Abstract Book

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2nd Asia Pacific AIDS & Co-infections Conference
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Abstract 1

**Treatment-emerged Adverse Events and Health-related Quality Of Life In HIV-infected Patients After Stable Switch From Boosted Protease Inhibitors To Raltegravir: A Multicenter, Cohort Study**

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**Introduction:** Treatment-emerged adverse events and health-related quality of life have emerged as important medical outcomes in HIV-infected patients in the post-antiretroviral era, as HIV infection is now manageable as a chronic disease with normal life expectancy. To enhance tolerability and decrease short- or long-term toxicity of antiretroviral treatment, current guidelines recommend between-class switches, replacing boosted protease inhibitors with an integrase strand transfer inhibitor, such as raltegravir.

**Methods:** A multicenter, prospective, cohort study investigated whether switching from boosted protease inhibitors to raltegravir may reduce adverse effects and improve quality of life. The HIV symptom distress module and the medical outcomes study HIV health survey (MOS-HIV), were measured at baseline, 12-16 and 48 weeks after switch. The primary endpoint was adverse events at 48 weeks. Secondary endpoints included changes in MOS-HIV scores, HIV viral suppression and changes in lipid profile at 48 weeks.

**Results:** 107 HIV-infected subjects, virologically suppressed on ritonavir-boosted protease inhibitors (87 lopinavir, 20 atazanavir), were enrolled. Participants were predominantly male (93.3%), with a mean age of 43.5±8.8 years. The majority (95.3%) remained virologically suppressed. There were significant reductions in almost all symptom distress module scales, particularly diarrhea (90.8% reduction), and nausea/vomiting (74.4%). Jaundice/icterus was reduced in the atazanavir group (73.7% to 15.8%, p<0.001). The mean increase in health-related quality of life measures was 2.5 points in the physical health summary score and 4.5 points in the mental health summary score. The greatest impact was observed in the domains of health transition (17.4 points increase on a 100-point scale), vitality (120 points), health distress (10.0 points), and quality of life (8.3 points). Serum lipid levels were reduced at 48 weeks after switch (cholesterol -15.8%; triglycerides -39.2%).

**Conclusion:** Stable switch from boosted protease inhibitors to raltegravir was associated with improved quality of life, decreased adverse events, good viral load suppression, and improved serum lipid profiles.
Abstract

Efficacy and Safety of Elvitegravir, Cobicistat, Emtricitabine, and Tenofovir alafenamide (E/C/F/TAF) in Virologically Suppressed Asian Adults with Renal Impairment

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Background: TAF is a novel prodrug of tenofovir (TFV) that results in 80-90% lower plasma TFV levels as compared to tenofovir disoproxil fumarate (TDF), and has been shown to be efficacious with an improved renal and bone safety profile. The durability and long-term safety of E/C/F/TAF in virologically suppressed Asian adults with renal impairment have not been reported.

Methods: Study112 is a Phase 3 single arm study in which HIV suppressed adults on TDF or non-TDF regimen with stable renal impairment (eGFR 30 to 69 mL/min) were switched to open-label E/C/F/TAF. Efficacy and safety endpoints through Week 96 were examined.

Results: 240 adults (34 Asian and 206 non-Asian) switched to E/C/F/TAF: CD4 cell count 498 and 652 cells/mm3, and eGFRCG 44 and 58 mL/min at baseline. NRTIs in pre-switch regimens included 65% TDF, 22% abacavir, and 13% others. At Week 96, 97% of Asian and 87% of non-Asian maintained virologic suppression. E/C/F/TAF was well-tolerated with no discontinuations due to adverse events (AEs) in Asian and 12 (5 were renal AEs) in non-Asian group. There were no proximal renal tubulopathy or Fanconi syndrome. From baseline to Week 96, median eGFRCG remained stable (-0.7 vs +1.0 mL/min) with significant decreases in multiple measures of proteinuria [Median % change from baseline in Asian and non-Asian: urine protein to creatinine ratio (-38% and -38%), urine albumin to creatinine ratio (-60% and -43%), urine retinol binding protein to creatinine ratio (-64% and -63%), and urine beta-2-microglobulin to creatinine ratio (-81% and -85%)], demonstrating improvement in renal tubular function. Both groups experienced recovery of spine and hip bone mineral density (BMD) [Median % change from baseline in Asian and non-Asian: spine BMD (+3.0% and +1.9%); hip BMD (+2.0% and +1.8%)].

Conclusions: E/C/F/TAF maintained high and durable efficacy with a favourable renal and bone safety. These data support E/C/F/TAF as a switch regimen in HIV suppressed, Asian adults with renal impairment.
Abstract 3

**Cost effectiveness of a screening program for Cryptococcal antigenemia among antiretroviral naive HIV infected patients with CD4< 100 cell/cumm in a referral HIV care center at Mysore, South India**

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**Background:** Cryptococcal meningitis is a life threatening opportunistic fungal infection among people with advanced HIV infection. WHO, 2011 guidelines recommended serum cryptococcal antigen( CrAg) screening for early diagnosis of cryptococcal infection. Existing data demonstrating the cost effectiveness of CrAg screening programs are limited to studies from Africa and Vietnam where costs and CrAg prevalence differ from those in India.

**Methods:** Retrospective cross sectional study done among HIV infected persons registered for HIV care at Ashakirana hospital from 7/1/2012 to 6/30/2015. Adult ART naïve persons with CD4< 100 cells/cumm and no symptoms of meningitis were included for screening using the point of care test - IMMY CrAg Lateral Flow Assay. Those who had been treated for Cryptococcal disease in the past were excluded. Analysis was done between screened group with those of symptomatic cryptococcal meningitis managed in the same period using the WHO’s Choosing Interventions that are Cost Effective (CHOICE) guidelines.

**Results:** 560 persons were screened with mean age of 39.9 years and 63.8% were males. The total prevalence of Cryptococcal antigenemia was 9.7% with 4.5 % having positive cryptococcal antigen in CSF and 5.2 % having isolated cryptococcal antigenemia. Total cost for those underwent screening was US$-12331. The death rates were 2.3% and 54.3% among screened and symptomatic groups respectively. The Incremental cost effectiveness ratio (ICER) is 616 US$ /death averted. The number needed to screen (NNS) to prevent one case of cryptococcal meningitis is 56. The number needed to screen (NNS) to prevent one death from cryptococcal meningitis is 31.

**Conclusions:** ICER of 616 US$/death averted is far less than India’s average Gross Domestic Product(GDP) per capita by world bank for the study period (1,498.87 US$) making the screening very cost effective under WHO criteria. The NNS to prevent one Cryptococcal meningitis as well as death from it is lower than similar studies from Vietnam but similar to South African studies. The Cryptococcal antigen screening should be included in India’s National AIDS control program to further reduce death rate due to AIDS which has seen a 30% reduction in the last decade because of universal ART availability.
Abstract 4

Acute Shigellosis among HIV-infected People in 2015: An Outbreak Investigation

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Background and purpose: Since February 2015, a suspected cluster of domestically-acquired shigellosis has been identified in Taiwan. Most cases occurred among sexual active males with underlying HIV infection. We aim to characterize this outbreak and identify the risk factors through case-control study.

Method: We identified all newly reported HIV-shigellosis cases in 2015, using national surveillance databases. We analyzed the temporal trend, geographical distribution, demographic characteristics, and status in HIV case management. To identify risk factors, each HIV-shigellosis case was matched to 5 controls (notified HIV patients without shigellosis) individually by age (±5 years), date of HIV diagnosis (±90 days), and residing city. Telephone interview with structured questionnaire further used to identify behavioral risk factors of cases and controls. We use logistic regression for statistical analyses.

Result: We identified 39 HIV-shigellosis cases, the majority are young, unmarried men who have sex with men (MSM) in metropolitan area. The 39 HIV-shigellosis cases were matched to 195 control HIV patients. We successfully interviewed 20 cases and 60 controls, after obtaining informed consent. Multiple logistic regression analyses identified following risk factors: loss to follow-up in HIV case management (adjusted odds ratio [aOR]: 7.45, 95% CI: 1.68-32.93), past syphilis (aOR: 2.73, 95% CI: 1.05-7.15), past amoebiasis (aOR: 9.43, 95% CI: 1.81-49.06), oral-anal sexual contact (aOR, 5.70, 95% CI: 1.03-31.58), use of RUSH during sexual encounters (aOR: 6.34, 95% CI: 1.32-30.52), use of amphetamine during sexual encounters (aOR: 9.95, 95% CI: 1.97-50.42)

Conclusion: The acute shigellosis outbreak spread sexually via oral-anal contact. Chemosex with use of RUSH or amphetamine, and loss to follow-up in HIV care, are additional risk factors. HIV testing and counseling is advised for all persons with newly diagnosed acute shigellosis.
Abstract 5

HIV care in Yangon, Myanmar; successes, challenges and implications for policy

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Introduction: Approximately 0.8% of adults aged 18-49 in Myanmar are seropositive for Human Immunodeficiency Virus (HIV). Identifying the demographic, epidemiological and clinical characteristics of people living with HIV (PLHIV) is essential to inform optimal management strategies in this resource-limited country.

Methods: To create a “snapshot” of the PLHIV seeking anti-retroviral therapy (ART) in Myanmar, data were collected from the registration cards of all patients who had been prescribed ART at two large referral hospitals in Yangon, prior to March 18, 2016.

Results and Discussion: ART had been prescribed to 2643 patients at the two hospitals. The patients’ median (interquartile range (IQR)) age was 37 (31-44) years; 1494 (57%) were male. At registration, injecting drug use was reported in 22 (0.8%), male-to-male sexual contact in eleven (0.4%) and female sex work in eleven (0.4%), suggesting that patients under-report these risk behaviours, that health care workers are uncomfortable enquiring about them or that the two hospitals are underservicing these populations. All three explanations appear likely. Most patients were symptomatic at registration with 2027 (77%) presenting with WHO stage 3 or 4 disease. In the 2442 patients with a CD4+ T-cell count recorded at registration, the median (IQR) count was 169 (59–328) cells/mm3. After a median (IQR) duration of 359 (185-540) days of ART, 151 (5.7%) patients had died, 111 (4.2%) patients had been lost to follow-up, while 2381 were alive on ART. Tuberculosis (TB) co-infection was common: 1083 (41%) were already on anti-TB treatment, while a further 41 (1.7%) required anti-TB treatment during follow-up. Only 21 (0.8%) patients were prescribed isoniazid prophylaxis therapy (IPT); one of these was lost to follow-up, but none of the remaining 20 patients died or required anti-TB treatment during a median (IQR) follow-up of 275 (235-293) days.

Conclusions: PLHIV in Yangon, Myanmar are generally presenting late in their disease course, increasing their risk of death, disease and transmitting the virus. A centralised model of ART prescription struggles to deliver care to the key affected populations. TB co-infection is very common in Myanmar, but despite the proven efficacy of IPT, it is frequently not prescribed.
Abstract 6

The clinical utility of the urine based lateral flow lipoarabinomannan assay in HIV-infected adults in Myanmar: a prospective, hospital-based study

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Background: The use of the point-of-care lateral flow lipoarabinomannan (LF-LAM) test may expedite tuberculosis (TB) diagnosis in Human Immunodeficiency Virus (HIV) positive patients. However, the test's clinical utility is poorly defined outside sub-Saharan Africa.

Methods: A LF-LAM test was performed in consecutive HIV-positive adults at a teaching hospital in Yangon, Myanmar. Clinicians managing the patients were unaware of the LF-LAM result, which was correlated with the patient’s clinical course over the ensuing six months.

Results: The study enrolled 517 consecutive HIV-positive patients (54 inpatients, 463 outpatients) between July 1 and December 31, 2015. On enrolment, the patients’ median (interquartile range) CD4 T-Cell count was 270 (128-443) cells/mm3; 360/517 (70%) were receiving anti-retroviral therapy (ART) and 14/517 (3%) isoniazid prophylaxis therapy (IPT). During follow-up 16/517 (3%) patients died; TB was confirmed in 54/517 (10%), with rifampicin resistance present in 8/54 (15%). All patients with confirmed TB received anti-TB therapy; an additional 123/517 (24%) received empirical anti-TB therapy. The baseline LF-LAM test was positive in 201/517 (39%). The test’s sensitivity for a confirmed TB diagnosis during follow-up was 67% (95% confidence interval (CI): 52-91), its specificity was 64% (95% CI: 60-69). The test’s sensitivity was higher in inpatients, in symptomatic outpatients and with increasing immunodeficiency, however, in no subgroup was the test’s positive predictive value (PPV) for a TB diagnosis during follow-up greater than 50%. The test’s PPV for a complicated course (death, confirmed TB, hospitalisation or empirical anti-TB therapy) in the ensuing six months was 44% (95% CI: 37-51). Knowledge of the LF-LAM test result would have been unlikely to avert any of the study’s 16 deaths (ten had a negative test, five received anti-TB therapy before death, while one died from cryptococcal meningitis). The LF-LAM test was no better than a simple, clinical history in excluding a subsequent TB diagnosis (negative predictive value: 94% (95% CI: 91-97) versus 94% (95% CI: 91-96).

Conclusions: The LF-LAM test had limited clinical utility in the management of HIV-positive patients in this Asian hospital setting. Improving ART coverage and overcoming barriers to IPT prescription is more likely to reduce TB-related mortality in this population.
Abstract 7

HIV prevalence in men who have sex with men in Shinjuku 2-chome gay town, Tokyo: Result from the HIV testing program using the home collection kit

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Background: The number of annual new HIV cases is stable around 1,500 in Japan in this decade. The main route of infection is men who have sex with men (MSM), accounting for around 70% of new cases each year. In 2015, 30.3% of the new cases were reported from Tokyo. The purpose of this study was to investigate HIV prevalence among MSM at Shinjuku 2-chome gay town in Tokyo.

Methods: MSM aged 20 years and older were recruited from August 2015 through December 2016. Two local community-based organizations (CBOs) have been involved in this study. One CBO implemented the promotion campaign and distributed home collection HIV testing kits. The other provided consultation services to study participants at the distribution site. Study participants were mainly recruited by the banner advertisement posted on the dating site of the mobile apps for gay men. When they click the banner advertisement, it connects to the study web site. The HIV testing kits were distributed every Thursday from 7 PM to 10 PM at a drop-in-center in Shinjuku 2-chome gay town. After obtaining informed consent, participants answered the short questionnaire and were provided the home collection HIV testing kit. This testing program was anonymous and free of charge. Participants collected a dried blood spot sample by themselves and sent it to our laboratory. Participants could check their testing results through the study web site. If the HIV screening test was positive, the participants also could make a reservation at HIV clinic through the same web site.

Results: During the study period, 1,702 HIV testing kits were distributed to MSM. Aged 20s and 30s were account for 74.9%. 20% of participants received HIV testing kits two or more times. The number of dried blood spot samples tested was 1,399 (82.2%). A total of 34 samples was HIV positive. Subtracting repeated samples from 1,399 tests, the HIV prevalence of this study was assumed to be 3.04% (95%CI: 2.03-4.04%).

Conclusion: HIV prevalence among the MSM community in Shinjuku gay town was 3.04%, although this preliminary results should be confirmed by further studies.
Abstract 8

HIV testing as the bridge between awareness and acceptance of PrEP among MSM

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Background: Understanding factors associated with awareness and acceptance of pre-exposure prophylaxis (PrEP) is crucial for its promotion and implementation. Taking PrEP requires the knowledge of one’s latest HIV status, which is impossible in the absence of a corresponding HIV testing habit. This study aimed to assess the role of different variables, particularly HIV testing in affecting awareness and acceptance of PrEP among men who have sex with men (MSM).

Material & Methods: An online self-administered survey was conducted for 2 months in Hong Kong, where PrEP was not yet available, targeting MSM. Variables were dichotomised and categorised into five main groups, including demographics, considerations when seeking partners, networking patterns, sexual behaviours, and PrEP-related factors. Phi coefficient was measured for each variable pair. T-test was used to assess directional correlation. Correlations with p<0.01 were regarded significant. Factors with direct significant association with awareness or acceptance of PrEP were included in the network as a node. Correlations between all these factors were also added to the network. To identify important variables in the factor network, betweenness centrality, a normalised number of all-pairs shortest paths passing through that node, was assessed.

Results: Between August and September 2016, a total of 444 MSM without known HIV infection were recruited. Some 804 significant links were established between 113 variables. By specifically including awareness and acceptance of PrEP, 10 variables and 17 links were available for further analysis. Awareness of PrEP was negatively associated with sourcing partners through online forums but positively associated with an expectation of partner’s regular testing habit. Acceptance of PrEP was positively correlated with various sexual health-related factors when seeking partners, one’s own employment status and testing habit. Having tested was the most important factor with the highest betweenness centrality of 0.50, followed by partner’s regular testing habit (betweenness: 0.39). Awareness of PrEP was not directly associated with its acceptance, but via testing-related factors.

Conclusions: Effective dissemination of information relating to sexual health depends on the understanding of the pattern of MSM’s networking channels. Sexual health-conscious MSM accepted PrEP, but their risk levels and the needs of PrEP are not known. Engagement in HIV testing plays an important role in one’s acceptance of PrEP. There is a need to introduce PrEP through specific platforms to raise the community’s awareness. Integrating pre-PrEP screening (including, for example, risk assessment) and referral in community-based testing services could be an important strategy to achieve HIV prevention.
Abstract 9

The emergence of transmitted protease inhibitor resistance mutations in adults starting antiretroviral therapy in northern Vietnam

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Background: As Vietnam enters its second decade of antiretroviral therapy (ART) rollout with estimated 110,000 patients on ART as of the June of 2016, data on trend and patterns of transmitted drug resistance mutations are important to guide national treatment strategies.

Methods: We investigated drug resistance mutations in antiretroviral-naïve patients initiating first-line ART in the clinical trial of Virological Monitoring in Viet Nam (VMVN – clinicaltrials.gov NCT01317498) at Bach Mai Hospital in Hanoi between April 2011 and April 2014. Transmitted drug resistance mutations were identified by Sanger sequencing of HIV pol gene and were defined based on the 2009 World Health Organization surveillance drug resistance mutation list. HIV subtypes were identified based on the analysis of pol gene using REGA HIV-1 subtyping tool version 3.0. Logistic regression analysis was used to identify risk factors for transmitted drug resistance based on the predefined variables including age, gender, CD4+ T-cell count, HIV RNA load, and HIV risk factors.

Results: Amongst 603 ART-naïve patients enrolled, plasma samples from 564 patients were successfully sequenced in both protease and reverse transcriptase regions. At enrolment, the median age was 33 (IQR: 29-38); 367 (65%) patients were male; 99 (18%) patients had history of injection drug use; the median CD4 was 119 (IQR: 29-273) cells/mm³; the median HIV RNA was 5.1 (IQR: 4.6-5.6) log10 copies/mL. Transmitted drug resistance mutations were identified in 32 (5.6%) patients. Among them 15 (46.9%) patients harbored mutations conferring resistance to nucleoside/tide reverse transcriptase inhibitors (NRTIs) (D67N, K65R, K70E, V75M, T215S/F, K219N/E, M184V), 10 (31.3%) to non-nucleoside reverse transcriptase inhibitors (NNRTIs) (K101E, K103N, V106M, Y181C, G190A), 11 (34.4%) to protease inhibitors (PIs) (M46L, I54L/T, F53L, M46I/L, N88D, L90M), and 4 (12.5%) harbored both NRTIs and NNRTIs (L74I, V75M, V106M, M184V, T215F, K219E, K101E, K103N, Y181C, G190A). Even though the most common HIV subtype present in Vietnam remained the subtype CRF01_AE (94%), other recombinant subtypes began to emerge in this patient cohort and included subtype A (4.1%), CRF07_BC (0.9%), CRF08_BC (0.7%), CRF03_AB (0.2%), and CRF69_01B (0.2%). CRF69_01B is a new AE/B recombinant subtype identified in Japan recently. All 564 patients were included in the logistic regression analysis. None of the predefined variables were associated with transmitted drug resistance.

Conclusion: Transmitted drug resistance remains stable at the intermediate level despite the scale up of ART in Vietnam over the past 10 years. However, the high prevalence of transmitted drug resistance to PIs, the fundamental drug class for second-line therapy in low and middle income countries, is a concern and requires further investigation. The increase in prevalence of other non-CRF01_AE subtypes raised a need for continued surveillance of circulating HIV strains to understand the transmission networks between HIV-infected populations in the region.
Abstract

Highly Automated Deep Sequencing-based HIV-1 Drug Resistance Monitoring System

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Background: Deep sequencing or Next Generation Sequencing (NGS) technology is increasingly used for HIV drug resistance testing in research field. The objective was to develop and validate an automated integrated NGS-based workflow for detection of drug resistance mutations in HIV-1 Group M for in vitro diagnostics.

Methods: We developed a highly automated “sample-to-result” HIV drug-resistance monitoring system which comprised of 1) a robotic liquid handling system for RNA extraction and NGS library preparation (Sentosa® SX101); 2) Ion Torrent NGS platform; 3) kits for RNA extraction, HIV NGS library preparation (Sentosa® SQ HIV Genotyping Assay) and deep sequencing, and 4) data analysis and reporting software. The data reports include 276 amino acid (AA) mutations in 103 AA positions across the Reverse Transcriptase (RT), Protease (PR) and Integrase HIV-1 genes. However, the system does not make direct treatment recommendations, which are left to the investigator.

Results: The Sentosa® HIV NGS workflow is highly automated and required <3 hrs. hands-on time with total turnaround time about 27 hrs. The assay is able to process up to 15 clinical samples simultaneously. The limit of detection was determined to be 1000 copies/mL; reproducibility was 100% (95% CI: 96.2%-100%) for sample detection and 100% (95% CI: 99.7%-100%) for variant detection. Clinical evaluation was performed on 200 prospective and retrospective HIV-1 plasma samples. Clinical sensitivity (ability of the test assay to detect HIV-1 in clinical samples and successfully sequence the target regions) for the Sentosa® SQ HIV Genotyping Assay was defined at 98.50% (95% CI: 96.77% - 99.31%).

Conclusion: Considering the crucial role of drug resistance monitoring in HIV treatment management, the Sentosa® HIV NGS workflow appears as a highly reliable tool for clinical diagnostics. More sensitive detection of low-frequency variants (up to 5%) resulting a higher predicted level of drug resistance, which offers improvements in HIV-1 drug resistance monitoring.
Abstract 11

High-risk behaviour in a cohort of HIV/hepatitis C coinfected gay and bisexual men commencing hepatitis C treatment

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Background and aims: The Australian Government subsided access to hepatitis C (HCV) direct-acting antivirals (DAAs) without disease stage restriction from March 2017, providing an opportunity to dramatically increase HCV treatment uptake. The co-EC Study, a real-world treatment cohort, aims to treat 75% of gay and bisexual men in Victoria within two years (an estimated 375 participants) and provide proof-of-concept that treatment scale-up could eliminate coinfection in this key affected population. This analysis reports risk taking behaviour at treatment initiation.

Methods: The co-EC Study is an ongoing (March 2016-) clinician-directed, non-randomised trial of DAA treatment among people with HIV/HCV coinfection. HCV testing and treatment is delivered by specialists or general practitioners with nursing support at tertiary (n=2) and primary care (n=4) sites in Melbourne, Victoria. At enrolment and routine follow-up, participants complete a self-reported behavioural survey.

