and operational funding. Meanwhile CSOs consider the following as barriers to their sustainability: weak community mobilization, unstable or limited funding, multiple intersecting stigma, and political relations. Stakeholders in the work of youth in HIV include donors, national government, people living with HIV, local government, UN agencies, CSOs, key populations, private sector, and international organizations.

Conclusion: Youth HIV CSOs want to keep going. Hence, they employ a variety of strategies in order to be more sustainable in the work they do. However, they will not be able to achieve their aspirations for internal capacity, external reach, and community empowerment without external support, primarily that of the government and funders.