Results: 160 participants have been recruited to date (99% male, median age 48 years). Of participants enrolled, 75% were Australian-born, 64% had undertaken higher education, 50% reported full/part time employment, and 85% were low income-earners (<AU$2000/month).

At baseline 67(66%) male participants reported sex with men in the previous 6 months: 49(83%) reported casual sex partners, of whom 39(80%) reported inconsistent condom use with casual partners. Twenty-nine (37%) males reported group sex in the previous six months.

Fifty (48%) participants reported recreational drug use in the previous month: ice (58%), cannabis (56%) and amyl nitrates (22%) were most common. Sixty-five (60%) participants reported ever injecting drugs, of whom 29% reporting injecting in the previous month: all reported injecting ice; one person also reported injecting heroin. Among those ever injecting, 16(25%) reported ever using a needle/syringe that had been used by someone else. Of 85(77%) participants reporting any alcohol consumption, 24(28%) reported drinking ≥6 drinks at a time monthly or more. Eleven participants (10%) reported previous incarceration and 63(60%) reported moderate to extreme anxiety or depression.

Conclusions: The co-EC Study has recruited HIV/HCV coinfected men with high-risk sexual and drug use behaviour. Ongoing behaviours may put participants at risk of HCV reinfection, and it will be important to follow this cohort to assess both HCV cure and HCV reinfection rates. Education for mediating risks of reinfection will be critical for this cohort.
Abstract 12

Suitability of HCV treatment in primary care settings for individuals with HIV/hepatitis C coinfection

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Background and aims: Australian Government-subsided access to HCV direct-acting antivirals (DAAs) without disease stage restriction provides an opportunity to dramatically increase HCV treatment uptake. By facilitating treatment in primary care settings, the co-EC Study aims to provide proof-of-concept that treatment scale-up could eliminate HIV/HCV coinfection among gay and bisexual men.

Methods: The co-EC Study is an ongoing (March 2016-) clinician-directed, non-randomised trial of DAA therapy among people with HIV/HCV coinfection. Assessment and treatment is delivered by specialists or general practitioners with nursing support at tertiary (n=2) and primary care (n=4) sites in Melbourne, Australia. Routine clinical data is recorded at baseline including haematological, biochemical and fibrosis assessment. Responses can prompt a specialist to be consulted for advice or referral prior to treatment initiation. Parameters requiring specialist advice are: total bilirubin ≥1.5x upper limit of normal, platelets <150,000/uL and AST: Platelet Ratio Index (APRI) ≥1.0. Parameters prompting specialist referral are: known cirrhosis, FibroScan >12.5kPa, hepatitis B coinfection, previous interferon-free DAA therapy or drug allergy, organ transplant, malignancy within 5 years, or chronic renal or cardiac disease.

Results: 160 individuals with chronic HCV (99% male, median age 47 years) have been enrolled. At baseline, 65% had HCV genotype 1, eighteen (15%) had previously been treated for HCV: 5 (28%) with reinfection, 13 (72%) after treatment failure. The main reported modes of transmission were male-to-male sex (43%), injecting drug use (28%) and unknown (24%). The majority (97%) of participants were currently on antiretroviral therapy, 92% had an undetectable viral load, and 30% had a current psychiatric diagnosis. Among 88 participants screened in the primary care, 35 (40%) could commence treatment immediately, 27 (31%) required specialist advice, and 17 (19%) required specialist referral; 9 (10%) had incomplete data. The most common grounds for specialist advice were high APRI (69%). The most common grounds for referral were known cirrhosis (31%), malignancy (24%), renal/cardiac disease (24%), or FibroScan >12.5kPa (24%).

Conclusions: Despite HIV/HCV coinfection traditionally requiring specialist management, a majority of people can receive HCV treatment in primary care settings without referral. Mechanisms to facilitate specialist advice and referral are needed to enhance care and rapidly scale-up treatment.

Specialist requirements

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<th>Parameter</th>
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<tr>
<td>Incomplete data</td>
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Abstract 13

Treatment of patients with chronic hepatitis C genotype 3 infection with or without cirrhosis with sofosbuvir and daclatasvir therapy

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Background: In treatment-naïve patients with chronic hepatitis C (CHC) genotype 3 (G-3) infection, therapy with directly acting anti-virals (DAAs) provides better sustained virological response (SVR) rates and lower adverse events as compared to treatment with pegylated interferon plus ribavirin therapy. The recommended therapy for CHC G3 patients without cirrhosis is daily sofosbuvir (400 mg) and daily daclatasvir (60 mg) for 12 weeks. In CHC G3 patients with cirrhosis, it is recommended to add daily weight-based ribavirin (1000 or 1200 mg in patients <75 kg or ≥75 kg, respectively) for 24 weeks along with the above combination, as data regarding the optimal duration of therapy in cirrhotics with G3 infection is scarce. We aimed to study the SVR rates in CHC G3 patients with or without cirrhosis treated with sofosbuvir and daclatasvir based therapy in northern India.

Methods: Data of 192 treatment naïve CHC G-3 patients treated with sofosbuvir and daclatasvir was analyzed. Cirrhosis and portal hypertension were diagnosed on the basis of clinical, biochemical, radiological, endoscopic and elastography criteria. Of all the patients, 112 did not have any evidence of cirrhosis (group I), 42 patients had compensated cirrhosis (Child-Pugh class A) (group II) and 32 patients had decompensated cirrhosis (Child Pugh class B/C) (group III). Group I was treated with daily sofosbuvir (400 mg) and daily daclatasvir (60 mg) for 12 weeks, group II with daily sofosbuvir, daclatasvir and ribavirin (1000 or 1200 mg in patients <75 kg or ≥75 kg, respectively) for 12 weeks and group III with sofosbuvir, daclatasvir and ribavirin for 24 weeks. HCV RNA was repeated at end of therapy, and at 12 weeks post therapy for SVR.

Results: Baseline characteristics and SVR rates in the three groups were similar (median age 48 years, 78% males). The SVR rates in group I, II and III were 100% (112/112), 100% (42/42), and 96.8% (31/32) respectively. The SVR rate of patients with compensated cirrhosis treated for 12 weeks (with addition of ribavirin) was same as that of non-cirrhotics treated for 12 weeks (p< 0.0001). The SVR rate of patients with decompensated cirrhosis treated for 24 weeks (with addition of ribavirin) was also similar to that of non-cirrhotics treated for 12 weeks (p< 0.0001). No major adverse events were reported during the study period. On multivariate analysis, presence of decompensated cirrhosis was the only factor associated with relapse.

Conclusion: This is the first study to show that patients of CHC G3 infection with compensated cirrhosis can achieve excellent SVR rate when treated with sofosbuvir, daclatasvir and ribavirin for 12 weeks. Patients with CHC G-3 infection without cirrhosis achieved 100% SVR rate with standard sofosbuvir and daclatasvir therapy. Patients with decompensated cirrhosis achieved 96.8% SVR rate with sofosbuvir, daclatasvir and ribavirin for 24 weeks.
Abstract 14

Drug Interactions between anti-HCV Antivirals Ledipasvir/Sofosbuvir and Integrase Strand Transfer Inhibitor-Based Regimens

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Introduction: Use of some anti-HCV agents with HIV antiretrovirals (ARVs) may be complicated by drug-drug interactions (DDIs). A fixed-dose combination tablet composed of the NS5A inhibitor ledipasvir (LDV) 90 mg and NS5B inhibitor sofosbuvir (SOF) 400 mg is indicated for the treatment of chronic hepatitis C genotype 1 infection in adults. We conducted two Phase 1 studies in healthy volunteers to evaluate potential DDIs between LDV/SOF and integrase strand transfer inhibitor based regimens: elvitegravir /cobicistat /emtricitabine /tenofovir alafenamide (E/C/F/TAF) or dolutegravir (DTG) plus emtricitabine/tenofovir DF (FTC/TDF; TDF).

Methods: These were multiple-dose, randomized, cross-over DDI studies. Study 1 subjects (N=30) received LDV/SOF, E/C/F/TAF (150 mg/150 mg/200 mg/10 mg) and LDV/SOF plus E/C/F/TAF. Study 2 subjects (N=30) received LDV/SOF, DTG (50 mg) +FTC/TDF (200 mg/300 mg) and LDV/SOF plus DTG+FTC/TDF. All study treatments were administered once daily with food for 10 days. LDV, SOF, GS-331007 (predominant circulating metabolite of SOF), and ARV plasma concentrations were analysed and PK parameters were calculated. 90% CIs for the geometric least squares means ratios% (combination vs. alone) for analytes’ AUCtau, Cmax and Ctau were estimated by linear mixed effect model and compared to lack of PK alteration boundaries of 70-143%. Safety assessments were conducted during the study.

Results: All subjects (Study 1) and 29/30 subjects (Study 2) completed the study. Study treatments were generally well tolerated. All adverse events (AE) in Study 1 were Grade 1 except for 2 occurrences of constipation (Grade 2) in subjects receiving LDV/SOF + E/C/F/TAF. Occurrences of AEs were comparable across treatments; most common AEs were GI disorders including diarrhoea and nausea.

The majority of Study 2 AEs were Grade 1; the most commonly reported AEs were nausea, headache and constipation. One Study 2 subject discontinued LDV/SOF + DTG+TVD treatment due to Grade 2 ALT/AST increases; LFTs normalized 14 days after treatment cessation. No Grade 3 or 4 AEs were observed in either study.

LDV exposure parameters (AUCtau, Cmax and Ctau) were ~65% to 93% higher with E/C/F/TAF. Higher SOF AUCtau (~47%) and Cmax (~28%), and higher GS-331007 AUCtau (~48%) and Ctau (~66%) were observed on coadministration; there was no alteration in GS-331007 Cmax. EVG Ctau was increased by ~46% and COBI AUCtau and Ctau were increased by ~53% and ~225%, respectively, with LDV/SOF. The higher COBI exposure following coadministration is not considered clinically relevant based on the totality of data from Phase 2/3 studies showing no association between higher COBI exposure and the incidence of common AEs or renal function parameters. No changes in FTC, TAF or TFV PK were observed.

LDV/SOF PK was unaffected by DTG+TVD. There were also no alterations in the PK of DTG or FTC with LDV/SOF. PK parameters were ~61% to 115% higher on coadministration. Increases in TFV exposure are comparable to those observed following administration of LDV/SOF with NNRTI-based regimens efavirenz +TVD or rilpivirine +TVD.

Conclusion: Study treatments were generally well tolerated. LDV/SOF may be administered with E/C/F/TAF or DTG+TVD without necessitating appropriate monitoring for TFV-associated AEs is advised during coadministration of LDV/SOF with DTG+TVD.
Abstract 15

Transition into adult care: Factors associated with level of preparedness among adolescents living with HIV in Cambodia

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Background: Preparing adolescents for transition into adult care and supporting their acquisition of self-care management skills is a critical determinant of their post-transition HIV care and treatment outcomes. However, there is a scarcity of research on effective transition strategies. This study explores factors associated with adolescent preparedness for transition into adult care in Cambodia.

Methods: In August 2016, a cross-sectional study was conducted among 223 adolescents living with HIV aged 15 to 17, randomly selected from 11 antiretroviral therapy clinics across the country, utilizing a structured questionnaire. The level of preparedness was determined by using a pre-existing scale. Adolescents were categorized as having a high- or low level of preparedness for transition using mean score of the total sample as a cut-off point. Bivariate and multivariate analyses were conducted.

Results: Of total, 55.2% were male, and their mean age was 15.8 years (SD= 0.8). Overall, 53.3% had a high level of preparedness for transition. As part of the transition protocol, 2.7% had completed a transfer form, 24.7% had a transition case manager, 29.6% had been counselled about the transition, and 19.7% had visited an adult ART clinic. In multivariate analysis, a higher level of preparedness for transition was independently associated with older age (AOR= 2.44, 95% CI= 1.34-4.46; p=0.004), family having received social health support (AOR= 5.32, 95% CI= 1.97-14.36; p= 0.001), knowing the kind of treatment they were receiving (ART) (AOR= 12.67, 95% CI= 2.91-15.19; p=0.001), trust in friends or family for HIV treatment (AOR= 7.82, 95% CI= 1.13-8.89; p=0.008), receiving counselling on transition (AOR= 3.17, 95% CI= 1.15-8.76; p=0.03), having a ‘Case Manager’ identified to support them during the preparation process for transition (AOR= 3.89, 95% CI= 1.08-13.96; p=0.04) and satisfaction with preparation process for transition in general (AOR= 0.35, 95% CI= 0.03-0.87; p=0.01).

Conclusions: A range of individual, social and health-system factors may determine successful transition preparedness among adolescents in Cambodia. However, the transition protocol was rarely adhered to. Strengthening implementation of age-appropriate and individualized case management transition at all sites, while creating supportive family, peer and healthcare environments for adolescent transition is required.
Abstract 16

Increase new case detection of HIV among MSM and TG through PDI+

So K

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**Background:** As Cambodia is moving towards achieving the 90-90-90 targets by 2020, accomplishing the first 90 has become a critical national priority, especially when the traditional outreach model has yielded low HIV positivity rates among men who have sex with men (MSM) and transgender women (TG). PDI+ (peer-driven intervention plus) has, therefore, been conceptualized and implemented as an innovative approach to get un-reached and hard to reached individuals in the aforementioned key population (KP) groups tested for HIV and aware of their HIV status.

**Methods:** PDI+ is an incentive-based, peer-centered, snowballing approach under the USAID Flagship Project where seeds are provided with coupons to recruit peers within their networks to access risk screening and HIV testing services at PDI+ clubs. Some of these peers are further encouraged to get their fellow peers to access the HIV services via designed coupons which required by peers. PDI+ was initially demonstrated in Phnom Penh and Siem Reap in August 2016. Data collection, tracking and reporting is conducted via tablet-based report forms and mind manager application for network analysis and follow up recruiters.

**Results:** From 1st August to 18th November, 2016, 880 MSM and 472 TG were tested for HIV. 17 MSM, 24 TG tested reactive and were referred for confirmatory testing. As a result, 13 MSM (1.5% of those tested for HIV) and 19 TG (4%) were confirmed HIV+. Comparatively, KHANA’s 2012-2015 program data (based on traditional outreach model) reports the HIV positivity rates of 0.5%, 1.1% and 0% for MSM, and TG respectively. 34.6% (263/759) of MSM and 22.6% (100/443) of TG had never had HIV tests before.

**Conclusions:** PDI+ has yielded a relatively higher HIV positivity rates among MSM and TG within a shorter time-frame, compared to the rates achieved by the traditional outreach model. It has also managed to reach a notable number of MSM and TG who had never been tested for HIV before. Expanding the coverage of and extending the time-frame for PDI+ will provide a clearer picture of its sustainability, efficacy, and challenges in HIV case finding among the aforementioned KP groups.
Abstract 17

Factors associated with HIV infection among transgender women in Cambodia: Results from a national integrated biological and behavioral survey


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Background: Transgender women are at high risk for HIV infection, and little is known about the burden of HIV infection and its related factors in this population worldwide. This study was conducted to examine factors associated with HIV infection among transgender women in Cambodia.

Methods: This cross-sectional study was conducted between December 2015 and February 2016 in the capital city of Phnom Penh and 12 HIV high-burden provinces. Respondent driven sampling was used to recruit sexually active transgender women aged 18 and over. A structured questionnaire was used for a behavioural survey, and rapid finger-prick HIV testing was performed using Determine™ antibody test. Multivariate logistic regression analysis was conducted to identify factors associated with HIV infection using STATA.

Results: A total of 1,375 transgender women participated in the study with a mean age of 25.9 years (SD= 7.1). The overall HIV prevalence among this population was 5.9%. In multivariate logistic regression, participants living in urban areas were twice as likely to be HIV infected as those living in rural areas. Participants with primary education were 1.7 times as likely to be infected compared to those with high school education. HIV infection increased with age; compared to those aged 18-24, the odds of being HIV infected were twice among transgender women aged 25-34 and 2.8 times higher among those aged ≥ 35. Self-injection of gender affirming hormones was associated with a fourfold increase in the odds of HIV infection. A history of genital sores over the previous 12 months increased the odds of HIV infection by threefold. Transgender women with stronger feminine identity dressing up as a woman all the time were twice as likely to be HIV infected compared to those who did not dress up as a woman all the time. Having never used online services developed for transgender women was also associated with higher odds of being HIV infected.

Conclusions: Transgender women in Cambodia are at high risk of HIV. To achieve the goal of eliminating HIV in the country, effective combination prevention strategies focusing on the above risk factors among transgender women are urgently needed.
Abstract 18

Gender difference in compliance with self-deferral for blood donation on HIV-related risk

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Background: Donor screening is an important means to reduce transfusion-transmitted infections (TTI) like HIV, hepatitis B and C. As the risk of TTI cannot be eliminated solely by screening, deferral mechanism is often in place to protect blood safety. So far most of the studies have focused on the deferral of men who have sex with men (MSM), while that of donors in general was not specifically addressed. This study was conducted to determine the compliance rate of general donors in their declaration of HIV risk, and the gender difference between non-compliant and compliant donors.

Methods: The study was conducted in blood donor centres in Hong Kong. Chinese donors who have just given blood at these centres were approached and requested to complete an anonymous survey through tablet computers. They were asked to indicate if they have undeclared practice of (A) deferrable risk behaviours including male-to-male sex, sex with HIV positive partner, commercial sex and drug abuse and (B) lifestyle encounters with HIV risk, including needle stick injury, tattoo, acupuncture, ear-piercing. The questionnaire contents were derived from the routinely administered pre-donation Health History Enquiry.

Results: Between June and August 2016, 1614 blood donors were recruited, with a male-to-female ratio of 1.23, and a median age of 32 years (IQR: 23-43). The overall non-compliance rate was 10.8%, if both known and suspected behaviours and encounters were included. Some 5.2% and 0.8% of male and female donors gave a history of known deferrable risk behaviours respectively, whereas that of undeclared/inconsistently declared deferrable lifestyle encounters was 3.3% and 2.6%. There were significantly more male among non-compliant donors (p<0.001), with 11 (1.2% of male) having previous history of male-to-male sex. There were more male with known risk behaviour (36.5% vs 12.5%, p=0.002) while significant difference was not seen for suspected risk behaviour and undeclared/inconsistently declared lifestyle encounters. Factors associated with non-compliance in male donors were age≥35 (p=0.03), having had less than 6 previous blood donations (p<0.01) and a recent donation within the last 6 months (p=0.02). The reasons of non-declaration between male and female were different. A majority of male donors with risk behaviours believed that their blood was safe (47.3%) while female donors were not aware of the need to declare before donation (50.0%). The reasons for non-declaration of lifestyle encounters was however not different between male and female donors, with about half considering that their blood was safe.

Conclusion: In this study, it is observed that the non-compliance rate of blood donors was high, with more male having known history of risk behaviours, but a high non-compliance rate does not necessarily reflect a high risk of TTI. It is however, important to improve donors’ understanding of the need and the rationale of the deferral mechanism. Adoption of a gender-specific approach could be considered to enhance the compliance and thereby reducing the risk.
Abstract 19

Assessment of atherosclerotic cardiovascular disease (ASCVD) risks between HIV-infected patients receiving first-line and second-line antiretroviral therapy

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Objectives: Cardiovascular disease (CVD) has become an important health problem in HIV-infected patients who received antiretroviral therapy (ART). Protease inhibitors are usually used in the second-line ART and commonly associated with metabolic disorders. Atherosclerotic cardiovascular disease (ASCVD) risk score is a tool to estimate 10-year risks for ASCVD which includes coronary death or nonfatal myocardial infarction, or fatal or nonfatal stroke. We aimed to assess the 10-year ASCVD risk between HIV-infected patients receiving first-line and second-line ART.

Methods: A cross sectional study was conducted among HIV-infected patients attending the Infectious Disease Clinic, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand between March and July 2016. ASCVD score by American College of Cardiology (ACC)/American Heart Association (AHA) was used to calculate 10-year ASCVD risk of each patient.

Results: Of 391 patients with a mean age of 51.29 years old, 233 (57%) were males. Mean body weight and body mass index (BMI) were 61.19 kg and 22.83 kg/m². Mean duration of HIV infection was 11.74 years and mean CD4 cell count was 529 cells/mm³. Of all, 314 patients received first-line ART and 77 patients received second-line ART. Demographic and baseline characteristics were similar between patients receiving first-line and second-line ART, except for the longer duration of HIV infection, higher rate of statin use, higher mean triglycerides and lower mean HDL in patients receiving second-line ART. The median 10-year ASCVD risk was 3.15% and the prevalence of high 10-year ASCVD risk (10-year risks ≥7.5%) was 20.70%. The median of 10-year ASCVD risk in patients receiving first-line and second-line ART were 3.00% and 3.65%, respectively, and were not significantly different (p=0.709). On multivariate analysis, age ≥50 years (odds ratio [OR] 10.714; 95% confidence interval [CI] 4.504-25.485; p<0.001), male gender [OR 3.324; 95% CI 1.136-9.726; p=0.028], hypertension [OR 3.753; 95% CI 1.733-8.128; p=0.001], smoking [OR 4.679; 95% CI 1.511-14.485; p=0.007], dyslipidemia [OR 2.191; 95% CI 1.054-4.556; p=0.036] and FBS ≥100 mg/dL [OR 3.355; 95% CI 1.599-7.038; p=0.001] were factors significantly associated with high 10-year ASCVD risk.

Conclusion: High 10-year ASCVD risk is common in HIV-infected patients receiving ART and all patients should be assessed for ASCVD risk. Although patients receiving second-line ART had longer duration of HIV infection, higher rate of statin use, higher mean triglycerides and lower mean HDL, there is no difference of 10-year ASCVD risk between HIV-infected patients receiving first-line and second-line ART. Age ≥50 year, male gender, hypertension, smoking, dyslipidemia and impaired fasting glucose are associated with high 10-year ASCVD risk. Interventions to prevent cardiovascular events should be done in patients with these risk factors.
Higher burden of chronic comorbidities among aged hospitalized HIV patients compared to non-HIV infected patients in Japan

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Background: The aging process in combination with the HIV infection involves the development of various chronic comorbidities (CCM) and consecutively an increase of non-antiretroviral therapy (non-ART) intake, which can complicate the management of these patients. We assessed the prevalence and type of CCM in a large cohort of Japanese HIV infected patients and compared these with a non-HIV infected group of the same database. Whether the prevalence of certain CCM are different for predefined age-groups will be examined.

Methods: We performed an observational, retrospective, cross-sectional database study involving HIV and non-HIV infected patients registered in an acute care hospital claim database from 2010 to 2016. The non-HIV cohort was matched according to age, gender and hospital/institution. CCM was defined by ICD-10 and included chronic vascular disease, hypertension, lipid disorder, diabetes mellitus, chronic kidney disease, malignancy, bone disorder, co-infection (hepatitis B/C) and psychiatric diseases. The number of NICM was counted and Polypathology was defined when 2 or more NICM were concurrently present. The data was stratified for age.

Results: There were 1445 HIV infected and 14450 non-HIV infected patients (matching ratio 1:10) included in this study. The mean age of HIV/non-HIV patients was 47.0±12.7/47.3±13.7 years, and 90.4%/90.4% were men. For the HIV/non-HIV cohort a total of 1961/9778 CCM were reported in 981/5285 patients. In the HIV cohort overall the most prevalent CCM was Hypercholesterinemia (31.6%, n=456), followed by Diabetes (26.8%, n=387) and Hypertension (18.2%, n=263). In the non-HIV group Hypertension (14.4%, n=2080) was most prevalent, followed by Diabetes (13.2%, n=1901) and Hypercholesterinemia (10.3%, n=1492).

In patients with HIV 61.2% of patients who were 60-69 years old had Polypathology, while in non-HIV patients of the same age 32.2% had Polypathology.

Conclusion: Chronic comorbidities are more prevalent in HIV infected patients than compared to the same age group of non-HIV infected patients, implying that there might be a factor besides age contributing to the development of CCM in those patients. Whether the difference of CCM in the HIV group compared to the non-HIV group is caused by the HIV virus, ongoing systemic inflammation processes or the continuous ART intake remains unclear and needs to be further investigated.
Abstract 21

Prevalence of sarcopenia and associated risk factors among HIV-infected individuals receiving suppressive antiretroviral therapy

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Background: Sarcopenia (SP) is age-related loss of muscle mass that brings significant morbidity to the elderly, leading to frequent hospitalizations, disability and death. Few studies have characterised sarcopenia among HIV-infected individuals, a group previously shown to experience accelerated aging. In a clinic-based HIV-infected cohort with well-controlled HIV disease, we determined the prevalence of sarcopenia compared with age, gender and ethnically-matched controls; and investigated risk factors and health outcomes associated with it.

Methods: SP was defined as low muscle mass with weak grip strength and/or slow gait speed. The lower 20th percentile of controls were used as cutoffs to categorize abnormal readings for sarcopenia components in both study groups. Multivariate logistic and linear regression analyses were used to explore risk factors and health-related outcomes associated with sarcopenia among HIV-infected individuals.

Results: We recruited 315 HIV-infected individuals (total HIV+) aged 25 years and above with at least one year history of undetectable viral load on treatment (HIV RNA <50 copies/mL). Majority were male (83%), Chinese (72%), with a median (IQR) age of 43 (37-51) years and current CD4 T-cell count of 550 (394-760) cells/μl. The overall SP prevalence was 8% and 17% in individuals over 50 years. Of the 315 HIV-infected participants, 153 were paired with age, gender and ethnically matched uninfected individuals (matched subset). There was a one year age difference in the median (IQR) age between HIV-infected and uninfected, 41 (33-51) vs. 42 (33-52) years, respectively. Majority were male (73%), Chinese (67%). The percentage of SP in the HIV-infected compared to uninfected were 10% vs 6% (p=0.193) respectively, and 17% vs 4% (p=0.049) when assessed in individuals over 50 years in the matched subset. There was no significant difference in SP percentage between the younger paired groups. Multivariate analysis on the overall HIV-infected cohort found secondary education level [OR 2.80 (0.27 - 29.3), p=0.012], baseline CD4 [OR 1.01 (1.00 - 1.02), p=0.036] and duration of exposure (months) to D-drugs (didanosine, stavudine, zalcitabine and zidovudine) [OR 1.02 (1.00 - 1.04), p=0.011] were positively associated with SP, while unemployment [OR 0.05 (0.00 - 0.56), p=0.015], BMI [OR 0.52 (0.37 - 0.73), p=0.001] and GGT levels [OR 0.98 (0.97 - 0.99), p=0.036] were negatively associated. Risk factors were then assessed in separate models for the influence of lifestyle and clinical related factors. In the former, secondary education level and BMI were found similarly associated with SP. In the latter, additional association with glucose levels [OR 1.42 (1.13 - 1.79), p=0.003] was identified. Negative health outcomes associated with SP include mortality risk (VACS index) (p=0.009) and functional disability (p=0.004).

Conclusions: Sarcopenia (SP) is most prevalent in HIV-infected aged above 50 years old compared to younger individuals. Risk factors found associated with SP include education level, unemployment, BMI, baseline CD4 count, duration of exposure to D-drugs, GGT and glucose levels. Mortality risk scores and functional disability are increased with SP. Our findings highlight the association between SP with loss of independence and greater healthcare burden among treated HIV-infected individuals which necessitate early recognition and intervention.
Abstract

Social support plays a critical role in enhancing mental health among HIV-infected patients in Hanoi, Vietnam

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Background: Depression is the most common psychiatric complication in HIV-infected individuals. This study aims to identify social factors, especially the types and sources of social support, associated with depression among HIV-infected patients in Vietnam.

Material & Methods: From January to December 2016, a survey of 1503 HIV-positive outpatient was conducted at two HIV clinics in Hanoi. Depression and social support were evaluated using Center for Epidemiologic Studies Depression scale (CES-D) and Medical Outcome Study Social Support Survey (MOS-SSS), respectively. Social support included four types; emotional/informational, tangible, affectionate, and positive social interaction. Sources of each social support were divided into three categories; family only, family and others, and others only (i.e. not from family). Logistic regression models were used to examine the associations between social factors including social support and depression (CES-D≥16).

Results: Depression was prevalent in 26.2% of the participants. In the multivariate model, unemployment (OR=1.75: 95%CI, 1.17-2.60 vs. employed), higher number of HIV-related symptoms (OR=1.35: 95%CI, 1.25-1.45 per 1 increase in HIV-related symptom), shorter than 1 year from HIV diagnosis (OR=8.51: 95%CI, 1.52-47.49 vs. longer than 5 years from HIV diagnosis) were associated with depression. On the other hand, higher score of emotional/informational support and positive social interaction were protectively associated with depression (OR=0.94: 95%CI, 0.92-0.96 and OR=0.93: 95%CI, 0.89-0.98 per 1 score increase in each support, respectively). Family was the most fundamental source of all types of social support, and those not receiving tangible support, affectionate support, and positive social interaction from their family had higher rate of depression (OR=2.83: 95%CI, 1.51-5.30, OR=3.05: 95%CI, 1.86-4.99, OR=1.76: 95%CI, 1.18-2.61, vs. receiving each support only from family, respectively). Those receiving emotional/informational support from both family and others had lower rate of depression compared to those receiving it only from family (OR=0.58: 95%CI, 0.44-0.77).

Conclusions: Promoting social support, especially emotional/informational and positive social interaction could be an effective way to reduce depression in HIV-infected population. Not only family, but supporters from outside of their family were important source of emotional/informational support.
Abstract 23

Consideration regarding the service model on pre-exposure prophylaxis for men who have sex with men in the community

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Background: Service model is important when designing and implementing pre-exposure prophylaxis (PrEP), so as to meet the need of the men who have sex with men (MSM) community.

Material & Methods: A cross-sectional study was conducted online among MSM community in Hong Kong, where PrEP has not yet been available. Univariate analysis and multivariate logistic regression analyses were conducted to explore factors associated with PrEP acceptance and considerations regarding uptake, respectively.

Results: Between August and September 2016, a total of 444 MSM without HIV infection history were recruited. Awareness of PrEP was reported by 50%, but a larger proportion (79%) indicated acceptance in enrolling in a PrEP programme. Engaging in high risk activities, including participation in group sex and inclination to use entertainment drugs when seeking partners, were associated with PrEP acceptance.

Among MSM who accepted PrEP, price, efficacy and safety were the 3 most important determinants of its uptake, as considered by over three quarters of them. Programmatically, over 80% accepted a monthly fee of no more than HK$500 (~US$65) for PrEP. Other characteristics of importance were regimen schedule, service provider, location and time of service. Using multivariate regression model, MSM bothered with partners’ condom use were concerned about PrEP’s efficacy and its price. A monthly income of at least HK$30,000 (~US$3,867) was negatively associated with concern about price. Safety was a concern for those who selected partners by preferred body image types. Students were less anxious about efficacy, service location and time. The type of organisation running the PrEP service was generally not a concern.

Conclusions: In order to design a sustainable PrEP programme, the fee of service is a major consideration, especially for people with lower income. Service location and time for PrEP delivery are crucial for MSM at work. Community education is paramount in view of the major concerns as regards efficacy and side effects. An analysis of the community’s expectation or preference on PrEP delivery can help designing a tailored service model.
Abstract 24

Pre-Exposure Prophylaxis Uptake among Men who have Sex with Men at a Clinic in Bangkok, Thailand, 2016

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Background: Beginning in 2014, the Thailand Ministry of Public Health began recommending daily oral tenofovir disoproxil fumarate (TDF)/emtricitabine (FTC) as pre-exposure prophylaxis (PrEP) for HIV-negative persons at risk. The Silom Community Clinic @Tropical Medicine (SCC @TropMed) has provided TDF/FTC PrEP since March 2016.

Methods: SCC @TropMed provides HIV voluntary counselling and testing (VCT) services to gay, bisexual and other men who have sex with men (MSM), as well as transgender women (TGW). Since March 2016 PrEP counseling and prescriptions were offered during routine VCT. Clients who believed themselves to be at substantial risk for HIV and were interested in starting PrEP were prescribed PrEP if they were HIV-negative based on a same-day rapid test, had normal creatinine clearance, were not allergic to TDF or FTC, and were willing to take PrEP as directed and return for follow-up. Clients paid about 800 baht (approximately 24 USD) for one month supply of PrEP and initial laboratory testing. Clients returned to the clinic at 1 month for the first prescription refill, and then subsequently every 3 months for new refills, to complete a behavioural and adherence questionnaire, and for HIV and sexually transmitted infection testing. We conducted a descriptive analysis of PrEP implementation.

Results: As of 30 December 2016, 3,079 unique clients attended SCC @TropMed and 2,105 (68%) were HIV negative. Of these clients, 104 (5%) expressed interest in PrEP and were assessed for eligibility; 95 (91%) clients with a median age of 33 years (range 19-58 years) were prescribed PrEP. Among these, 91 (96%) self-identified as “gay” and 79 (83%) were Thai. Of the first 78 clients who started PrEP due to return for follow-up, 59 (76%) clients returned for their month 1 visit and 46 (59%) clients returned for their month 3 visit. Adherence to PrEP was reported by 51 (86%) and 39 (85%) clients attending the month 1 and month 3 visits respectively. As of 30 December 2016, 15 clients reported discontinuing PrEP; ten (67%) discontinued PrEP because they self-reported not currently engaging in any risk behaviours.

Conclusions: In the first 10 months of PrEP implementation at SCC @TropMed, overall about half were retained and continued PrEP at month 3. Many who discontinued PrEP self-reported not currently engaging in risk behaviours. Expansion of PrEP services, and continued monitoring, are needed to support HIV prevention for MSM and TGW in Bangkok, Thailand.
Abstract 25

Using a robust incentive-based, peer-centered model to identify new HIV cases among men who have sex with men, transgender women, and people who inject drugs in Cambodia

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Background: As Cambodia is moving towards achieving the 90-90-90 targets by 2020, accomplishing the first 90 has become a critical national priority, especially when the traditional outreach model has yielded low HIV positivity rates among men who have sex with men (MSM), transgender women (TG), and people who inject drugs (PWID). PDI+ (peer-driven intervention) has, therefore, been conceptualized and implemented as an innovative approach to get unreached individuals in the aforementioned key population (KP) groups tested for HIV and aware of their HIV status.

Materials & Methods: PDI+ is an incentive-based, peer-centered, snowballing approach under the USAID Flagship Project where seeds are provided with coupons to recruit peers within their networks to access risk screening and HIV testing services at PDI+ locations. Some of these peers are further encouraged to get their fellow peers to access the HIV services via the same process. PDI+ was initially demonstrated in Phnom Penh and Siem Reap in August 2016. Data collection, tracking and reporting is conducted via tablet-based report forms and EpiData program.

Results: From 1st August to 18th November, 2016, 880 MSM, 472 TG and 69 PWID were tested for HIV. 17 MSM (1.9%), 24 TG (5.1%) and 1 PWID (1.4%) tested reactive and were referred for confirmatory testing. Comparatively, KHANA’s 2012-2015 program data (based on traditional outreach model) reports the HIV positivity rates of 0.5%, 1.1% and 0% for MSM, TG and PWID, respectively.

HIV positivity rates in MSM and TG were significantly higher via PDI+ compared to the rates by traditional outreach (p<0.001), 34.6% (263/759) of MSM, 22.6% (100/443) of TG, and 7% (5/71) of PWID had never had HIV tests before.

Conclusions: PDI+ has yielded a relatively higher HIV positivity rates among MSM, TG and PWID within a shorter timeframe, compared to the rates achieved by the traditional outreach model. It has also managed to reach a notable number of MSM and TG who had never been tested for HIV before. Expanding the coverage of and extending the timeframe for PDI+ will provide a clearer picture of its sustainability, efficacy, and challenges in HIV case finding among the aforementioned KP groups.
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Abstracts
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Abstract 26

Penicilliosis in HIV Patients

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**Background:** Penicilliosis is a fungal infection caused by Penicillium marneffei. Penicillium marneffei becomes more prevalent in line with the AIDS epidemic. Usually HIV patient affected by penicilliosis with low CD4 lymphocyte count, typically <100 cell/μl. Penicilliosis is known to be endemic in Southeast Asia and Southern China. In Medan, Indonesia, recently penicilliosis in HIV patients has been found significantly. The common clinical manifestations include fever, body weight loss, anemia, and cutaneous papules with central umbilication resembling molluscum contagiosum. The cutaneous papules commonly appear on the face, extremity, body and sometimes on the palate. The other organs which can be involved such as central nervous system, liver, spleen, bone marrow, lungs, lymph nodes, and intestines. Determining definitive diagnosis of penicilliosis is based on isolation of organism from culture of clinical specimen or by histopathologic demonstration of organism in biopsy material. The aim of the study is to describe the clinical manifestations of penicilliosis in HIV patients at Adam Malik Hospital.

**Method:** This is a descriptive study with retrospective approach. Data was taken from the medical records of ten penicilliosis patients admitted to Adam Malik Hospital, Medan, Indonesia from March 2016 to February 2017.

**Result:** From 224 HIV/AIDS patients admitted during the study period, 4.5 % of the patients (n =10) had penicilliosis. The range of age was 24 - 40 years. The percentage of male and female were 70 % and 30 %; the range of CD4 lymphocyte count was 4- 47 cell/μl, the mean CD4 lymphocyte count was 17.7 cell/μl. The most common presenting symptoms that occur in all patients were fever, body weight loss and skin papules. Other symptoms in some patients were cough and diarrhea. Several others came with anemia, enlargement of liver, spleen, cardiomegaly, lymphadenopathy and arthritis as presenting signs. The diagnosis of all the patients was based on isolation of Penicillium marneffei from culture of skin biopsy specimens. Besides that, of three patients P.marneffei were also detected from blood and one patient from sputum. The rate of mortality was 30 % (n= 3) ; one patient died before getting treatment, one patient with tuberculosis as another opportunistic infection, and one patient with cytomegalovirus.

**Conclusion:** This study reveals that 4.5 % of the patients had penicilliosis. The percentage of male was higher than female. The CD4 lymphocyte counts for all patients were less than 100 cell/μl. The most common presenting symptoms were fever, body weight loss and skin papules. All the patients were diagnosed based on isolation of Penicillium marneffei from culture of skin biopsy.

Abstract 27

Toxoplasma Encephalitis in HIV/AIDS Patients admitted to The Haji Adam Malik General Hospital Medan, Indonesia from January to December 2016: A cross sectional study

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**Background:** Toxoplasmosis is the leading cause of focal central nervous system (CNS) diseases in AIDS. Toxoplasma Encephalitis (TE) in HIV-infected patients is usually a complication of the late phase of the disease. It is almost always due to reactivation of a previously acquired infection. The probability of developing reactivated Toxoplasmosis is as high as 30% among AIDS patients with a CD4 count <100cells/μL. The aim of the study is to describe the clinical manifestation, serology (Ig...
G and Ig M), and Head CT-Scan of TE and as well as in hospital outcome and its associated factors.

**Method:** The reached was carried out with a cross sectional study on the clinical case of admitted and treated patients for TE at the Haji Adam Malik General Hospital Medan, Indonesia from January to December 2016.

**Result:** From 254 patients admitted during the study period, 12.59% (32/254) had TE. The range of ages was (24-51) years. The percentage of male and female were 62.5% and 37.5% (20:12), the range of CD4 count; was (5-171) cells/uL. Headache and decrease of consciousness were the most common presenting symptoms in 59.37% of patients (19/32) and 40.63% of patients (13/32); ring enhanced lesion was the common Head CT-Scan finding in 68.75% of patients (22/32). The range of Ig G Toxoplasma was (15,4 – 836) IU/mL. The mortality rate in the hospital was 56.25% of patients (18/32). Altered sensorium and low CD4 counts were factors associated with mortality rate.

**Conclusion:** The most common clinical manifestations of TE in HIV/AIDS patients were headache and decrease of consciousness. All the patients had CD4 count < 200/mm3.

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**Abstract 28**

**Prevalence of non-communicable diseases and related risk behaviors among men and women living with HIV in Cambodia**

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**Background:** There is a growing concern for an increasing burden of non-communicable diseases (NCDs) in people living with HIV, especially in developing countries where dietary and lifestyle risk factors associated with NCDs are becoming more prominent. This descriptive study explored the prevalence of diabetes mellitus, hypertension and hyperlipidemia and related risk factors in men and women living with HIV in Cambodia.

**Methods:** This cross-sectional study was conducted among 510 adult people living with HIV randomly selected from the capital city and four provinces in Cambodia. A structured questionnaire was used to collect data on socio-demographic characteristics, health behaviours, medical history and antiretroviral therapy (ART). Anthropometric and biological measurements were performed. Descriptive statistics were used to calculate proportions and means of the measured variables. An independent Student’s t-test was used for continuous variables, and Chi square test or Fisher’s exact test was used as appropriate for categorical variables to explore gender differences.

**Results:** Prevalence of diabetes mellitus, hypertension and hyperlipidemia was 9.4%, 15.1% and 33.7%, respectively. The prevalence of hyperlipidemia was significantly higher among men compared to women (41.2% vs. 30.0%, p= 0.01). Mean systolic and diastolic blood pressure was also significantly higher among men. Regarding risk factors, 17.3% of the participants were overweight and 4.1% were obese. Tobacco and alcohol use was common, particularly among men. Fruit and vegetable consumption was considerably low among both men and women. Physical activity levels were also low; 39.8% of participants reported having a job that involved mostly sitting or standing; 46.3% reported engaging in moderate activities; and 11.8% reported engaging in vigorous activities during leisure time. A significantly higher proportion of men engaged in vigorous activities both at work and during leisure time compared to women (p< 0.001).

**Conclusions:** The prevalence of diabetes mellitus, hypertension and hyperlipidemia among men and women living with HIV in Cambodia is considerably high. Related risk factors was also common. Given the comorbidity of NCDs and HIV, policy and programmatic interventions are required, including integration of NCD screening into HIV programs.
Abstract 29

Loss to follow-up among HIV-infected Thai men who have sex with men in a cohort study, Bangkok, Thailand

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Background: Thailand national guidelines for antiretroviral therapy (ART) for persons living with HIV/AIDS were first published in 2002. Since 2006, ART has been provided at no cost as a part of Thailand's Universal Health Coverage (UC) system. There are limited prospective data on the factors contributing to retention in care among HIV-infected men who have sex with men (MSM) in Thailand. Assessment of HIV-infected participant retention in a longitudinal cohort may provide important information about long-term retention in care and treatment.

Methods: From 2006–2010, we enrolled sexually active Thai MSM at least 18 years of age in a 60-month cohort study with follow-up visits every four months. At each visit, men answered HIV risk behaviour questions using audio computer-assisted self-interview. Participants had oral fluid tested for HIV infection and if positive, infection status was confirmed with three other HIV rapid tests on blood. Beginning in 2010, participants who were HIV-negative by rapid blood test were tested for acute HIV infection using pooled nucleic acid amplification testing (NAAT). All participants with HIV infection identified at screening or during the follow-up period received HIV post-test counselling and were referred for ART treatment according to UC. HIV-infected participants were asked to continue follow-up in the longitudinal cohort with text message reminders one week before their next follow-up visit. We used logistic regression to evaluate factors associated with loss to follow-up (LTFU) (i.e., never returned for any visit after HIV-infection was detected).

Results: Overall, among 1,744 participants enrolled, 636 (36.5%) participants tested positive for HIV infection in the study: 373 (58.6%) at the time of enrolment; and 263 (41.3%) had incident HIV infection on subsequent visits. Among the incident infections, 19 (7.2%) had acute infection detected by NAAT. Of the 636 HIV-infected participants, 282 (44.3%) were aged 18–24 years at enrolment and 76 (12.0%) were LTFU after their HIV diagnosis, compared with 165 LTFU (i.e., never returned for any visit after enrolment) among 1744 participants enrolled (p = 0.07). A telephone reminder was used to remind participants who were LTFU regardless of HIV status. Among the incident infections, median follow-up time from enrolment to seroconversion was 2 years (Interquartile Range: 1–4). Factors associated with LTFU among HIV-infected participants were: primary education or lower (adjusted odds ratio [AOR] 3.1; 95% confidence interval [CI] 1.1–8.6) and living outside of Bangkok and its vicinity (AOR 2.0; 95% CI 1.02–3.9), after adjusted for demographic characteristics, risk behaviours and presence of sexually transmitted infections.

Conclusion: More than one-tenth of the HIV-infected MSM who participated in the cohort study in Bangkok, Thailand, were LTFU, suggesting the importance of retention in care should be emphasized during post-test counselling. Our findings suggest visit adherence support should focus on those who experience greater difficulty attending their visits such as those with lower education and those who live outside Bangkok.

Abstract 30

High prevalence of non-communicable diseases and associated risk factors among adults living with HIV in Cambodia

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Background: With rapid expansion of antiretroviral treatment for HIV, there are rising life expectancies among people living with HIV. As a result, co-morbidity from non-communicable diseases in those living and aging with HIV is increasingly being reported. Published data on this issue from Asia have been limited and none from Cambodia. The aim of this study was to determine the prevalence of diabetes mellitus, hypertension and hypercholesterolemia and associated risk factors in adults living with HIV in Cambodia.

Methods: This cross-sectional study was conducted in five provinces of Cambodia from May-June 2015. Information was obtained on socio-demographic and clinical characteristics and anthropometric and biochemical measurements were performed. Diabetes was diagnosed with fasting blood glucose \( \geq 126 \) mg/dl, hypertension with systolic blood pressure \( \geq 140 \) mmHg and/or diastolic blood pressure \( \geq 90 \) mmHg and hypercholesterolemia with fasting blood cholesterol \( \geq 190 \) mg/dl. Multivariate logistic regression analyses were used to explore risk factors.

Results: The study sample included 510 adults living with HIV; 67% were female, with a mean (SD) age of 45 (8) years. Of these, 9% had diabetes, 15% had hypertension and 34% had hypercholesterolemia. Of the total participants with non-communicable diseases (n= 235), 46% had one or more diseases, and 78% were newly diagnosed (90% of diabetes, 44% of hypertension and 90% of hypercholesterolemia). Single disease occurred in 77%, dual disease in 20% and triple disease in 3%. In adjusted analyses, those living in an urban environment had a significantly higher chance of having all three diseases, either together or independently, when compared with those living in rural areas.

Conclusions: The prevalence of diabetes, hypertension and hypercholesterolemia in adults living with HIV in this study was considerably high, with most of these diseases newly identified through active screening in the survey. These findings strongly suggest that screening of non-communicable diseases should be integrated into routine HIV/AIDS care in Cambodia.

Abstract 31

Awareness of and willingness to use HIV pre-exposure prophylaxis among men who have sex with men in low- and middle-income countries: A systematic review


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Background: To facilitate provision of pre-exposure prophylaxis (PrEP) in low- and middle-income countries (LMIC), a better understanding of potential demand and user preferences is required. The aim of this review was to assess the levels of and factors associated with awareness and willingness to use oral PrEP among MSM in LMIC.

Methods: Electronic literature search of Cochrane library, Embase, PubMed, PsychINFO, CINHAL, Web of Science and Google Scholar was conducted between July and September 2016. Reference lists of selected studies were searched, and three authors contacted for additional data. Non-peer reviewed publications were excluded. Studies were screened based on pre-specified inclusion criteria. Data were abstracted, assessed for bias risk and synthesized.

Results: In total, 2186 records were identified, of which 23 satisfied the pre-specified inclusion criteria. Awareness of PrEP among MSM in LMIC was found to be generally low; between 0% to 72% of study samples were aware of it. In contrast, willingness to use PrEP was
relatively higher, ranging from 19% to 96%. Key factors affecting willingness to use PrEP were identified in different domains. In individual domain, poor knowledge of PrEP and its effectiveness, fear of side effects, low perception of HIV risk and the requirement to take medicines frequently were associate with reduced willingness to use PrEP, while PrEP education and motivation to maintain good health were facilitators of potential use. Demographic factors such as education, age and migration were noted to influence both awareness of and willingness to use PrEP, but these were not consistent across all studies. In social domain, anticipated stigma from peers, partners and family related to either sexual orientation or HIV status were identified as barriers to use PrEP, while partner, peer and family support emerged as facilitators of potential use. In structural domain, concerns about perceived attitude of health care providers, quality assurance, data protection and cost of PrEP were key determinants of potential use.

Conclusions: This review shows that, despite low levels of awareness of PrEP, MSM in LMIC are willing to use PrEP if they are supported appropriately to deal with a range of individual, social and structural barriers.

Abstract 32

Parental Risk Behaviour and Parental living Status of Children With HIV infection in a Tertiary Care Center of Eastern Nepal

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Background: World Health organization had estimated 3.2 million children age 15 and under were living with AIDS at the end of 2013. Most HIV infections in children are transmitted vertically. Most of the children orphaned by AIDS who live outside of Africa live in Asia. There is, however, insufficient information available to provide figures for the number of children orphaned by AIDS in individual Asian countries. This study was aimed to explore parental risk behaviour and their parented status as a baseline data for qualitative study.

Material &Methods: A cross- sectional study was done in a tertiary care university hospital of eastern Nepal. Fifty caretakers of children with HIV attending immunology clinic were interviewed consecutively after informed consent by using semi-structured predesigned questionnaire. Data were analyzed in SPSS. Descriptive statistics and independent sample t test was used at 95% confidence interval.

Results: Mean age of children was 73.14 (SD ± 43.53) months and Mean age at diagnosis was 64.96 (SD ± 38.83) months. Majority (28%) of the fathers were migrant workers followed by driver 20% and equal proportion (16%) of them were businessman and unemployed. Major paternal risk behaviour for contracting HIV was unsafe sex (74%) followed by IDU 24% and no apparent risk factor identified in 2%. Majority (94%) of the mothers were housewives and does not have apparent risk factors and 4% of the mothers had unsafe sex. Most (98%) of the children had not received antiretroviral treatment during pregnancy. Few (8%) of the children were living as orphan, 10% of the children did not have mother and 22% of them did not have father. Children with parent(s) were diagnosed significantly earlier than children without parents.

Conclusions: Majority of the mothers had acquired infection from their husbands. Major risk behaviour of fathers are unsafe sex and intravenous drug use. Parented children were diagnosed earlier than who do not have single or both parent. Education regarding safe sex may prevent further HIV infection. These findings provided preliminary data for next qualitative exploratory study and idea about area of prevention of HIV in children.
Abstract 33

Quality of life in HIV/AIDS patients- An exploration

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Background: HIV/AIDS impacts heavily on the infected individual and the society at large, there is therefore a need to evaluate the quality of life of HIV-infected individuals.

Objectives: To assess the impact of HIV/AIDS on the Health related quality of life (HRQOL) of people living with HIV/AIDS (PLWHA), and to investigate the determinants of the QOL of PLWHA.

Methods: A descriptive cross-sectional study design was used. One hundred and three (103) PLWHA accessing healthcare were consecutively selected. A questionnaire, containing data on socio-demographic and medical profiles, on the WHOQOL-HIV Bref was used to assess each study participant. HRQOL was evaluated to assess quality of life domains that included physical and physiological health, level of independence, social relationships, environment, and spirituality/religion/personal beliefs. Means, standard deviations, and statistical tests for differences were performed.

Results: The mean age of the respondents was 41.0 (range 21-73); 48 (46.6 %) of the participants were males. The QOL mean scores were highest for the spirituality/religion/personal beliefs domain (16.88 ± 2.83) and lowest for the environment domain (14.08 ± 1.95). The overall QOL mean scores in the other four domains were similar: physical health (15.92 ± 3.05), psychological health (15.35 ± 3.20), level of independence (15.90 ± 3.52), social relationships (15.11 ±2.26). Significant differences were observed in all domains among respondents with family support compared to those without family support. Similarly, asymptomatic patients had significantly higher QOL scores compared to symptomatic patients. Improved QOL was influenced by higher educational levels in all domains except the spirituality/religion/personal beliefs domain.

Conclusion: The impact of HIV on the HRQOL was highest in the environment and social relationships domains. Also, HIV serostatus, presence of family support, and educational levels had significant effects on the QOL of PLWHA.

Abstract 34

Stigma-reduction: an essential component for effective and efficient health systems, Model projections for PMTCT.

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Background: Stigma adversely affects people living with HIV and HIV programmes. Yet, investment in stigma reduction remains limited. To quantify stigma’s potential influence, we developed a model to estimate the impact of stigma on PMTCT programmes and explore what levels of resource investment may be cost-effective.

Methods: Literature review on stigma’s impact on PMTCT. A spreadsheet model incorporating inputs on proportion of women testing and adhering to medication and exclusive feeding. Analyses compared number of infant infections occurring under different levels of stigma (’none’, ‘low’, ‘medium’, ‘high’). Calculations were repeated for different assumptions about the underlying strength of the health system (stronger, weaker), and HIV prevalence (5%, 10%, 15%).

Results: In settings with strong PMTCT services and high levels of stigma, a large percentage (55%) of MTCT could be due to stigma. In settings with weaker programmes, one third of MTCT may be due to stigma. Using a conservative threshold of USD$1,000 per HIV infection averted, if stigma prevention reduced transmission by 9% to 16%, investments in stigma reduction between $1 and $8 per woman attending ANC services would be cost-effective.
Conclusions: Large gains in PMTCT service delivery have been achieved; however greater attention needs to be paid to social factors that limit women’s ability to access services and adhere to feeding guidelines. Exploratory analyses suggest that reductions in HIV-related stigma could reduce MTCT and may potentially be cost-effective. Investment is needed to fund expansion and evaluation of stigma reduction programmes.

Abstract 35

Opt-out HIV testing in primary care setting

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Background: Under-diagnosis of HIV is often linked with barriers to HIV testing, including tedious informed consent in some settings, lengthy counselling and stigma associated with selection for HIV screening. Opt-out approach can overcome these barriers, but such practice has not been integrated into primary healthcare, where there are currently frequent missed opportunities for early diagnosis. A primary care setting enables access to a patient population most representative of Hong Kong’s general population that is possible in a clinic setting, reaching potential cases that would otherwise be reluctant to seek screening. A small proportion of patients declined because of other factors, such as inconvenience (7.7%), they did not want to know test result (3.9%), or fear of stigma (1.5%). The refusal rate was similar across age groups (18-35: 51.3%, 36-55: 58.9% and >55: 57.3%). Majority of refusals were born in Hong Kong (60.8%) and were females (63.1%). Multivariate analysis showed male gender was inversely associated with refusing HIV testing (AOR: 0.46, 95%CI: 0.27-0.79). Non-significant associations were found with age and place of birth. All dried blood spot tests showed HIV-negative results.

Conclusions: Pilot data from our study shows that opt-out HIV testing by dried blood spot test in a primary care setting is not yet widely acceptable and feasible.

Abstract 36

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 collecting their demographics and reasons for refusing HIV testing. Factors associated with HIV test refusal were analyzed by multiple logistic regression.

Results: In December 2016, 229 out of 325 subjects enrolled in the study with a response rate of 70.5%. Of 229 patients included in the analysis, 126 were females (55.0%) and 103 were males (45.0%). Most of them were born in Hong Kong (64.2%) or Mainland China (33.19%). Around half of the patients were aged over 55 (51.1%). Acceptance rate was 43.7% (100/229). Of the remaining patients who refused HIV testing, the most common reason was perceived low risk of infection (62.3%). 24.6% declined due to fear of venepuncture. A small proportion of patients declined because of other factors, such as inconvenience (7.7%), they did not want to know test result (3.9%), or fear of stigma (1.5%). The refusal rate was similar across age groups (18-35: 51.3%, 36-55: 58.9% and >55: 57.3%). Majority of refusals were born in Hong Kong (60.8%) and were females (63.1%). Multivariate analysis showed male gender was inversely associated with refusing HIV test (AOR: 0.46, 95%CI: 0.27-0.79). Non-significant associations were found with age and place of birth. All dried blood spot tests showed HIV-negative results.

Conclusions: Pilot data from our study shows that opt-out HIV testing by dried blood spot test in a primary care setting is not yet widely acceptable and feasible.
Abstract

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 100 PLWH attending a tertiary care hospital, and three Non-Governmental Organizations at Calicut, Kerala, India, from June 2011 to May 2014. 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.

Abstract 37

Prevalence of Coreceptor Tropism (CRT) in HIV-1 Infected Treatment-naïve Voluntary Counselling and Testing Clients in Southern Taiwan.

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**Background:** Determination of HIV-1 coreceptor use is necessary before initiation of a CCR5 antagonist. The goal of this present study was to determine the proportion of CCR5-tropic and CXCR4-tropic viruses (or dual/mixed-tropic virus) and impact of tropism test on clinical presentation, progression marker such as CD4 cell counts and viral load from HIV treatment-naïve, voluntary counselling and testing (VCT) clients in southern Taiwan.

**Methods:** Plasma samples from 240 HIV-1 infected, treatment-naïve, VCT clients were analyzed. HIV-1 strains were sequenced, genotype resistance were determined by a commercial kit (Viro-seq), and co-receptor tropism (CRT) was predicted by an internet tool geno2pheno[coreceptor], with a 10% false-positive rate as the cutoff. Differences in progression markers, patient characteristics, VCT questionnaires and HIV subtype distribution between the R5-infected and X4-infected patient groups were evaluated statistically.

**Results:** The 240 VCT clients were men with 87% at the age of 20-40 years-old. Eighty-nine percent of the patients were MSM. The prevalence rate of syphilis was 28% (67/240), hepatitis B 10% (24/236), hepatitis C 4.2% (10/237) and amoeba was 4.4% (9/206). The median (IQR) CD4 cell counts was 320 cells/µL (201-438), the viral load was 4.7 log (4.2-5.0). HIV transmitted drug resistance was found in 11.8% (25/211) of the patients. CRT predictions indicated that 70% of the patients had R5-tropic strains. CRT was not associated with CD4 cell counts, patient characteristics, VCT questionnaire and transmitted drug resistance. The patients with R5 strains were associated with high viral load at presentation compared with those with X4 strains (4.8±0.7 log. vs. 4.5±0.7 log, OR1.51, CI 1.0-2.29)

**Conclusions:** We found that 70% of the VCT clients were infected exclusively with R5-tropic
virus strains. Higher viral load at presentation was predictive of R5 co-receptor usage.

Abstract 38

Training non-Medical Technologists to perform finger-prick HIV diagnosis as part of the Community-Led Health Service model for men who have sex with men and transgender women in Thailand.

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Background: HIV testing is the key entry point to HIV prevention and care cascades. Rapidly scaling up HIV testing for key populations is crucial to Thailand in order to end AIDS by 2030. Men who have sex with men (MSM) and transgender women (TG) have contributed to around half of annual new HIV cases in Thailand over the past 5 years. Community-Led Health Service (CLHS) model, based on WHO-endorsed ‘task shifting’ concept, has great potential to enhance HIV programs among key populations. Community-based organizations (CBO) staff in CLHS model can be empowered to perform HIV testing for their clients. We described characteristics of non-Medical Technologist (non-MT) CBO staff who were trained by the Thai Red Cross Aids Research Centre and identified factors related to successful empowerment.

Material & Methods: A total of 46 non-MT staff from 7 CBOs working with MSM and TG (SWING and RSAT in Bangkok, SWING and Sisters in Chonburi, Caremat and M-plus in Chiang Mai, and RSAT in Songkla) who were Thai, >/= 18 years old, at least high school educated, and willing to participate in the CLHS model empowerment program were trained to perform finger-prick blood collection and rapid HIV and syphilis testing. All non-MTs underwent a 3-day intensive training course consisting of HIV epidemic and policies, professional ethics, theoretical knowledge and laboratory techniques to perform blood collection and rapid HIV/syphilis testing. Non-MT trainees received pre- and post-training assessments using a written examination which contained questions around general HIV knowledge (31 points), laboratory safety (10 points), blood collection (20 points), professional ethics (8 points), reading HIV test results (20 points). Post-training assessment also included a practical examination of performing blood collection (20 points), processing rapid HIV testing and interpreting test results (20 points).

Results: During May 2014 to May 2016, 46 non-MTs (20 MSM, 15 women, 9 TG, 2 heterosexual men) participated in the program. Mean age was 33.6 (6.3) years old and 56.5% had bachelor’s degrees with 32.6% of them being bachelor’s degrees of science. Median monthly income was 472 USD (361-556). Thirty-six (78%) non-MTs completed both written and practical examinations. Mean post-training written examination score was significantly higher than mean pre-training written examination score (62.8 vs. 41.4, p<0.001) from total score of 89. Gender, age and income were not associated with the theory and practical examination score. However, non-MT who passed >80% of the total score for the theory and practical examination were more likely to have bachelor’s degrees of science than those who had <80% of score (71.4% vs. 20.7%, p=0.009).

Conclusions: Field of education seems to play a significant role in the success of empowering non-MT CBO staff to perform HIV testing in the CLHS model and could be used to guide the trainee’s eligibility criteria. Future training course may need to emphasize more on the educational degree of potential trainees in order to make sure that trained non-MT CBO staffs are well equipped and qualified to perform this important task to scale up HIV testing uptake in their communities.
Abstract 39

Characteristics and outcomes of non-occupational post-exposure prophylaxis at a tertiary-care center in Thailand

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Background: Post-exposure prophylaxis (PEP) is recommended for persons at-risk for HIV exposure to prevent HIV infection. PEP can be given to healthcare workers (HCW) (occupational PEP; oPEP) or others (non-occupational PEP; nPEP) who expose to HIV. There have been several studies describing characteristics and outcomes of oPEP. However, given the more difficulty in monitoring persons who take nPEP compared to those taking oPEP, data on characteristic and outcomes of nPEP are limited.

Materials and Methods: A retrospective cohort study was conducted among non-HCW persons at-risk for HIV exposure and cared at a Thai tertiary-care center between 1 December 2014 to 31 December 2017. Data including demographics, clinical characteristics, PEP regimens, compliance, adverse reactions, and outcomes were collected through medical record review.

Results: There were 115 individuals at-risk for HIV exposure during the study period; 108 (94%) were females; median age was 18 years (IQR 14-23 years); most were students (48%) and company employees (18%), and 5 (4%) had underlying psychiatric disorders. Of these at-risk individuals, most (99%) did not know HIV, hepatitis B, hepatitis C or syphilis status of persons they exposed to. Reported HIV transmission risks included being raped (64%), no condom use for vaginal sex (58%), and mucosal contact of body fluid (1%). All at-risk individuals had negative anti-HIV at baseline. The follow-up rates at 2-4 weeks, 6 weeks and 3 months were 63%, 15% and 5%, respectively. By multivariable logistic regression analysis, factors associated with no follow-up within the first 4 weeks were no receipt of nPEP [adjusted odds ration (aOR) 770.00; p <0.001], female sex (aOR 363.00; p <0.001) and younger age (aOR 1.10; p = 0.004 for each year younger). Rape was reported in 74/115 cases (64%). Among these 74 raped cases, 65 (88%) reported one rapist, 56 (76%) had previous relationship with rapists; 22 (30%) were associated with drug abuse and condom use was reported in only 12 cases (16%).

Of the 115 at-risk individuals, nPEP antiretroviral drugs were prescribed in 69 cases (60%). The most common prescribed nPEP regimens were AZT+3TC+LPV/r (86%), followed by TDF+3TC+LPV/r (12%). Among these 69 individuals on nPEP, 5 (7%) developed adverse reactions requiring regimen changes [4 (80%) had diarrhea and rashes due to LPV/r and 1 (20%) had nausea due to IDV/r].

The regimens were mostly changed by discontinuing the offending protease inhibitors at 1-2 weeks. Only 15/69 cases (22%) can be evaluated for completing nPEP regimen at 28 days, all of which had 100% compliance to the nPEP regimens and none had HIV seroconversion.

Conclusions: Our study provides detailed characteristics of non-occupational HIV exposure and nPEP outcomes in Thailand. Strategies to improve rates of follow-up after first visit are needed to ensure the efficacy and safety of nPEP, awareness of the at-risk individual’s latest HIV status and further HIV transmission prevention.

Abstract 40

Toward improving access to HIV testing and treatment among non-Japanese residents in Japan: a pilot seminar for producing HIV friendly medical interpreters

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Background: New HIV cases among non-Japanese, especially men who have sex men, have been gradually increasing in Japan. Previous studies indicated that non-Japanese residents with low Japanese language proficiency tended to delay their visit to health facilities to receive HIV testing and treatment. Medical interpreters may be able to lower the language barrier. It is also important for the interpreters to have a good understanding of HIV infections and sexuality because HIV and AIDS are often associated with stigma and discrimination. To produce such medical interpreters, we organized a seminar to familiarize them with HIV. This study investigated changes in their knowledge of and attitudes toward HIV after they participated in the seminar.

Methods: We organized a one-day seminar in collaboration with an organization of medical interpreters in Kanagawa Prefecture in February 2017. The seminar topics covered HIV infections, testing and treatment, sexuality, role of public health centers in HIV testing, and methods for medical interpretation. We conducted the same self-administered questionnaire pre and post the seminar. The questionnaire targeted basic knowledge of HIV infections and attitudes toward HIV. The ethics committee of Kyorin University approved the study. We used SPSS to describe characteristics of the participants and analyze changes in their knowledge and attitude using the Fisher’s exact test with 5% statistical significance threshold.

Results: Of 39 participants, 31 (79.5%) were female and 29 (71.8%) were age of 40 or older, and 30 (76.9%) were brought up in Japan. There were 15 interpreters for English, six Spanish interpreters, five Chinese, four Nepalese, three each for Portuguese and Russian, two interpreters for Thai, and one each respectively for Korean, Pilipino/Tagalog, and Vietnamese. Six (15.4%) had served as an interpreter for people living with HIV. The proportion of the participants who answered correctly to the following questions were significantly increased after the seminar: Route of infection 79.5% vs 100.0% (p<0.01), Relationship between CD4 and AIDS 12.8% vs 93.9% (p<0.001), ART 35.9% vs 81.8 (p<0.001), Prognosis 48.7% vs 100.0% (p<0.001). However, the change of the proportion in response to the question about opportunistic infections was not significant (35.9% vs 48.5%). The proportions of those who responded “I do not feel uneasy” to the situation where you notice that your colleague is taking medication for AIDS increased from 52.6% to 64.8% (p<0.01). There were no significant changes in responses to the questions whether you can talk about AIDS with your friends and whether you would accept a request from a hospital to serve as an interpreter for AIDS patients.

Conclusion: The seminar improved the participants’ knowledge about HIV infections and reduced their uneasiness toward HIV. However, we need to devise better strategies to inform them of opportunistic infections. We also need to create a set of attitudinal questions more sensitive to the contents of the seminar. The seminar may be useful for producing HIV friendly medical interpreters that would contribute to improve access to HIV prevention and treatment services among non-Japanese residents in Japan.

Abstract 41

The relevance of the genotyping of HIV-1 with the increase of genetic variability of circulating viruses.

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Background: There is a detection of new and not typical genetic variant of HIV-1 at present in some regions of Russia Federation. In this connection it is important to determine the correct subtype of HIV-1. We aimed to optimize methodical approaches to molecular genetic analysis of HIV-1 in order to show heterogeneity of circulating HIV-1 population.

Materials & Methods: We collected 164 blood samples from HIV-1-positive patients in different regions of Russia Federation (Novosibirsk, Tomsk, Kemerovo, and Tyumen). We also studied epidemic data from patients. Genotyping of HIV-1 variants was performed by
Abstract 42

Sex-networking patterns associated with regular HIV testing behaviour before diagnosis among HIV-positive men who have sex with men in Hong Kong

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Background: Treatment as prevention (TasP) is an emerging HIV intervention strategy, which aims to minimise transmission risk by suppressing viral load of an infected person by highly active antiretroviral therapy. However, such strategy could only be effective when one is aware of his latest infection status through regular HIV testing. It was hypothesized that HIV testing behaviour was associated with one’s network, which might share similar social norms and risk behaviours. Focusing on HIV-positive men who have sex with men (MSM), this study aims to assess their HIV testing behaviours before diagnosis, and identify the factors associated with regular HIV testing.

Material & Methods: Over a two-month period between October and December 2014, HIV-positive MSM attending the largest HIV specialist clinic in Hong Kong were invited to complete a cross-sectional structured questionnaire. Data about respondents’ demographics, HIV testing practice, sex-networking patterns and risk behaviours in a year before HIV diagnosis were collected. Clinical data about CD4 count and viral load at HIV diagnosis were also extracted. Stepwise multivariate logistic model was constructed by using regular HIV testing behaviour as outcome measure, defined as having HIV test at least once every year. Statistical significance was defined by a p value less than 0.05.

Results: Of 345 HIV-positive MSM recruited, 96 (27.8%) reported having regular HIV testing at least once a year, while 118 (34.2%) had never tested for HIV before diagnosis. The remaining 131 MSM (38.0%) claimed testing for HIV irregularly or less frequently than once a year. The average CD4 count at diagnosis among MSM having regular HIV test was 419 cells/μL, significantly higher than those having HIV test irregularly or less frequently (332 cells/μL; p < 0.01). Mean viral load at diagnosis
among MSM having regular HIV test was also significantly lower (143,753 versus 249,737 copies/mL; \( p < 0.05 \)). In the stepwise model, factors significantly associated with regular HIV testing behaviour included younger in age (\( p < 0.01 \)), being diagnosed in the recent 5 years (adjusted odds ratio (AOR) = 2.32; 95% confidence interval (CI) = 1.36 – 4.03) and involving in physical venues for sex-networking in a year before diagnosis (AOR = 3.38; 95% CI = 1.30 – 10.61). Education level, sex-networking through the Internet and engagement in unprotected anal sex in a year prior to diagnosis were not associated with regular HIV testing behaviour.

**Conclusions:** Regular HIV testing could lead to early diagnosis of HIV infection, reflected by higher CD4 count and lower viral load. In spite of the increasing trend for taking HIV test regularly in recent years, the proportion of HIV-positive MSM having regular HIV testing before diagnosis remained low. More effort would be required for disseminating health information and promoting regular HIV test, especially among older MSM and those networked in the Internet.

**Abstract 43**

**Implementation of Pre-Exposure Prophylaxis (PrEP) In A South East Asian University Hospital**

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**Introduction:** Although around 100,000 people have been prescribed PrEP worldwide, the experience is largely limited to the United States. It is thought that in order to achieve United Nations 90-90-90 millennium goals, PrEP implementation needs to be accelerated in other parts of the world including the Asia Pacific region. In Singapore, until 2016 PrEP was offered only by a handful of private general practitioners at a relatively high cost.

**Experience:** National University Hospital is a 1200 bed tertiary academic hospital in Singapore. In October 2016, we started offering PrEP as part of a comprehensive sexual health clinic. The clinic was designed to provide confidential, non-judgmental sexual health services including PrEP and Post-Exposure Prophylaxis. Although only few similar services are available in Singapore and in spite of wide publicity, three months after opening, uptake of PrEP in our clinic was low. There are several possible reasons for this. Cost of tenofovir/emtricitabine (TDF/FTC) in Singapore’s public hospitals is high averaging USD280 a month. Similarly, consultation and laboratory fees for preventive services are not subsidized and hence may form a barrier to entry. In addition, sex between men is a criminal offence in Singapore. Although seldom imposed the law may influence men who have sex with men (MSM) in their decisions to access services where they would have to declare their sexual practices. A community consultation on PrEP organized by Action for AIDS (AfA), a major anonymous HIV testing site in the country revealed that many MSM in Singapore felt that reliable information on PrEP and safe spaces where they could discuss PrEP were lacking. The consultation identified other barriers for MSM to access PrEP: fear of losing anonymity, fear of visiting clinics which are known to care for people living with HIV, fear of disclosing sexual orientation to healthcare providers, unaffordability of TDF/FTC. The experience in our sexual health clinic shows that such theoretical barriers identified by MSM during community consultation, may indeed translate to low uptake of PrEP services in a real world situation.

**Discussion:** Our experience indicates slow uptake of PrEP among MSM in a sexual health clinic of a university hospital in Singapore. Main barriers to entry seem to be costs and perceived stigma of PrEP and homosexuality. However, our experience suggests that opening of a non-judgmental sexual clinic in an academic hospital may not be enough to attract MSM seeking PrEP. Possibly such services should be transferred to the community and organized in safe spaces where MSM feel that they can discuss sexual health freely. With the slow uptake of PrEP through official service such as our clinic, gay men in Singapore may be accessing PrEP through less official channels such as general practitioners or obtain PrEP in pharmacies in neighbouring countries. Further research into this is warranted as this can potentially lead to adverse outcomes.
Abstract 44

Pattern of methamphetamine use in HIV-infected MSM in Hong Kong

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Background: Methamphetamine use has been suggested to be an important factor contributing to HIV incidence among men-who-have-sex-with-men (MSM) in Hong Kong. The pattern of methamphetamine use and its temporal relationship to HIV diagnosis was unknown.

Material & Methods: The data are taken from an ongoing case-control study that examined the mental health and substance abuse pattern of HIV-infected MSM in Hong Kong. Participants were recruited from local community organisations and clinics providing HIV treatment and services to people with HIV infection. A case was defined as HIV-infected MSM with any use of psychotropic substance within the past 1 year, while a control was defined as those did not used any psychotropic substance at least for 2 years. All of them completed a survey on demography and underwent an interview with a psychiatrist to assess their pattern of substance use, access to service and to ascertain the presence of any psychiatric diagnosis following a standard manual (SCID-IV). The DSM5 criteria on substance use disorder was also used to gauge the severity of substance use. In this analysis, data from the first 30 cases and 30 controls were examined on their pattern of methamphetamine use and its temporal relationship to HIV diagnosis.

Results: Three quarters of all participants were diagnosed to have HIV in recent 5 years. The median age of the case and control were 33.5 and 36.5 respectively. All cases and 6 controls ever used methamphetamine. Among the cases, one-fifth first started using methamphetamine below 26 years old, while two-fifth first used between 26 and 35, one-sixth (n=5) between 41 and 50. Only 5 reported experimental use with methamphetamine only while others reported regular use. Four of them reported only started methamphetamine use after the diagnosis of HIV. Majority of the cases received the HIV diagnosis within the first 2 years of started using methamphetamine, 10 within the first year another 9 on the second year. Two-thirds of those who ever used methamphetamine first experienced it after 2014 and three-quarters after 2011. All had use methamphetamine during sex and among them about half reported having used in other situations. Twenty-two (73%) participants fulfilled DSM-IV criteria of stimulant dependence syndrome, and 5 and 15 (50%) fulfilled the DSM5 criteria of moderate and severe substance use disorder respectively. Intravenous injections of methamphetamine were reported by 6 of the cases, two of them reported having regular injections.

Conclusions: This preliminary result suggested that methamphetamine use was common among the recently diagnosed HIV-infected MSM in Hong Kong. Most were diagnosed within the first 2 years after they contemplated methamphetamine, while some would also start to use methamphetamine after HIV diagnosis. A significant proportion suffered from various dependence features resulting from methamphetamine use. Interventions on managing methamphetamine use especially harm reduction measures regarding methamphetamine use are urgently called for.

Abstract 45

Attitudes, Knowledge, HIV Risk Behaviors, and Sexually Transmitted Infections among Men who have Sex with Men starting Pre-exposure Prophylaxis at a Clinic in Bangkok, Thailand, 2016

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Abstract 45

Background: Pre-exposure prophylaxis (PrEP) is an important HIV prevention intervention for men who have sex with men (MSM) and transgender women (TGW). The current Thailand National Guidelines on HIV/AIDS Treatment and Prevention recommend daily oral PrEP to prevent HIV among those at risk. Silom Community Clinic @TropMed (SCC @TropMed) has provided PrEP since March 2016.

Methods: SCC@TropMed provides PrEP counseling and prescriptions to eligible MSM and TGW during HIV voluntary counselling and testing (VCT) services. Clients were eligible if they were HIV-negative, had normal creatinine clearance, had no history of allergy to tenofovir or emtricitabine, and were able to take daily PrEP and attend follow-up visits at the clinic. PrEP clients completed questionnaires which included information on demographics, knowledge of and risk behaviours associated with acquiring HIV, and had testing for HIV and sexually transmitted infections (STI) at least every three months. We conducted a descriptive analysis of PrEP attitudes, beliefs, and knowledge, HIV risk behaviors, and STIs at the first and last follow-up visit.

Results: From March 15, 2016 – December 31, 2016, 95 clients were prescribed PrEP and 70 (74%) had at least one follow-up visit. At the time of the initial visit, 85 (89%) had previously heard about PrEP and 60 (63%) knew that PrEP did not kill STIs. In terms of risk, twenty-one (22%) thought they were at substantial risk for HIV, 51 (54%) had anal intercourse without a condom in the past 3 months, 11 (12%) reported a history of STI in the last 3 months, and 14 (15%) had laboratory-confirmed rectal or urethral STIs. Among the 70 clients returning for at least 1 follow-up visit, 3 (4%) clients had rectal Chlamydia trachomatis infection, but none had HIV seroconversion. At their most recent follow-up visit, 60 (86%) reported it was easy to remember to take daily PrEP and 54 (77%) reported taking PrEP every day in the last month; only 4 (6%) clients reported not liking to take PrEP. No client reported experiencing problems with their family or friends because of their PrEP use.

Conclusions: In this early assessment of PrEP implementation at a large urban clinic serving MSM and TGW in Bangkok, Thailand, most clients taking PrEP reported behavioral risks for HIV acquisition. PrEP was acceptable and adherence to daily pills was 76% in the last month. Evaluations of client knowledge, beliefs, practices, and STIs, before and while on PrEP, can optimize implementation of this strategy for HIV and STI prevention.

Abstract 46

Differences in Awareness of, Willingness to use Pre-exposure Prophylaxis and Anticipated Condom Use between Serodiscordant Couples among three groups in Taiwan

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Background: In August 2016, Taiwan approved emtricitabine/tenofovir disoproxil fumarate (Truvada) for use as pre-exposure prophylaxis (PrEP) against HIV. HIV-negative partners within serodiscordant couples are the key targets for PrEP but little is known about differences in attitude toward PrEP among different key populations. We compared awareness, willingness to use PrEP and anticipated condom use between couples and differences in three groups: heterosexuals, men who have sex with men (MSM), and people who inject drugs (PWID).

Methods: A cross-sectional study was conducted in an AIDS designated hospital in Taiwan. Demographics, awareness and attitudes toward PrEP, and sexual behaviors in the previous 3 months were collected. A total of 112 pairs of HIV serodiscordant couples were enrolled: 32 heterosexual pairs, 70 MSM pairs, and 10 PWID pairs.

Results: Overall, 46.2% are aware of PrEP, only 33% willing to take PrEP, and 44.6% would maintain their condom use if taking PrEP. Among the three key populations, MSM couples had the highest awareness (MSM: 59.0% vs. heterosexual: 20.3% vs. PWID: 40%) and willingness of PrEP (MSM: 42.1% vs. heterosexual: 21.9% vs. PWID: 5.0%). Agreement of willingness to use PrEP between
HIV serodiscordant couples is moderate (Cohen’s Kappa coefficient: 0.56). Both partners willingness to use PrEP was significantly associated with MSM (adjusted odds ratio (AOR), 4.43 [1.31-15.01], p=0.008), previous receipt of HIV nPEP (AOR, 7.38 [1.10-49.32], p=0.039), anticipated condom use (AOR, 0.14 [0.04-0.48], p=0.002), and with part-time job (AOR, 0.05 [0.007-0.39], p=0.008).

Conclusions: MSM serodiscordant couples had the highest awareness and willingness to use PrEP than heterosexual and PWID. Policy makers need to consider the differences among key populations in order to scale-up PrEP implementation.

Abstract 47
Factors associated with viral suppression among adolescents living with HIV in Cambodia

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Background: Adolescents living with HIV on antiretroviral therapy (ART) have poorer rates of treatment adherence and viral suppression as well as higher mortality rates compared to their adult counterparts. This study investigated factors associated with viral suppression among adolescents living with HIV in Cambodia.

Methods: A cross-sectional study was conducted in August 2016, among adolescents living with HIV aged 15-17 years randomly selected from 11 ART clinics in the capital city and 10 provinces, utilizing a structured questionnaire. The most recent viral load test result was retrieved from medical records obtained from the ART clinics. Adolescents were categorized as having viral suppression if the viral load count was <1,000 copies/ml. Multivariate logistic regression analysis was performed.

Results: This study included 328 adolescents with a mean age of 15.9 years (SD= 0.8); of whom, 48.5% were female. Mean duration on ART was 97 months (SD= 40.2). Proportion of adolescents with viral load suppression was 76.8%. In bivariate analyses, viral suppression was significantly associated with older age, duration on ART, higher CD4 count, better family socio-economic status, living with parents, parental education, having parents as main caregivers, no experience of negative attitude from healthcare providers, being aware that they were receiving ART, knowing that HIV is transmitted through unprotected sex with people living with HIV, understanding that there is no cure for AIDS, receiving treatment from a pediatric clinic and type of ART (first or second line). After adjustment, viral suppression remained significantly associated with longer duration on ART, higher CD4 count, receiving treatment from a pediatric clinic, being aware that they were receiving ART and better HIV-related knowledge including knowing that HIV is transmitted through unprotected sex with people living with HIV and understanding that there is no cure for AIDS.

Conclusions: Viral load suppression rates among adolescents living with HIV in this study were considerably high, but fall short of the global target of 90% viral suppression among people living with HIV on ART. Our findings indicate the need to strengthen treatment literacy and understanding of HIV among adolescents as they prepare for transition from pediatric to adult HIV care.
Abstract 48

Predictors of short undiagnosed intervals after HIV infection in a cohort of newly diagnosed HIV patients

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Background: Treatment as prevention is a potentially effective strategy for reducing onward HIV transmission, the achievement of which however depends on the timely diagnosis of infections so that treatment can be initiated promptly. A long undiagnosed interval could increase HIV transmission risks in the society. This study aimed to measure the intervals from HIV infection to diagnosis and linkage to care, and explore predictors for short intervals.

Material & Methods: Newly diagnosed patients were recruited at their first visit in all HIV specialist services in Hong Kong over a 6-month period. They were asked to complete a self-administered questionnaire covering demographics, diagnosis, speculated infection time, self-claimed route of infection, risk behaviours and networking pattern. Discrete and continuous variables were analysed by chi-squared and Mann-Whitney U test, respectively. Stepwise binary logistic regression was conducted to identify predictors for undiagnosed and linkage-to-care periods no longer than 12 months.

Results: A total of 107 patients were recruited between August 2016 and January 2017, accounting for approximately one-third of the newly diagnosed HIV population in Hong Kong. Most (94%) were male and the median age at first visit was 32 years. Almost all (98%) were infected through sexual transmission, among which 87% were men who have sex with men (MSM). More than a half (65%) claimed to have contracted HIV in Hong Kong where a majority (87%) made their first diagnosis. Some 78% were diagnosed within a year since speculated time of infection (n=94). Almost all (92%) became linked to care within 3 months after diagnosis, with a median interval of 5 and 6 months between infection and diagnosis and then in-care, respectively. Logistic regression showed that regular testing habit, younger age, group sex, and engaging in full-time employment or study, were predictive of shorter undiagnosed and linkage-to-care intervals. The testing rate of MSM was higher and their infection-diagnosis and infection-in-care intervals were significantly shorter compared to heterosexuals and bisexuals.

Conclusions: Epidemiologically, there’s active transmission of HIV within Hong Kong, with MSM accounting for a majority of newly diagnosed HIV infection. Adoption of an HIV testing habit could close the time gap between infection and diagnosis. Leading an unstable life, e.g. unemployment, could be one of the factors behind a long undiagnosed interval. Strategies targeting older MSM especially those with female partners and heterosexual male with risky behaviours would be crucial to reduce virus transmission in the community.

Abstract 49

Association between pre-treatment status and post-treatment immune recovery among Chinese HIV patients

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Background: Although “Treat All” is being implemented in many places including Hong Kong, diagnosed HIV cases might have very poor pre-treatment condition if they were in late diagnosis, thereby jeopardizing the clinical outcome. We aimed to examine the association...
of immune recovery after HAART initiation with pre-treatment condition.

**Material & Methods:** We collected longitudinal clinical data (by 2014) of HIV patients aged ≥18 from Integrated Treatment Centre in Hong Kong. Very poor pre-treatment condition is defined as CD4 ≤100cells/μL or AIDS diagnosis before HAART initiation. Generalized estimating equation (GEE) was used to examine the association of patients’ pre-treatment condition and age with longitudinal recovery of CD4 and CD4/CD8 ratio (outcome measures).

**Results:** Data of 913 patients who were Chinese, were treatment naïve, had at least 4 years’ treatment experience and viral load suppression (≤500copies/mL) were included in the analysis. Among them, 81% were aged 18-49, and the median treatment length was 102 months (IQR=74-139 months). Almost half (49%) of them had very poor pre-treatment condition, of which 78% were aged 18-49, 17% were aged 50-64 and 5% were aged >64. In GEE model, the monthly rate of CD4 recovery was 4.96 cells/μL while CD4/CD8 ratio recovery was 0.01, without adjustment of other variables. In multivariable GEE model, patients with very poor pre-treatment condition had much lower CD4 intercept (B=-151 cells /μL, p<0.001) and CD4/CD8 ratio intercept (B=-0.2, p<0.01) but just slightly faster recovery rate (CD4 rate= 0.77 cells /μL per month faster, CD4/CD8 ratio=0.001 per month faster) than their counterparts, adjusted by age group. It took around 194 months and 200 months for patients with poor pre-treatment condition to catch up the CD4 level and CD4/CD8 ratio levels of patients with better pre-treatment condition respectively.

**Conclusions:** Patients with poor pre-treatment condition had less favourable immune recovery following more than 10 years’ treatment, compared to their counterparts. Promotion of HIV testing in potential late presenters (e.g. older aged) would be important. Otherwise, the benefit of Treat All programme cannot be maximized.

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**Real-world Persistence and Outcomes for HIV-1 Treatment: Comparison of U. S. Department of Health and Human Services (DHHS) Recommended Regimens**

**Background:** Advances in antiretroviral therapy (ART) for HIV treatment have reduced patient morbidity and mortality. Once-daily single-tablet regimens (STRs) may improve adherence and persistence by reducing pill burden compared to multi-tablet regimens (MTRs). Persistence and adherence have been correlated with improved patient outcomes. This retrospective study using the Truven MarketScan® database evaluated real-world persistence among HIV-1 infected patients comparing DHHS-recommended regimens.

**Materials & Methods:** Adults (≥18 years), diagnosed with HIV-1, with ≥1 prescription for ART during the index period (January 1, 2011 through April 30, 2016) were identified. Patients were required to have continuous enrolment for 6-month baseline and follow-up periods until the end of enrolment or end of the study period, whichever came first. Persistence was defined as time from start date to end of first 90-day gap between fills for any ART in the index regimen, or the start date of an ART not in index regimen. Kaplan-Meier and Cox proportional hazard models evaluated persistence and risk of discontinuation or switch across treatments controlling for age, gender, health-plan type, US region, Charlson comorbidity index (CCI), and baseline comorbidities. Comparison were made of STRs versus MTRs, among STRs, backbones and third agents.

**Results:** STRs were the index regimen for two thirds of patients. 3,946 patients were included, predominantly male (84%), average age 40.7 years. Patients prescribed MTRs were older (mean age: 42.5 vs. 39.8 years, p<0.0001). Controlling for baseline differences, multivariate
Abstract showed that patients with MTRs had higher rates of treatment discontinuation or switch compared to STRs. Hazard ratio (HR) for discontinuation/switch for MTRs was 1.87 compared to STRs (p<0.0001), and median time to discontinuation/switch was 33.4 months (STRs), compared to 20.9 months (MTRs) (p<0.0001). Among STRs, ABC/3TC/DTG had a higher propensity for discontinuation/switch compared to EVG/COBI/FTC/TDF (HR=1.27; p=0.06). FTC/TDF + DTG had an increased risk compared to EVG/C/FTC/TDF (HR 1.44; p=0.005), a comparable risk compared to ABC/3TC/DHG (HR 1.11; p=0.57) despite being an MTR, and a decreased risk for discontinuation/switch compared to FTC/TDF + DRV/r (HR 0.71; p=0.008).

Conclusions: Among DHHS recommended regimens, STRs had greater persistence compared to MTRs. However, ABC/3TC was comparable to the FTC/TDF + DTG MTR. Regimens containing FTC/TDF had greater persistence compared to regimens with ABC/3TC across third agents, STRs, and MTRs. As a third agent, DTG yielded greater persistence compared to DRV/r, but poorer persistence compared to EVG as part of the EVG/COBI/FTC/TDF STR. Persistence is likely to result in improved patient outcomes due to benefits associated with improved persistence.

Abstract 51

Efficacy of Dolutegravir/Abacavir/Lamivudine (DTG/ABC/3TC) Fixed Dose Combination (FDC) compared with Ritonavir boosted Atazanavir (ATV/r) plus Tenofovir Disoproxil Fumarate/Emtricitabine (TDF/FTC) in treatment-naïve women with HIV-1 infection (ARIA study): Subgroup analyses

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Background: Built around an unboosted integrase-strand transfer inhibitor (INSTI), the FDC of DTG/ABC/3TC offers a complete regimen for treatment of HIV-1 infection, with good tolerability and a high barrier to resistance. To gain additional data for women on this regimen, we conducted ARIA, an international, randomized, open-label study to evaluate the safety and efficacy of DTG/ABC/3TC versus ATV/r + FTC/TDF (ClinicalTrials.gov: NCT01910402).

Materials and Methods: Treatment-naïve adult women, with HIV-1 RNA ≥500 copies(c)/mL were randomized 1:1 to 48 weeks of treatment with DTG/ABC/3TC or ATV/r + FTC/TDF once daily. The primary endpoint was the proportion of women achieving an HIV-1 RNA <50 c/mL at Week 48 (Snapshot algorithm). Women who became pregnant were withdrawn, and where possible offered entry into a DTG/ABC/3TC pregnancy study. Additional analyses were performed to evaluate efficacy based on geographic region and baseline characteristics.

Results: 495 women were randomized and treated. Subjects were well matched for demographic and baseline characteristics. Median age was 37 years; 45% of subjects were White and 42% African heritage. Overall results showed that DTG/ABC/3TC was superior to ATV/r+FTC/TDF, with 82% and 71%, respectively, achieving HIV-1 RNA <50 c/mL at Week 48 (adjusted difference 10.5%, 95% CI: 3.1% to 17.8%, p=0.005). Differences were driven by lower rates of both discontinuations due to adverse events (AEs) and Snapshot virologic non-response in the DTG/ABC/3TC group. In subgroup analyses conducted based on region and baseline characteristics, including age, CD4+ cell count, baseline viral load and HIV subtype, higher response rates were consistently observed in the DTG/ABC/3TC group compared to ATV/r+TDF/FTC group. There were fewer drug related AEs and fewer withdrawals due to AEs in the DTG/ABC/3TC group. There were no
Abstract 50

**Treatment-emergent primary INSTI or ABC/3TC resistance mutations in the DTG/ABC/3TC group.**

**Conclusions:** DTG/ABC/3TC demonstrated superior efficacy and a favorable safety profile compared to ATV/r+FTC/TDF in treatment-naive women, after 48 weeks of treatment. Subgroup analyses performed based on baseline characteristics and geographic region were consistent with overall results.

Abstract 52

**Evaluation of outcome and status of perinatally HIV-exposed children: A hospital based study at Eastern Nepal**

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**Background:** HIV is a concentrated epidemic in Nepal. Number of HIV positive and HIV exposed children are increasing in Nepal. Prevention of mother to child transmission (PMTCT) is a priority program of the government. It is necessary to evaluate the children perinatally exposed to HIV so that we can assess the efficacy of PMTCT program on prevention of mother to child transmission. This study was carried out to assess the outcome of babies born to HIV positive mothers, to assess their HIV test status and to describe the utilization of PMTCT services by mothers.

**Materials and Methods:** This was a prospective and descriptive study carried out from 1st April 2009 to 31st December 2014. The study was conducted in pediatric immunology clinic at B.P. Koirala Institute of Health Sciences, Dharan, Nepal. Babies delivered by HIV positive mothers and presenting to pediatric immunology clinic for receiving intervention and care related to prevention of mother to child transmission of HIV and unknown HIV status were enrolled in study, managed as per national PMTCT guideline, and followed up. Age appropriate tests were advised. Data were entered and screened for error in MS Excel. The analysis was done using SPSS statistical software version 16.0. Informed written consent was taken from mothers. Confidentiality was strictly maintained. Ethical clearance was obtained from Ethical Review Committee of the institute.

**Results:** There were 44 (24 male and 20 female) babies enrolled in study. Risk behavior was unsafe sex in 91% fathers and 13.4% mothers. Majority of the mothers (86.6%) did not have any risk behaviors and they acquired infection from their spouse. Most of the mothers (66%) were diagnosed during pregnancy or delivery. ART was started before pregnancy in 22.7%, during pregnancy in 27.2% and at delivery in 31.8% mothers. Rest of the mothers did not use ART. Among mothers using ART, 82% used 3 drugs combination and 18% used single dose Nevirapine. Mean birth weight of babies was 2652 (SD ± 412) grams. Inborn, term and small for gestational age babies were 89%, 93% and 20.5% respectively. All inborn babies received ART prophylaxis. Replacement feeding, exclusive breast feeding and mixed feeding was offered to babies by 43%, 39% and 18% mothers for first 6 months. DNA PCR test was performed in 9 cases; 6 were tested negative and 3 were tested positive. In 17 cases rapid test was performed at or beyond 18 months of age. Final status at the end of study were- HIV positive 9.2%, HIV negative 34.1%, lost to follow up 34.1%, transferred out 13.6% and still on follow up 9.1%. Transmission rate was 9.2% in cohort and 20% among babies who were followed up till final status confirmed.

**Conclusion:** Unsafe sexual behavior in males, HIV diagnosis late during pregnancy, underutilization of PMTCT services, and high loss to follow up from PMTCT care are the major prevalent problems in this area. Mother to child transmission has been prevented to some extent but is still occurring with unacceptable rate.
Abstract 53

Patterns of co-infections in HIV positive children: an experience at a tertiary care hospital of eastern Nepal.

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Background: Knowing prevalent patterns of infections among HIV infected children is expected to provide useful information to a pediatrician for the management of these children in a resource limited area. This study was done to explore the patterns of infections among HIV positive children and to investigate the relation of these infections with selected variables like CD4 count and clinical staging.

Material and Methods: Children enrolled in pediatric immunology clinic with diagnosis of HIV were enrolled, investigated, managed following national guideline for management of pediatric HIV and followed up. Ethical clearance was obtained. Detail information regarding infections and other various clinical parameters were recorded at presentation, updated on each follow-up visit, entered into excel datasheet and analyzed using SPSS version 16.0.

Results: Study was conducted from June 2010 to August 2014 (50 months). Among 51 HIV positive children, 35 were males and 16 were females, and they were followed up for a median duration of 28 (IQR 5, 43) months. Antiretroviral therapy (ART) was started in 26 children. Median ages at presentation, diagnosis, starting cotrimoxazole prophylaxis and starting ART were 72, 56, 72, 86 months respectively. Median CD4 count at presentation was 561 (IQR 269-857). At presentation, 35 cases had 51 episodes of infections, and at follow up 33 cases had 86 episodes of infections. Total number of infections recorded was 137; bacterial (61), viral (17), fungal (15), mycobacterial (15), parasitic (19), and nonspecific (10) infection episodes. Scabies (17), Pneumonia (16), Chronic otitis media (15), Tuberculosis (14), Candidiasis (8), Acute otitis media (7), Pyoderma (6), Verruca vulgaris (5), and mucocutaneous herpes simplex (5) were the most common infection episodes encountered. Higher amount of CD4 count at presentation had significant negative correlation with number of infections (spearman’s Rho correlation coefficient -0.518, p< 0.000) and earlier WHO clinical stage of disease at presentation were significantly associated with lesser number of infections (p<0.000).

Conclusions: In HIV infected children of eastern Nepal, bacterial infections are most common infections followed by parasitic, viral, fungal and tubercular infections. Scabies, pneumonia, tuberculosis, ear infections, and skin infections are common infections. Number of infections increase with decreasing CD4 cell count and advancing clinical stage of the disease.

Abstract 54

Sofosbuvir/Velpatasvir Fixed Dose Combination for 12 Weeks In Patients Co-Infected With HCV And HIV-1: The Phase 3 ASTRAL-5 Study

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Background: The once-daily fixed-dose combination (FDC) tablet of sofosbuvir / velpatasvir
(SOF/VEL) has demonstrated high efficacy in genotypes 1-6 HCV-infected patients when administered for 12 weeks. We therefore performed a prospective clinical trial to evaluate the safety and efficacy of SOF/VEL in patients coinfected with HCV and HIV-1.

**Methods:** This single arm, open label study enrolled treatment naïve and -experienced HCV/HIV co-infected patients of all HCV genotypes, with or without cirrhosis. Patients who were on stable antiretroviral (ARV) regimens with fully suppressed HIV RNA received SOF/VEL (400 mg/100 mg daily) for 12 weeks. Patients were on a wide range of ARV regimens including emtricitabine/tenofovir disoproxil fumarate or abacavir/lamivudine with a backbone of raltegravir, cobicistat/elvitegravir, rilpivirine, ritonavir boosted atazanavir, darunavir or lopinavir. Safety evaluations included adverse event (AE) and standard laboratory parameter monitoring in addition to frequent renal function monitoring, CD4 count and HIV-1 RNA levels. The primary endpoint was sustained virologic response 12 weeks after treatment (SVR12).

**Results:** A total of 106 patients were enrolled and treated with SOF/VEL for 12 weeks. Overall 86% were male, 45% were black, 77% had IL28B non-CC genotypes, 29% had prior treatment failure (primarily PegIFN/RBV), and 18% had compensated cirrhosis. The genotype distribution was 62% GT1a, 11% GT1b, 10% GT2, 11% GT3 and 5% GT4. The median baseline CD4 count was 598 cells/uL (range: 183-1513 cells/uL) with a median estimated glomerular filtration rate of 97 mL/min (range 57-198 mL/min). Boosted protease inhibitor (PI) regimens were the most commonly used HIV ARV regimen. SVR12 rates by HCV genotype are presented in the table below. The most common AEs were fatigue (25%), headache (13%) and nausea (7%). 2 patients experienced a serious adverse event (toe infection and acute radial nerve palsy) which were considered unrelated to study drugs. No patient experienced confirmed HIV virologic rebound (HIV-1 RNA ≥400 copies/mL). No significant changes in lab abnormalities including renal function were observed. Complete efficacy and safety outcomes including HIV parameters and the impact of HCV resistance variants on outcome will be presented.

**Conclusions:** The IFN-free, RBV-free, single tablet regimen of SOF/VEL administered once daily for 12 weeks is well tolerated and results in high SVR12 rates in HCV/HIV co-infected patients with GT 1-4, regardless of past treatment experience or presence of cirrhosis.

<table>
<thead>
<tr>
<th>HCV genotype</th>
<th>SVR12 %, (n/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>95% (101/106)</td>
</tr>
<tr>
<td>GT-1a</td>
<td>95% (63/66)</td>
</tr>
<tr>
<td>GT-1b</td>
<td>92% (11/12)</td>
</tr>
<tr>
<td>GT-2</td>
<td>100% (11/11)</td>
</tr>
<tr>
<td>GT 3</td>
<td>92% (11/12)</td>
</tr>
<tr>
<td>GT 4</td>
<td>100% (5/5)</td>
</tr>
</tbody>
</table>

**Abstract 55**

**Drug-Drug Interactions Studies between HCV Antivirals Sofosbuvir and Velpatasvir and HIV Antiretrovirals**


**Background:** A once-daily fixed-dose combination tablet composed of sofosbuvir (SOF; nucleotide analog NS5B inhibitor) and velpatasvir (VEL; pangenotypic NS5A inhibitor) is under regulatory review for the treatment of chronic HCV infection. Phase 1 studies were conducted in healthy volunteers to evaluate potential drug-drug interactions (DDIs) between SOF/VEL and HIV antiretroviral (ARV) regimens to support coadministration in HIV/HCV co-infected patients.

**Methods:** These were multiple-dose, randomized, cross-over DDI studies. Subjects received SOF/VEL and ARVs EFV/FTC/TDF, RPV/FTC/TDF, DTG, RAL + FTC/TDF, EVG/COBI/FTC/TDF, DRV/r + FTC/TDF, ATV/r + FTC/TDF, LPV/r + FTC/TDF, or EVG/COBI/FTC/TAF alone and in combination. Steady-state plasma concentrations of SOF, its predominant circulating nucleoside metabolite GS-331007, VEL, and ARVs were analyzed on the last day of dosing for each treatment. PK parameters were calculated and geometric least-squares means ratios and 90% confidence intervals (combination vs. alone) for SOF, GS-331007, VEL, and ARVs were analyzed on the last day of dosing for each treatment. PK parameters were calculated and geometric least-squares means ratios and 90% confidence intervals (combination vs. alone) for SOF, GS-331007, VEL, and ARVs were analyzed on the last day of dosing for each treatment. PK parameters were calculated and geometric least-squares means ratios and 90% confidence intervals (combination vs. alone) for SOF, GS-331007, VEL, and ARVs were analyzed on the last day of dosing for each treatment. PK parameters were calculated and geometric least-squares means ratios and 90% confidence intervals (combination vs. alone) for SOF, GS-331007, VEL, and ARVs were analyzed on the last day of dosing for each treatment. PK parameters were calculated and geometric least-squares means ratios and 90% confidence intervals (combination vs. alone) for SOF, GS-331007, VEL, and ARVs were analyzed on the last day of dosing for each treatment. PK parameters were calculated and geometric least-squares means ratios and 90% confidence intervals (combination vs. alone) for SOF, GS-331007, VEL, and ARVs were analyzed on the last day of dosing for each treatment.
143% for all analytes. Safety assessments were conducted throughout the study.

**Results:** 230 of 237 enrolled subjects completed the studies; 5 subjects withdrew consent, 1 discontinued due to Grade 1 urticaria and 1 discontinued due to pregnancy. The majority of adverse events (AEs) were Grade 1 and there were no serious AEs. Table 1 reports the effect of coadministration on HIV ARVs and SOF/VEL. No clinically significant changes in the PK of HIV ARVs, except TDF, were observed when administered with SOF/VEL. Increased TFV exposure (~40%) was observed with SOF/VEL when administered as TDF.

**Conclusions:** Study treatments were generally well tolerated. Results from these studies demonstrate that SOF/VEL may be administered safely with RPV, RAL, DTG, EVG, COBI, DRV/r, ATV/r, and LPV/r (but not EFV) with a backbone of FTC/TDF or FTC/TAF. The safety and efficacy of SOF/VEL and ARVs are being evaluated in clinical studies of HIV/HCV coinfected subjects.

### Table 1. Effect of Coadministration on HIV ARVs and SOF/VEL

<table>
<thead>
<tr>
<th>ARV with SOF/VEL</th>
<th>Effect on SOF/VEL AUC</th>
<th>Effect on ARV AUC</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFV/FTC/TDF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOF: ↔</td>
<td>EFV: ↔</td>
<td></td>
</tr>
<tr>
<td>GS-331007: ↔</td>
<td>FTC: ↔</td>
<td></td>
</tr>
<tr>
<td>VEL: ↓ 53%</td>
<td>TFV: ↑81%</td>
<td></td>
</tr>
<tr>
<td>FTC/RPV/TDF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOF: ↔</td>
<td>FTC: ↔</td>
<td></td>
</tr>
<tr>
<td>GS-331007: ↔</td>
<td>RPV: ↔</td>
<td></td>
</tr>
<tr>
<td>VEL: ↔</td>
<td>TFV: ↑40%</td>
<td></td>
</tr>
<tr>
<td>DTG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOF: ↔</td>
<td>DTG: ↔</td>
<td></td>
</tr>
<tr>
<td>GS-331007: ↔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VEL: ↔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAL + FTC/TDF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOF: ↔</td>
<td>RAL: ↔</td>
<td></td>
</tr>
<tr>
<td>GS-331007: ↔</td>
<td>FTC: ↔</td>
<td></td>
</tr>
<tr>
<td>VEL: ↔</td>
<td>TFV: ↑40%</td>
<td></td>
</tr>
<tr>
<td>DRV/r + FTC/TDF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOF: ↓ 28%</td>
<td>DRV: ↔</td>
<td></td>
</tr>
<tr>
<td>GS-331007: ↔</td>
<td>RTV: ↔</td>
<td></td>
</tr>
<tr>
<td>VEL: ↔</td>
<td>FTC: ↔</td>
<td></td>
</tr>
<tr>
<td>TFV: ↑40%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATV/r + FTC/TDF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOF: ↔</td>
<td>ATV: ↔</td>
<td></td>
</tr>
<tr>
<td>GS-331007: ↔</td>
<td>RTV: ↔</td>
<td></td>
</tr>
<tr>
<td>VEL: ↑ 142%</td>
<td>FTC: ↔</td>
<td></td>
</tr>
<tr>
<td>TFV: ↔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LPV/r + FTC/TDF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOF: ↓ 29%</td>
<td>LPV: ↔</td>
<td></td>
</tr>
<tr>
<td>GS-331007: ↔</td>
<td>RTV: ↔</td>
<td></td>
</tr>
<tr>
<td>VEL: ↔</td>
<td>FTC: ↔</td>
<td></td>
</tr>
<tr>
<td>TFV: ↔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVG/COBI/FTC/TDF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOF: ↔</td>
<td>EVG: ↔</td>
<td></td>
</tr>
<tr>
<td>GS-331007: ↔</td>
<td>COBI: ↔</td>
<td></td>
</tr>
<tr>
<td>VEL: ↔</td>
<td>FTC: ↔</td>
<td></td>
</tr>
<tr>
<td>TFV: ↔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVG/COBI/FTC/TAF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOF: ↑ 37%</td>
<td>EVG: ↔</td>
<td></td>
</tr>
<tr>
<td>GS-331007: ↑48%</td>
<td>COBI: ↔</td>
<td></td>
</tr>
<tr>
<td>VEL: ↑ 50%</td>
<td>FTC: ↔</td>
<td></td>
</tr>
<tr>
<td>TAF: ↔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TFV: ↔</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* PK/Pharmacodynamic data from Phase 3 trials will guide recommendation for use of SOF/VEL with EFV-containing regimens.
Abstract 56

A Descriptive study on the clinical presentation and outcomes of newly diagnosed adult HIV/AIDS patients in Manila Doctors Hospital (2012-2016), Philippines

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Introduction: In recent years, an increase in the number of newly diagnosed HIV infections and in the number of admissions to healthcare facilities due to opportunistic infections has been seen in the Philippines, in contrast to declining trends in other parts of the world. The objective of this study is to establish the baseline profile, enumerate the most common clinical presentations and determine the outcomes of admission/readmission of newly diagnosed adult HIV/AIDS patients in Manila Doctors Hospital from January 2012 to July 2016.

Methods: A descriptive study was done via chart review of 61 identified newly diagnosed HIV/AIDS patients. However, only 54 patients met the inclusion criteria.

Results: Of the included patients, mean age was 33.57 (± 6.93), 98.15% (n=53) were male and mean baseline CD4+ T cell lymphocyte count was 17.79 cells/µL (± 12.34) for eight patients with available data. Majority of the patients had no co-morbid conditions (n=23, 42.59%). Leading occupations of study subjects were BPO employees (n=8, 14.81%) and educators (n=6, 11.11%). Similar with national data, homosexual practices was most common (n=19, 35.19%). Patients were usually at Clinical Stage 4 on admission, based on the WHO Clinical Staging of HIV/AIDS (n=41, 75.93%). The most common presentations were pulmonary symptoms (difficulty of breathing (n=14, 26%) and cough (n=11, 20%)) and fever (n=11, 20%). Tuberculosis (n=22, 40.7%) and Pneumocystis jirovecii pneumonia (n=19, 35.1%) were the top opportunistic infections identified in this study population. Of the 54 patients, seven patients were readmitted with a leading presentation of fever (n=5, 50%). Most patients were discharged improved (n=43, 79%) and during the study period, only two patients expired.

Conclusion: Data from this study would result in clinicians having a higher level of suspicion for HIV infection especially in young males with no co-morbidities presenting with severe pulmonary symptoms. The dilemma of establishing a definitive diagnosis of opportunistic infections among these patients may at times remain a challenge.

Abstract 57

Uncommon presentation of hepatitis C infection at Sexually Transmitted Infection clinic - a cross-sectional prevalence study

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Background: Hepatitis C virus (HCV) is commonly contracted through parenteral exposures such as needle-sharing in injection drug users (IDU) and transfusion of contaminated blood. In the past decade, sexual transmission of HCV has been reported in men who have sex with men (MSM), especially among those HIV infected. Emergence of HCV as a sexually transmitted infection (STI) is a cause for concern. This study was designed to examine the prevalence of HCV in sexually transmitted infections (STI) patients, the latter considered as a surrogate of sexually active individuals who have engaged in unsafe sex. The results could inform the development of strategy for the screening of HCV in STI clinic setting.

Materials and Methods: A cross-sectional study was conducted at Hong Kong’s Social Hygiene Service, the largest provider of STI diagnosis and treatment in the public sector.
Over a 3-month period, all adult patients attending 2 major clinics were invited to have their sampled blood tested for HCV antibody (anti-HCV), following informed consent. Positive results were investigated afterwards by RNA testing, genotyping and phylogenetic analysis, coupled with their correlation with clinical histories.

Results: Between May 2015 and July 2015, a total of 959 STI clinic attendees were screened, accounting for 37% of all patients attending the service during the study period. The age of the tested patients was 38.9 ± 14.8 years (male: 40.1 ± 15.3; female: 34.5 ± 11.9). Six were anti-HCV positive giving an overall HCV prevalence of 0.6%. All anti-HCV positive cases were male, with a median age of 46 (range from 29 to 78 years). In investigating the most likely route of HCV transmission, heterosexual contact was reported by all 6 patients. Other risk factors were previous history of injection drug use (4) and tattooing (2). Four were ex-IDU with HCV genotype 6a, the same molecular identity of virus in IDU in Hong Kong. One RNA negative patient had probably contracted the virus by tattooing in the distant past. An HIV co-infected patient with secondary syphilis had HCV genotype 3a that clustered with those of HIV infected MSM in Hong Kong. While this patient denied having man-to-man sex, the virus genotype (3a) and the molecular clustering suggested that he could in fact be an MSM, but the social stigma might have discouraged him from disclosing his sexual orientation.

Conclusions: The anti-HCV prevalence (0.6%) of STI patients, though lower than IDUs, was considerably higher than the very low level (<0.1%) in new blood donors in Hong Kong. The risk of HCV transmission through sexual contacts in the community remains low except for its occurrence in MSM and the setting of HIV co-infection. Regular HCV screening at STI clinic could be a strategy that demands further evaluation.

Abstract 58

Hydroxychloroquine use in paradoxical tuberculosis-associated immune reconstitution inflammatory syndrome in HIV patients

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Background: Immune reconstitution inflammatory syndrome (IRIS) is an inflammatory reaction developed in patients with Human Immunodeficiency Virus (HIV) after initiation of antiretroviral therapy (ART) due to restored immunity to specific infectious or non-infectious antigens. The commonest condition where IRIS has been reported is tuberculosis (TB) before initiation of ART, called paradoxical TB-associated IRIS. Various mechanisms have been proposed and studied on immune regulatory activity of hydroxychloroquine (HCQ).

Objective: This study was aimed to identify the efficacy of HCQ as an immunomodulator in patients with paradoxical TB-associated IRIS.

Method: An uncontrolled longitudinal study was conducted between July 2013 and June 2015 at a South Indian HIV care hospital as par with International Network for the Study of HIV associated IRIS (INSHI) Criteria. HIV-infected patients with TB who were initiated with ART and developed paradoxical TB-associated IRIS were included into the study. Study patients were given with HCQ tablet 200 mg/day on consideration to treatment response for a maximum period of 6 months. Categorical variables were described using relative frequencies; where as the standard deviation and mean were used for continuous variables. All analyses were carried out using SPSS software version 21.0.

Results: A total of 40 patients were included into the study, of which 31 (77.5 %) were males. Mean age of the patients was 35.87 (+/-8.54) years. Majority (30, 75%) of the patients were diagnosed with TB lymphadenitis, followed by
pulmonary TB (6, 15%) and abdominal TB (4, 10%). The most commonly used ART regimen was tenofovir + lamivudine + efavirenz (30, 75%). The time duration between ART initiation and IRIS occurrence in majority (22, 55%) of patients was 1-4 weeks. At the time of IRIS occurrence the mean BMI was found to be 19.17 kg/m² and the mean CD4 count was 200 cells. INSHI Criteria of patients shows that patients with one major criteria are 30 (75%), One major & one minor are 06 (15%), one major & two minor are 02 (5%) and two minor are 02 (5%). 33 patients had shown improvement with a rate of 82.5%. The time duration took to get improvement in majority (17, 42.5%) of the patients was also found to be 1-4 weeks.

**Conclusion:** As IRIS presents challenge to the clinician, our observation suggests that recovery from a paradoxical TB-associated IRIS can occur rapidly within few days after initiation of HCQ. Prompt recognition and management in such cases with HCQ may be helpful in patient’s rapid recovery. Further studies with randomized controlled design are needed to be carried in large population to identify the efficacy and safety of HCQ in HIV patients with IRIS.

**Abstract 59**

**Randomized Trial of Bictegravir or Dolutegravir with FTC/TAF for Initial HIV Therapy**

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**Background:** Because of their potency and safety, integrase strand transfer inhibitors (INSTIs) are widely recommended initial HIV-1 treatments in most major treatment guidelines. Bictegravir (BIC, GS-9883) is a novel, unboosted, once-daily INSTI that demonstrated potent activity in a 10-day monotherapy study and has in vitro activity against most INSTI-resistant viruses.

**Methods:** Treatment-naïve, HIV-infected adults were randomized 2:1 to receive blinded treatment once daily with BIC 75 mg or dolutegravir (DTG) 50 mg; both were given with open label emtricitabine 200 mg/tenofovir alafenamide 25 mg (FTC/TAF). Treatments were administered without regard for food for 48 weeks. The primary endpoint was the proportion with HIV RNA <50 copies/mL at Week 24 using snapshot analysis. Noninferiority was assessed through 95% confidence intervals (CI) at Week 24 and Week 48. Safety (adverse events and laboratory results through Week 48) was a secondary endpoint.

**Results:** Of 98 patients enrolled, 65 were randomized to BIC+FTC/TAF and 33 to DTG+FTC/TAF. Most subjects were male, had asymptomatic HIV infection, with median HIV-1 RNA 4.4-4.5 log10; baseline characteristics were balanced between arms. Virologic success (HIV-1 RNA <50 c/mL) at Week 24 was 97% for the BIC arm and 94% for the DTG arm (Difference: 2.9%; 95%CI: 8.5% to 14.2%; p=0.50) and at Week 48 was 97% and 91%, respectively (Difference: 6.4%, 95%CI: -6.0% to 18.8%; p=0.17). One subject in the DTG arm had HIV-1 RNA >50 c/mL at Week 48. No viral resistance was detected in the BIC+FTC/TAF arm. Mean CD4 count increases at Week 48 were 258 cells/µL in the BIC arm and 192 cells/µL in the DTG arm. There were no treatment-related serious adverse events and no deaths. The most commonly reported adverse events were diarrhea (12% in each arm) and nausea (8% BIC, 12% DTG). One subject in the BIC arm discontinued due to an adverse event of urticaria following the Week 24 visit. Median changes in estimated glomerular filtration by Cockcroft-Gault (GFRCG) at Week 48 were -7.0 mL/min for BIC and -11.3 mL/min for DTG, with no discontinuations due to renal adverse events.

**Conclusions:** Bictegravir + FTC/TAF and DTG+FTC/TAF both demonstrated high virologic response rates at Week 24 that were maintained at Week 48. No treatment-emergent resistance was detected in the BIC+FTC/TAF arm through Week 48. Both treatments were well tolerated, and no significant safety signal was detected in either arm. Estimated GFRCG changes were consistent with known inhibition of tubular creatinine transport by BIC and DTG.
Further evaluation of BIC for the treatment of HIV infection is warranted.

Abstract 60

Significant Efficacy and Long Term Safety Difference with TAF-based STR in Naïve Adults

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Background: Two randomized, controlled, double-blinded multinational Phase 3 trials compared tenofovir alafenamide (TAF) vs tenofovir disoproxil fumarate (TDF), each in single-tablet regimens coformulated with elvitegravir/cobicistat/emtricitabine (E/C/F). At Week 48, E/C/F/TAF was statistically noninferior to E/C/F/TDF for the proportion of subjects with HIV-1 RNA <50 copies (c)/mL and had significant improvements in renal and bone safety endpoints. We now describe follow up of blinded data through Week 144, including longer-term safety data and prespecified <20 copies(c)/mL secondary endpoint.

Methods: ARV naïve participants randomized 1:1 to receive E/C/F/TAF (TAF) or E/C/F/TDF (TDF). Week 144 viral suppression (HIV-1 RNA <50 c/mL and <20 c/mL) by FDA snapshot algorithm (HIV-1 RNA ≤50 c/mL: 84% on TAF vs 80% on TDF, p=0.021; and <20 c/mL: 81% vs 76%, p=0.006). Each arm had 2% of virologic failure or lack of efficacy. 11% of subjects on TAF vs 16% on TDF had no virologic data in Week 144 window. Mean [SD] % decrease in bone mineral density was significantly less in the TAF group for both lumbar spine and total hip (lumbar spine: -0.92% [4.12%] on TAF vs -2.95% [4.29%] on TDF; total hip: -0.75% [4.45%] vs -3.36% [4.33%]; both p<0.001). Multiple measures of renal safety were significantly better for participants randomized to TAF (median change [Q1, Q3] from baseline in estimated glomerular filtration rate mL/min [Cockcroft Gault]: -1.6 [-11.4, 9.4] on TAF vs. -7.7 [-18.4, 4.2] on TDF; in urine protein to creatinine ratio: -11% vs 25%; in urine beta-2-microglobulin to creatinine ratio: -26% vs 54%; and in urine retinol binding protein to creatinine ratio: 35% vs 111%; all p<0.001). There were no cases of renal tubulopathy in the TAF arm vs two on TDF. No participants on TAF had renal-related discontinuations vs 12 on TDF (p<0.001). Participants on TAF had greater increases in total cholesterol, low-density lipoprotein, and high-density lipoprotein, with no difference in the rate of initiation of lipid-modifying agents (TAF: 5.5% vs TDF: 5.8%).

Conclusion: Through Week 144, participants on E/C/F/TAF had significantly higher rate of virologic suppression (<50 c/mL) than those on E/C/F/TDF, driven by fewer participants on E/C/F/TAF with no Week 144 data. Participants on E/C/F/TAF also had significantly higher rate of virologic suppression (<20 c/mL), driven by fewer participants on E/C/F/TAF with viral load ≥20 c/mL. E/C/F/TAF continued to have a statistically superior bone and renal safety profile compared to E/C/F/TDF, demonstrating significant safety advantages over E/C/F/TDF through 3 years of treatment. Individuals on TAF had greater plasma lipid changes, but proportions starting lipid-lowering therapy were comparable.
Abstract 61

The prevalence of lifestyle-related diseases in Vietnamese adult HIV-infected patients on antiretroviral therapy

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Background: Lifestyle-related diseases are becoming common in some developing countries with the westernization of food life. However, little is known in Vietnamese HIV-infected patients about the diseases. Thus, we evaluated the prevalence of the diseases and its risk factors in this population.

Methods: A cross-sectional study was done in a cohort of Vietnamese HIV-infected patients on ART at the National Hospital of Tropical Diseases in Hanoi, Vietnam. Lifestyle diseases included hypertension (HT), and hyperglycemia (HG) and dyslipidemia (DL). Blood pressure, fasting blood sugar and lipid profile were evaluated for every patient who visited the hospital on October and November 2015. As for statistical analysis, to determine factors associated with the diseases, logistic regression was used in uni and multivariate analysis.

Results: Of 1371 study patients, females were 40%. Age, body mass index (BMI), CD4+ T cell count and the duration of HIV infection were averagely 38.5 years, 21.2 kg/m2, 456 cells/µl and 6.1 years. 97.4% of the patients achieved viral suppression. As a key drug, 89.5% of the patient used non-nucleoside reverse transcriptase inhibitors (nevirapine 23.3% and efavirenz 66.2%) and 9.8% of the patients used the second line, lopinavir boosted with ritonavir (LPVr). As backbone drugs, 77% of the patients used tenofovir. The prevalence of HT, HG and DL were 18.7%, 4.2% and 53.5%, respectively. Age, sex, female sex and BMI were significantly associated with HT in multivariate analysis (OR: 1.085, Cl:1.067-1.103, OR:0.439, Cl:0.313-0.614 and OR:1.161, Cl:1.096-1.231, respectively). Age, sex, BMI and use of LPV were associated with DL (OR: 1.032, Cl:1.017-1.047, OR:0.417, Cl:0.329-0.529, OR:1.212, Cl:1.153-1.275 and OR:5.230, Cl:3.173-8.620, respectively).

Conclusions: The prevalence of dyslipidemia was disproportionally higher compared to the other lifestyle diseases and the use of LPVr was statistically associated with dyslipidemia and could affect incidence of cardiovascular diseases. A further longitudinal study is required to evaluate the link between these findings and cardiovascular diseases.

Abstract 62

Characteristics and treatment outcomes of HIV-infected Asia-Pacific immigrants cared at a Thai tertiary-care hospital

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Background: HIV infection is one of the important public health problems in ASEAN countries. Globalization has led to more immigration across borders, raising concern about transmitting HIV between populations in Thailand and neighboring ASEAN countries. Optimal HIV care and transmission prevention require 100% antiretroviral therapy (ART) coverage for all HIV-infected patients and strategies to halt HIV transmission. However, there are obstacles to provide such interventions to immigrants including illegal immigration, financial problems and lack of medical coverage. To date, data existing on characteristics and treatment outcomes of HIV-infected immigrants comparing to Thai HIV-infected patients are limited in Thailand.

Materials and Methods: An age and sex matched case-control study (ratio 1:4) was conducted among immigrant and Thai HIV-infected patients cared at a tertiary-care center.
in Thailand. This center provided comprehensive HIV services including primary and subspecialty care, inpatient HIV round, pharmacy consultation, social work service and home visit to all patients regardless of nationality and immigration status. Data including demographics, clinical characteristics and treatment outcomes were collected through medical record review. Primary outcome was virologic suppression at one year after ART. Factors associated with no virologic suppression were determined using multivariable logistic regression analysis.

Results: There were 28 immigrant and 112 Thai HIV-infected patients included in the study. Of the 28 immigrants, the median age was 30 years (IQR 24-38 years); 16 (61%) were female; 57% were Myanmese; 18% were Cambodian; 11% were Laotian; 4% were Vietnamese; 4% Filipinos and 7% were unidentified. Most of the immigrants were company employees (57%) and self-paid for medical care (86%). Comparing to the Thai patients, the immigrant patients had less monthly income and were more-likely to be married. There were no significant differences between the two groups regarding initial and subsequent ART regimens and experienced adverse reactions. After one year of ART, the median CD4 changes (IQR) were not significantly different between immigrant and Thai patients [+178 (IQR +62 to +262) vs. +112 (IQR +53 to +214); p = 0.12] as were rates of virologic suppression (77% vs. 79%; p = 0.89). The ART compliance was measured by the 3-item score as previously published, ranging from 0 to 16 (higher score means higher compliance). The rates of having the score of at least 13 were 89% and 92% in immigrant and Thai patients, respectively (p = 0.47). The rates of follow-up every visit during the first year of ART were not different between the immigrant and Thai patients (100% vs. 97%, respectively; p = 0.85). By multivariable logistic regression analysis, follow-up less than every visit was the only factor associated with no virologic suppression at one year after ART (adjusted odds ratio 3.96; p =0.02).

Conclusion: HIV treatment outcomes at one year after ART were comparable between immigrant and Thai patients in our setting, where comprehensive HIV care was provided to all. Patients who did not follow-up regularly should be closely monitored for the unfavorable outcome.

Abstract 63
Predictors of Mortality in Hospitalized HIV/AIDS Patients

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Introduction: Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) is a big problem that threatening in Indonesia and many countries in the world. The knowledge on the characteristics and prediction of outcome were important for patients management. There are no studies on the predictors of mortality in Indonesia.

Methods: We performed a retrospective cohort study among hospitalized patients with HIV/AIDS in Cipto Mangunkusumo Hospital between 2011-2013. Data on clinical, laboratory measurement, outcome (mortality) and causes of death during hospitalization were gathered from medical records. Bivariate analysis using Chi-Square test were used to evaluate seven prognostic factors (male sex, not came from referral hospital, never received/failed to continue antiretroviral therapy (ART), clinical WHO stage IV, hemoglobin level <10 g/dL, eGFR level <60 mL/min/1.73 m2 and CD4+ count <200 cell/µL). Multivariate logistic regression analysis was performed to identify independent predictors of mortality.

Results: Among 606 hospitalized HIV/AIDS patients (median age 32 years; 64.2% males), 122 (20.1%) were newly diagnosed with HIV infection during the hospitalization and 251 (41.5%) had previously received ART. Median length of stay was 11 (range 2 to 75) days. There were 425 (70.1%) patients being hospitalized due to opportunistic infection. In-hospital mortality rate was 23.4% with majority (92.3%) due to AIDS related illnesses. The independent predictors of mortality in multivariate analysis were clinical WHO stage IV (OR=6.440; 95% CI 3.701-11.203), hemoglobin level <10 g/dL (OR=1.542; 95% CI 1.015-2.343) and eGFR level <60 mL/min/1.73 m2 (OR=3.414; 95% CI 1.821-6.402).

Conclusions: In-hospital mortality rate was 23.4%. Clinical WHO stage IV, hemoglobin level <10 g/dL and eGFR level <60 mL/min/1.73
m2 were the independent predictors of in-hospital mortality among hospitalized patients with HIV/AIDS.

Abstract 64

**Health-related quality of life in tuberculosis pre and post medication: a systematic review**

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**Introduction:** Tuberculosis remains the most common opportunistic infection in HIV/AIDS in India. Quality of life(QOL) has emerged as a significant medical outcome measure. Existing data suggest that physical manifestations, antituberculosis therapy, psychological well-being, social support systems, coping strategies, spiritual well-being, and psychiatric comorbidities are important predictors of QOL. The objectives of the study was to assess the HR-QoL among TB patients during and after Directly Observed Treatment Short-course (DOTS) therapy

**Methods:** A systematic literature search from 1981 to 2016 was performed through a number of electronic databases as well as a manual search. Studies which assessed multi-dimensional quality of life were included. Pre-treatment and post treatment QOL assessments were done. Results of the included studies were summarized qualitatively.

**Results:** Fifty three original studies met our criteria for inclusion. Most studies utilized Medical Outcomes Study Short Form-36 (SF-36). A validated tuberculosis-specific quality of life instrument was not located. The findings showed that tuberculosis had a substantial and encompassing impact on patients’ quality of life. Overall, the anti-tuberculosis treatment had a positive effect of improving patients’ quality of life; their physical health tended to recover more quickly than the mental well-being. Hospital Anxiety and Depression Scale (HADS) scales in various studies showed a lower value than controls used.

**Conclusion:** Tuberculosis can substantially affect the quality of life of patients and it persists even after pathological cure and bacterial clearance. The importance of psychological intervention needs to be emphasized and the health workers have to take care of this aspect.

Abstract 65

**Sexually transmitted HCV infection in MSM in Hong Kong**

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**Introduction:** Men who have sex with men (MSM) remain as one of the groups at highest risk for HIV and sexually transmitted infections (STI). There have been recent reports of increased sexually transmitted acute hepatitis C (HCV) in HIV-positive MSM, raising the concern of the potential spread of HCV within the MSM communities given the shared social networks and engaging in high-risk sexual practices. This study aims to examine the prevalence and awareness of HCV among MSM in Hong Kong.

**Material & Methods:** MSM attending the community-based HIV/STI voluntary counselling and testing site were included. Questionnaire was self-administered, covering information on sociodemographics, sexual behavioral characteristics, HIV/STI testing history, knowledge and perceived risk of HCV infection. Dried blood spots were collected for HCV screening.

**Results:** By February 2017, 268 MSM were screened for HCV and none of them reported injection drug use. Most (95.5%) were of local Chinese ethnicity and 68.7% aged ≤30 years. HIV prevalence was 6.0% (15/268); in 11 of these cases HIV infection was screened positive by HIV rapid test and 4 MSM disclosed
being HIV positive. HCV seropositivity was detected in 2 HIV-positive MSM and both were of HCV genotype 3a. Among HIV-negative MSM, the seroprevalence of HCV was 0.4% (1/253) and was negative for HCV RNA. In the preceding 6 months, 140 (52.2%) MSM reported unprotected anal intercourse and 59 (22%) engaged in group sex. Though 158 (59%) MSM reported to be aware of HCV, previous screening for HCV was low (27.6%) and only 3.7% perceived a higher risk for HCV infection. Regarding HCV transmission risk, 64.6% of MSM report that HCV could be transmitted via anal sex, whereas fewer than half (36.2%) knew that concomitant syphilis as risk factor for HCV acquisition.

Conclusions: This study reveals a low prevalence of HCV infection among HIV-negative MSM and there is no evidence of overspill between HIV-positive and HIV-negative MSM. Our findings suggest that sexually transmitted HCV infection is confined to specific HIV transmission networks in MSM in Hong Kong.

Abstract 66

Hepatitis B co-infection in HIV-infected patients starting NNRTI-based HAART in a referral hospital in Phnom Penh, Cambodia.

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Background: Hepatitis B co-infection is a known risk factor for mortality and morbidity among HIV-infected patients. NNRTI is usually used as part of first line HAART regimen in developing countries, and it is known for hepatotoxicity, which can be aggravated by underlying hepatic condition. We assessed the prevalence of this viral hepatitis co-infection, and the incidence of hepatotoxicity (grade 3 or 4) on NNRTI-based HAART, requiring nevirapine or efavirenz discontinuation in the first year after ART initiation, in an HIV cohort in Phnom Penh, Cambodia.

Methods: We retrospectively reviewed the data of the HIV cohort of Sihanouk Hospital Center of HOPE (SHCH), a non-governmental hospital in Phnom Penh, Cambodia. All patients were screened for Hepatitis B surface antigen (HBs Ag) at HAART baseline. Alanine aminotransferase (ALT) was checked at baseline and through regular monitoring at month 1, 2, 3, 6 and 6-monthly thereafter, and on indication if hepatotoxicity was suspected. The data were prospectively and systematically recorded in an HIV database. All naïve patients starting HAART with NNRTI-based regimen with available data on HBs Ag between 2003 and 2015 were included in this study.

Results: Among 4220 patients included, 54.9% were female, medium age=35 years (IQR=30 – 41) and median CD4 cell count at baseline=121 (IQR=32 – 286) cells/mm3. 62.7% and 37.3% of these patients were initiated on a NVP- and EFV-based regimen respectively. The overall prevalence of hepatitis B was 11.1% (n=469), and was significantly higher in male (14.1%) compared to female patients (8.7%) (Risk difference: +5.4% [95% CI: +3.5% to +7.3%], p < 0.001). Of them, 0.47% also had positive Hepatitis C antibodies. The mean ALT at baseline was 37.7 IU/L (SD= 25.6) and was slightly higher in patients with positive HBs Ag than in those with negative HBs Ag [mean = 42.7 (SD=25.4) vs 38.2 (SD=25.5) IU/L, p=0.0002]. Overall hepatotoxicity (grade 3-4 ALT elevation) requiring NNRTI discontinuation occurred in 5.2% of the patients; 3.4% in patients receiving an EFV-based regimen and 6.3% in patients on a NVP-based regimen (p < 0.001). There was no significant difference between male and female patients. We observed a significantly increased risk of hepatotoxicity requiring NNRTI interruption in patients with hepatitis B co-infection (10.7%) compared to patients without co-infection (4.5%), (Risk difference: +6.2% [95% CI: 3.1% to 8.8%; p< 0.001]). Separated by type of NNRTI, this significant difference was observed in patients starting either an NVP- or EFV-based regimen: 12.3 % and 5.6 % respectively in patients with and without hepatitis B co-infection on NVP-based HAART; and 8.6% and 2.6%, respectively in patients initiated with EFV-based HAART (p < 0.001).

Conclusion: The prevalence of HIV/hepatitis B co-infection in our cohort is similar to what is
described in literature. The majority of co-infected patients tolerate a NNRTI regimen well, although there is a significantly higher risk of grade 3-4 hepatotoxicity requiring treatment interruption, especially in patients on a NVP-based regimen. Careful monitoring is needed in these co-infected patients, especially in patients with NVP-based HAART.

Abstract 67

Prevalence and risk factors of human immunodeficiency virus co-infection among patients with chronic hepatitis B and chronic hepatitis C in northern India

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Background: Human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C (HCV) infections have common routes of transmission (i.e. parenteral, vertical, or high-risk sexual behaviors). Therefore, patients with chronic hepatitis C (CHC) and chronic hepatitis B (CHB) are at a high risk of having HIV infection too. However, there is insufficient data on the prevalence of these co-infections and their risk factors in northern India. In the present study, we assessed the prevalence and risk factors of human immunodeficiency virus co-infection among patients with chronic hepatitis B and chronic hepatitis C in northern India.

Materials and Methods: This study included 454 consecutive patients of chronic hepatitis who were receiving care at a tertiary care center. CHC was diagnosed on the basis of anti-HCV antibodies and HCV RNA, and CHB was diagnosed with HBV surface antigen and HBV DNA. HIV infection was diagnosed by performing anti-HIV antibodies by enzyme-linked immunosorbent assay method. Detailed history was taken for potential risk factors for transmission of these infections. Prevalence data of our study were compared with that of our local population (HCV, 3.29%; HBV, 1.3%; HIV, 0.18%).

Results: Total 474 patients were studied (median age 42 years, 75.3% males). Out of these, 386 (81.4%) were diagnosed to have CHC while 88 patients (18.6%) had CHB. Among the 386 patients with CHC, 0.77% (3/386) had HIV co-infection, while among CHB patients 1.1% (1/88) had HIV co-infection. Two patients had co-infection with HCV and HBV. None of the patients had triple infection with all the 3 viruses. Diabetes mellitus was present in 21.3% (101), and history of alcoholism was present in 32.9% (156) patients. Identifiable potential risk factors for transmission were present in 328 (69.2%) patients. More than one risk factor was identified in 30.5% patients. The most common risk factors were exposure to reusable needles/syringes while getting intramuscular injections in 35.6% (169), unsafe dental procedures/surgery in 18.8% (89), intravenous drug use in 15.6% (74), blood transfusion in 13.7% (69), tattooing in 9.2% (44) and hemodialysis in 3.2% (15). Other less common risk factors present in <3% patients were sexual contact, perinatal transmission and acupuncture.

Conclusions: Chronic hepatitis C is the major cause of chronic hepatitis in northern India. The prevalence of HCV-HIV co-infection (0.77%) and HBV-HIV co-infection (1.1%) is low, which compares to the low prevalence of HIV in our region. The most common risk factors for transmission were exposure to reusable needles/syringes, unsafe dental procedures/surgery and intravenous drug use.

Abstract 68

The relationship dynamics cluster of differentiation (CD4) count with tumor necrosis factor alpha (TNF-α) levels on the extent of lung lesions in pulmonary tuberculosis HIV/AIDS patients coinfection

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Abstract

Background: The Infection of HIV will be increase reactivation of latent Mycobacterium Tuberculosis (M.tb). TNF-α also contributes to increase the susceptibility of T cells performing apoptosis either spontaneously or by stimulation of M.tb in vitro. The TNF-α levels are directly related to HIV-1 RNA levels and inversely with CD4 count, although this is still controversial. Clinical manifestation and the extent of lung lesions in HIV-TB patients are varies, depending on the degree of immunosuppression. Some studies suggest that CD4 counts < 200 cell/mm3 showed atypical manifestations, in which it was found a significant difference between CD4 count and the extent of lung lesions.

Objective: To determine the relationship dynamic CD4 count and TNF-α levels with the extent of lung lesions in pulmonary tuberculosis HIV/AIDS patients coinfection.

Methods: It is a cross-sectional study in HIV/AIDS with Pulmonary Tuberculosis subjects, aged between 15 to 55 years old who were treated in Wahidin Sudirohusodo hospital, Makassar during the period November 2016 to January 2017. In all subject, we examined CD4 counts. TNF-α level, and chest x-ray to assess lung lesion area. Minimal lesions are lesions limited to two front upper ribs, there are no cavities. Moderately advanced lesions are lesions were found in one lung or both lungs, must not exceed one lobe of the lung, there can be cavity diameter of no more than 4 cm. Far advanced lesions are larger lesions than moderate lesions. when there are more than 4 cm cavity. Analysis of relationship CD4 count with TNF-α levels in far advanced lesions showed a tendency to negative correlation between CD4 count with TNF alpha levels whereas the minimal and moderate lesion there is a tendency of positive correlation between CD4 count with TNF alpha levels although not statistically significant (p>0,05).

Results: From total 32 subject of the study we found 22 males (68,8%) and 10 females (31,3%), with the mean age was 31,8±7,1 years old, mean CD4 count was 42,1±67,3 cell/mm3 and mean TNF-α levels was 18,6±9,0.

Conclusion: There is no significant relationship dynamic CD4 count with TNF-α levels on the extent of lung lesions in pulmonary tuberculosis HIV/AIDS patients coinfection.

Abstract 69

Efficacy and Safety of Switching from Tenofovir Disoproxil Fumarate (TDF)-Based Regimen to Elvitegravir, Cobicistat, Emtricitabine, and Tenofovir Alafenamide (E/C/F/TAF) in HIV-Suppressed Asian Adults

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Background: In virologically-suppressed adults, the switch to E/C/F/TAF resulted in improved renal and bone safety and was statistically superior compared to TDF-based regimen. We describe the efficacy and safety of switch to E/C/F/TAF in virologically-suppressed Asian adults.

Methods: In Study 109, HIV-1 infected, virologically-suppressed adults were
Abstract

Longer-Term Efficacy and Safety of Tenofovir Alafenamide (TAF) Versus Tenofovir Disoproxil Fumarate (TDF) in Treatment-Naïve Asian Adults

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Background: TAF is non-inferior in efficacy to TDF and has an improved renal and bone safety profile. In this sub-analysis, we describe the efficacy and safety of TAF compared to TDF in treatment-naïve Asian adults.

Methods: This analysis consisted of pooled data from two Phase 3, randomized, double-blind studies (Study104 and 111) of HIV-infected, treatment-naïve adults who initiated elvitegravir, cobicistat, emtricitabine with TAF (E/C/F/TAF) or E/C/F/TDF. This sub-analysis examines the efficacy and safety of two regimens through Week 96 in Asian and non-Asian adults.

Results: Of 1,733 adults, 10% were Asian (91 TAF vs 89 TDF). Baseline characteristics were balanced between groups (15% and 17% with CD4 count <200 cells/µL, and eGFR 109 and 105 mL/min). At Week 96, 97% of Asians on TAF vs 93% on TDF achieved virologic suppression. Increases in CD4 cell count were 287 cells/µL on TAF and 250 cells/µL on TDF. Both were well-tolerated with 1% discontinuation of TAF due to adverse events (AEs) vs 2% of TDF. No participants discontinued due to renal AEs and there were no cases of proximal renal tubulopathy or Fanconi’s syndrome. Median changes in eGFR at Week 96 were -7 mL/min for TAF and -9 mL/min for TDF, consistent with cobicistat’s reversible inhibition of creatinine secretion. Median change from baseline in proteinuria for TAF and TDF (urine protein to creatinine ratio: 0% vs 34%; urine albumin to creatinine ratio: <1% vs 18%; urine retinol binding protein to creatinine ratio: 12% vs 72%; urine beta-2-microglobulin to creatinine ratio: -38% vs 22%) demonstrated that TAF had less impact on renal tubular function. There were significantly less spine and hip bone mineral density loss for TAF compared to TDF.

Conclusions: Through two years, Asian adults who switched from a TDF-based regimen to E/C/F/TAF maintained high rates of HIV suppression with improvements in renal biomarkers and recovery of bone mineral density. This data demonstrated the clinical efficacy and safety benefits of switching to E/C/F/TAF in Asian adults.
compared to TDF (mean change at spine: -0.3% vs -3.2%; and at hip: -1.5% vs -4.6%). There is no difference between TAF and TDF arm on total cholesterol to HDL ratio (median) at Week 96 (3.5 vs 3.5).

Conclusions: E/C/F/TAF and E/C/F/TDF have high and durable efficacy in treatment-naïve Asian adults, with changes in markers of renal and bone safety that consistently favored TAF over TDF.

Abstract 71
Safety and Effectiveness of Ziagen (abacavir sulfate) in HIV infected Korean patients

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Background: Abacavir is a widely used nucleoside reverse transcriptase inhibitors for the treatment of human immunodeficiency virus. A mandatory post marketing surveillance was conducted in Korea to monitor safety and evaluate effectiveness of Ziagen (abacavir sulfate).

Methods: An open label, multi-center, non-interventional post-marketing surveillance was conducted to monitor safety and effectiveness of Ziagen from June 2010 to June 2016 in 12 hospitals in Korea. Subjects over 18 years old taking Ziagen according to prescribing information were enrolled. At the final investigational visit, the effectiveness of Ziagen was additionally evaluated as “improved”, “no change”, “worsened” or “not assessed”. The overall effectiveness was assessed by the investigator’s medical judgment. HIV RNA titer and CD4+T cell counts evaluated within the study period were also collected.

Results: A total of 669 patients were enrolled in this study. Total observation period was 1047.8 person-years. Of them, 90.7% were male with a mean age of 45.8±11.9 years. One-hundred-ninety-six (29.3%) patients reported 315 adverse events and four patients reported seven serious adverse events without any fatal events. There was one potential case of abacavir hypersensitivity reaction. The most frequent adverse drug reactions included diarrhea (12 events, 1.8%), dyspepsia (10 events, 1.5%) and rash (9 events, 1.4%). No ischemic heart disease was observed. In the effectiveness analysis, 369 out of 404 subjects (91.3%) were assessed as ‘improved’ at their final investigational visit.

Conclusions: Our data showed safety and effectiveness of Ziagen in a real world setting. During the study periods, Ziagen was well tolerated with one incidence of suspected abacavir related hypersensitivity reaction. The post marketing surveillance of Ziagen may be helpful to understand abacavir and HIV treatment situation in Korea.
Inverse correlation between combination of antiretroviral therapy with the level of serum Ferritin, IL-6 and Hepsidin in HIV patients with anemia of chronic disease

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Background: Anemia is a frequent hematological disorder in HIV patients. Anemia in HIV patients is generally anemia of chronic disease (ACD). Role of IL-6 in the pathogenesis of ACD through translational and transcriptional induction of ferritin and increasing hepsidin by hepatocyte. Combination of antiretroviral therapy (cARV) reported also can correct anemia in HIV patients. The purpose of this study was to determine whether the cARV therapy correlate with the serum level of ferritin, IL-6 and hepcidin in HIV infected patients with ACD.

Method: This cross sectional study conducted in outpatient polyclinics Sanglah Hospital Denpasar Bali from 1 January to 1 September 2016. Sampling method was purposive consecutive in HIV patients with ACD, aged 15-65 years, with exclusion criteria such as chronic renal disease, chronic liver disease, treated for anemia in the last 3 months, taking iron supplements in the last 3 months, history of blood transfusion in the last 1 year, suffering from acute infection, tuberculosis infection, malignancy, hepatitis C virus infection, acute hypersensitivity reaction and pregnancy. This study approved by the ethics committee of Udayana university - Sanglah Hospital with ethical clearance No: 109 / UN.142 / R & D / 2016. Blood specimen examined by high Sensitivity human IL-6 In vitro ELISA, DRG Hepsidin- 25 serum ELISA and serum ferritin by agglutination method and CD4 cell count by flow cytometry.

Result: A total of 86 HIV patients with ACD consist of 42 subjects with experienced cARV and 44 subjects with naive cARV. There are several differences between these groups include: BMI (Kg/m²) (18.82 ± 4.25 Vs 22.78 ± 5.27 p: 0.004), Hb (g/dl) (10.75 ± 1.31 Vs. 11.61 ± 0.85 p: 0.026), serum iron (50.55 ± 25.28 Vs. 76.62 ± 34.72), serum ferritin [630 (194 – 1101) Vs. 195.40 (128.25 – 589.47) p: 0.008 ], IL-6 (7.70 ± 3.97 Vs. 5.99 ± 4.40 p: 0.012), serum hepcidin [47.42 (16.81 – 109.33) Vs. 31.37 (11.15 – 51.32) p: 0.007] , CD4 [39.00 (15 – 84.50) Vs. 296 (138.50 – 458.75) p: < 0.001] There is a significant inverse correlation between the cARV therapy with serum ferritin levels (r: -0.321, p: 0.007), serum IL-6 (r: -0.285, p: 0.008) and serum hepcidin (r: -0.293, p: 0.006).While there is a significant positive correlation between the cARV therapy with BMI (r: 0.294, p: 0.006) and CD4 cell count (r: 0.676, p: < 0.001). There was no correlation between the cARV therapy with serum iron levels (r: 0.176, p: 0.121)

Conclusion: There is an inverse correlation between the cARV therapy with serum level of ferritin, IL-6 and Hepsidin in HIV patients with ACD.
Abstract 73

Voluntary Confidential Counseling and Testing for HIV in Non-governmental Hospital in Cambodia: Ten Years Characteristic and Risk Factors

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Background: HIV voluntary confidential counseling and testing (VCCT) allows individuals to know their HIV status and promote the strategy of prevention, treatment and care. Sihanouk Hospital Center of HOPE (SHCH), a medical center in Phnom Penh provides free of care, HIV/AIDS care and routine HIV counseling and testing to all adult clients attending at the hospital. We assess the ten years characteristic and reason of the HIV positive individual tested in SHCH.

Method: We conducted a retrospective descriptive analysis of HIV-VCCT program data in a non-governmental hospital in Phnom Penh, Cambodia. We included all individuals who enrolled in VCCT program from 2006 to 2016 into the analysis.

Result: From 2006 to 2016, a total of 19,345 individuals were voluntary counseling and testing for HIV. Among those, 56% (10,830/19,345) were female, median age 38 (IQR: 28-50), 12,393 (64%) were come from the province. Marital status: 12,726 (66%) married, 3,530 (18%) single and 3,087 (16%) widow or divorce. Of all, HIV confirmed positive were 2,823 (14.59%). Among those with HIV positive, 1,458 (52%) were female, while 1,842 (65%) were primary or none education, 788 (28%) were secondary school and 187 (7%) were higher education. There were 52.7% (1,488/2,823) were test by self-suspected symptom, 23.4% (661/2,823) being expose to risk of HIV infection, 17.1% (483/2,823) partner had HIV positive, 1.1% (32/2,823) were worry about being infected by HIV, 0.6% (172,823) pregnancy, 0.1% (2/2,823) plan to get married and 4.8% (136/2,823) with other reasons. Risk behavior lead to HIV testing were, 35.4% (998/2,823) had multiple partners, 22.1% (623/2,823) had HIV positive partner, 18.6% (526/2,823) were reported no associated risk, 8.8% (247/2,823) had sex with sex-worker without condom used, 1.8% (50/2,823) had sexual transmitted disease previously, 1.7% (47/2,823) received blood transfusion, 1.1% (32/2,823) man sex with man, 0.5% (14/2,823) intravenous drug user and 10.1% (286/2,823) with others risk behavior. Among the 2,823 HIV positive, there were 942 (33.4%) laborer, 404 (14.3%) housewife, 381 (13.5%) small business, 266 (9.4%) government staff, 246 (8.7%) farmer, 160 (5.7%) taxi or Cyclo/mototaxi driver, 129 (4.6%)109 military/police, (3.9%) jobless, 55 (2%) student and 23 (0.8%) entertainment worker (EW).

Conclusion: In our study, we found that the individual with none or low education, having multiple partner, laborers, housewife and small business are the high risk to have HIV. To halt the HIV transmission, more attention should be made in these groups.

Abstract 74

Causes and outcomes of hospital admission among HIV-infected adult patients in Cambodia, 2011–2016

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Introduction: The scale up of adults' antiretroviral therapy (ART) programs across Cambodia over the last decade has brought increasing numbers of adults into HIV care. This patient population requiring life-long care presents new challenges in the outpatient and inpatient settings. We sought to describe hospitalizations from a large adult HIV treatment cohort to better understand the scope of the situation and identify areas to improve care delivery. Using prospectively collected program data from a large ART program in the Sihanouk Hospital Center of HOPE (SHCH) Cambodia, we report on 5 years of causes and
outcomes of hospitalization among HIV infected patients.

Materials and methods: We conducted a retrospective analysis of all hospitalizations of HIV-infected adult patients (≥18 years old) at SHCH from 2011 to 2016. We used patient data which were routinely collected from our HIV hospitalization service. In this setting, blood cultures were done for all patients suspected sepsis. All HIV patients were screened for TB symptoms and TB diagnosis is based on AFB sputum smear or Gen-Xpert. For all admitted patients, the following parameters were collected: age, gender, CD4 cell count, length of stay, admitted diagnosis and outcome.

Results: During the study period, there were 2871 hospital admissions of 761 patients, of them 378 (50%) were female. The median age was 44 (IQR: 38-52), median length of hospital stay was 7 (IQR: 4-12) days and median CD4 cell count on admission of 58 (IQR: 18-199) cells/µl.

The most frequent causes of hospitalization include: severe bacterial infection (sepsis) 1029 (36%), unstable tuberculosis (TB) 393 (14%), severe diarrhea 195 (7%), side effect of ARV 262 (11%) including: ( hepatototoxicity, anemia, skin rash, renal failure) and 99 (3 %) PCP (Figure 1)

Overall, the mortality rate was12.4% (355/2871) hospitalized episodes deceased the causes of death were sepsis 30%, (n=107), 17% (n=60) had TB, 11% (n=38) had Pneumocystic Jerovecii Pneumonia (PCP), 6% (n=20) had hepatitis (Figure 2).

Conclusions: Sepsis, tuberculosis and PCP, and other opportunistic infections remained the leading causes of hospitalization and mortality among our HIV cohort. Our findings illustrate the persistent need to promote people awareness for early HIV testing and linkage to ART services as well as strengthening adherence counseling during ART.

Peripheral neuropathy and quality of life assessment of HIV patients using sf-36 in Indonesia: a preliminary study

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Background: The declining of case fatality rate of HIV/AIDS in Indonesia, from 13.86% in 2004 to 0.46% in 2014, was considered as one of the successful treatment parameters. However, reducing the mortality rate should be followed by careful consideration regarding patients’ quality of life, which was affected by various factors, including peripheral neuropathy. According to previous study in Rwanda, HIV-neuropathy was reported in 59% patients and had a significant relationship with patients’ quality of life.

Material and Methods: This is a cross sectional, descriptive study which were done to HIV patients in Cipto Mangunkusumo Hospital during November 2016 to February 2017. Inclusion criteria were HIV adult patients with non-stavudine antiretroviral therapy for minimum of 12 months. The assessment of peripheral neuropathy was done by using brief peripheral neuropathy screening tool (BPNST) and evaluation of quality of life was based on 36-item short form survey (SF-36) which both had been validated in Bahasa. Patients were also being assessed with Hamilton depression rating scale (HDRS) for depression. Data was analyzed with comparative analysis of abnormal distribution data using Mann Whitney test.

Results: There were 37 subjects who fulfilled inclusion criteria, with 73% male and mean of age 35.16 years old. The overall median of physical and mental health score were 79.68 (45.94 – 97.50) and 79.58 (2.50 – 96.35). Female patients had 4-5 points lower median score than male. Higher quality of life was found in patients with lower education (less than 12 years), employed, and had HIV onset less than 2 years. Moreover, depression was also significantly affecting quality of life, particularly...
in mental health scores. Regarding neuropathy status, six patients with peripheral neuropathy had median of physical and mental health score 79.37 and 82.34, which was not statistically significant differing from patients with no neuropathy complaint (79.68 and 76.25). However, bodily pain score median of patients with neuropathy was lower than non-neuropathy patients, which were 80 (45-100) and 90 (45-100) respectively.

**Conclusion:** Several factors were contributed in affecting the quality of life of HIV patients. Lower score both in physical and mental health score was experienced by patients who were female and with severe depression. Peripheral neuropathy status was particularly affecting the bodily pain score as part of the physical health score. Those factors should be considerate in order to achieve comprehensive and adequate management of HIV patients.

**Abstract 76**

**Factors Affecting Rapid Decline in Glomerular Filtration Rate Occurrence in HIV/AIDS Patient Treated with Tenofovir**

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**Background:** Tenofovir treatment in HIV/AIDS patient has a possible side effect for kidney, which is rapid decline in glomerular filtration rate (GFR) (> 5 cc/min/1,72 m2) after patient undergo Tenofovir treatment for one year. The incidence rate for rapid decline in GFR and factors affecting it are still contradictive and not assessed completely.

**Aim:** To identify cumulative incidence and factors affecting tenofovir related nephrotoxicity.

**Methods:** A retrospective cohort study was conducted in HIV/AIDS outpatient clinic in Cipto Mangunkusumo Hospital. We include patients who start to take Tenofovir as their medication from January 2010 until January 2015 with consecutive sampling method. Inclusion criterias are minimum one year of Tenofovir treatment and baseline GFR > 60 cc/minute/1,72m2. Exclusion criteria is no data for GFR evaluation after one year. Our study use secondary data, taken from patient’s medical record. Logistic regression test was used for variables that could potentially affect rapid decline in glomerular filtration rate.

**Results:** 164 subjects were included for analysis and we found incidence rate for rapid decline in GFR after one year of Tenofovir medication in 87 subjects (53% CI 95% 45% - 60,4%). Factors those affecting rapid decline in GFR are male gender (OR 4,0 CI 95% 1,1-4,8), CD4 cell count below 100 cell/mm3 (OR 3,7 CI 95% 1,7 – 8,1), weight increase > 20 % (OR 4,0 IK 95% 1,0 – 4,8) , and baseline GFR > 90 cc/min/1,72 m2 (OR 9,8 CI 95% 2,3 – 42,1).

**Conclusion:** The incidence rate for rapid decline in GFR after one year of Tenofovir medication in Cipto Mangunkusumo hospital is 53%. Risk Factors that affecting nephrotoxicity are male gender, CD4 cell count below 100 cell/mm3, weight increase > 20 %, and baseline GFR > 90 cc/min/1,72 m2.

**Abstract 77**

**Cardiovascular Risk Estimation among HIV-Positive Persons on Combination of Active Antiretroviral Therapy**

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**Background:** HIV-positive individuals are at high risk of developing cardiovascular disease (CVD) due to the interaction between traditional risk factors, HIV infection, and the combination of antiretroviral therapy (cART). Early detection and prevention of CVD remain major concern
considering a significant contribution to non-AIDS-related death. Estimation the risk of CVD is essential for primary prevention. The study aim was to estimate the 5-years risk of CVD among HIV-positive persons.

**Material & Methods:** We conducted a cross-sectional study at an AIDS designated hospital in southern Taiwan. We enrolled people diagnosed with HIV, age over 20 years old, on a combination of antiretroviral therapy, and not under CVD medication. We collected anthropometric and clinical measurements, smoking history, and blood for fasting lipid profile. Estimation of 5-years CVD risk was calculated using the Data Collection on Adverse Events of Anti-HIV Drugs (DAD) risk equation.

**Results:** Of 349 participants enrolled, 95.4% were male, mean age was 36.78 (SD=11.76; Range=18-76). About 49.7% of the participants had undetectable of viral load and the mean of current CD4 counts was 507.8 (SD=263.49). The mean years living with HIV was 10.72 (SD=6.59) and duration of receiving cART 7.98 (SD=6.50) in years. The majority of the participant (91.7%) had low of 5-years CVD risk, and 8.3% had moderate risk. About 94.3% had a low risk of 5-years coronary heart disease (CHD), and 5.7% had moderate CHD risk. Almost 99% of participants were at low risk of myocardial infarct (MI). We also found a significant negative association between undetected viral load and higher CD4 counts with low risk of 5-years CVD risk.

**Conclusion:** Our study has shown that HIV positive person at risk of CVD, CHD, and MI. There is an increasing need for educational programs on CVD prevention for the HIV-positive person on cART and to further facilitate the identification of individuals at elevated risk in routine practice.

Keywords: Cardiovascular disease risk, HIV, a combination of antiretroviral therapy.

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**Abstract 78**

**Challenge in Toxoplasma Encephalitis Management**

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**Background:** Neurological complications occur in 39% to 70% of AIDS patients. The most frequent opportunistic infections are Toxoplasma Encephalitis (TE). An accurate diagnosis of TE using additional techniques such as PCR Toxoplasma from cerebrospinal fluid (CSF) and brain imaging is crucial, since prompt effective intervention may eventually lead to longer survival or better quality of living.

**Material and methods:** This is a retrospective cohort research on brain infection patients that admitted in Cipto Mangunkusumo Hospital between Jan 2015 until April 2016. This Publication is part of Jakarta Meningitis Study project. Only patients with TE as final diagnosis are included in this analysis. The patients diagnosed as presumptive TE is brain imaging, clinical sign and symptoms are compatible with TE but the PCR Toxoplasma is negative. Definite TE is diagnosed when the patients have brain imaging, sign and symptoms compatible with TE and supported with positive PCR Toxoplasma CSF result.

**Results:** From 340 patients that were screened as suspected brain infection, HIV test were done in 334 patients (98%), brain imaging in 284 patients (84%), and Lumbar Puncture in 217 patients (64%). After series of panel reviews, 273 were finally diagnosed as brain infection (147 patients HIV positive and 126 patients HIV negative). In HIV positive group, TE (42 subjects; 29%) was the second most common final diagnosis after Tuberculous Meningitis. Toxoplasma PCR were done in 36 patients and the PCR results were positive in 30 patients. Definite TE was diagnosed in 9 patients (29%) was the second most common final diagnosis after Tuberculous Meningitis. Toxoplasma PCR were done in 36 patients and the PCR results were positive in 30 patients. Definite TE was diagnosed in 9 patients (21%), and Presumptive TE diagnosed in 33 patients (79%). All subjects were HIV positive with 28 subjects were newly diagnosed as HIV positive. The subjects CD4 counts’ mean is 38 ± 31 cells/µl. TE prophylaxis was received by 7 (50%) of 14 previously known HIV infected subjects and 5 patients (36%) has
Abstract

History of antiretroviral therapy. All subjects show abnormal on brain CT or MRI with 42 subjects (100%) shows encephalitis/ cerebritis image abnormality and 14 subjects (33%) shows brain herniation. TE treatment consists of pyrimethamine and clindamycin were given to 35 subjects (70%). From 35 subjects that treated with anti-toxoplasma treatment, 28 subjects (67%) shows good response and 14 subjects (33%) shows no response. Fifteen subjects didn’t get TE treatment when admitted because they have other diagnosis than TE. This group diagnosis based on additional test of CSF after discharge. In-hospital mortality rate was 36% and 6 months mortality rate was 70%.

Conclusion: Despite relatively easy presumptive diagnosis and broadly available empiric treatment, high in-hospital mortality and higher 6 months mortality rate is still found in TE patients. Many factors need to explore to find what the causes of this high mortality rate are.

Abstract 79

Lipid Changes in HIV-Infected Patients Using Antiretroviral Drugs in Southern Taiwan

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Objective: Dyslipidemia is a common problem affecting HIV-infected patients receiving Antiretroviral therapy (ART). The aims of this study were to evaluate the prevalence of hyperlipidemia in HIV-infected patients using highly active antiretroviral therapy (HAART) in southern Taiwan where free HAART was available since 1997.

Methods: We conducted a retrospective cohort study for all adult HIV-1 infected patients with hyperlipidemia development after HAART use at Kaohsiung Veterans General Hospital between January, 2011 and July, 2016.

Results: A total of 127 outpatients were enrolled for the study. All (100%) patients were male with the median age 31.45±6.74 (SD) years old. Median (IQR) length of time on ART was 3 (2–4) years. The most common use of HAART was NRTI with NNRTI (70.9%), followed by NRTI with PI (26%) and NRTI with II (3.1%). The median levels of fasting total cholesterol (TC), low-density lipoprotein cholesterol, and triglycerides increased during the 4 years follow-up, but no changes were detected in the TC to HDL-C ratio. TDF- based regimen was associated with lower TC levels than non- TDF- based regimen after 1 and 2 years follow up. (P = 0.028 and P =0.035, respectively).

Conclusions: The study showed that the risk of hyperlipidemia was increased gradually after initiation of HAART in HIV-1 infected patients in southern Taiwan. TDF- based regimen was associated with lower risk of hyperlipidemia. No decline in renal function in those patients starting TDF-based HAART in these 4 years.

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Safety and Effectiveness of Tenofovir/Zidovudine as an NRTI Backbone for Second-line Antiretroviral Therapy

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Background: After scaling up of antiretroviral therapy (ART) in Thailand for over a decade, some patients have developed treatment failure and HIV drug resistance. Thai National Guidelines recommend to use a ritonavir boosted protease inhibitor (PI/r) plus two active nucleoside reverse transcriptase inhibitors (NRTIs) as second-line ART. Since abacavir is not affordable and both stavudine and didanosine are not suggested to use in Thailand, tenofovir plus zidovudine (TDF/AZT) appears to be the only active and available NRTI backbone. However, there is limited information of TDF/AZT as NRTI backbone. This study aimed to evaluate the safety and
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effectiveness of TDF/AZT as an NRTI backbone for second-line ART.

Methods: A cohort study of HIV-infected patients who were initiated PI/r plus TDF/AZT as second-line ART was conducted in Infectious Disease Clinic, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand. Patients were followed up every 3 months for 24 months. HIV RNA, CD4 cell count, haemoglobin, alanine aminotransferase and creatinine were monitored every 6 months.

Results: There were 28 patients, with a mean (SD) age of 41.5 (8.7) years old and 17 (60.7%) were males. Twenty-two (78.6%) had history of opportunistic infections prior to ART initiation. All patients had received NNRTI-base regimen as first-line ART. Median (IQR) duration of first-line ART prior to treatment failure was 7.1 (3.9-7.9) years. At treatment failure, median (IQR) of HIV RNA and CD4 cell count were 8962 (4376-41997) copies/mL and 204 (131-424) cell/mm³, respectively. HIV genotypic resistance test showed that all patients had M184V and NNRTI resistance mutations. For PI/r used in second-line regimen with TDF/AZT, 22 (78.6%) patients received lopinavir/r and the others received atazanavir/r and darunavir/r. At 6, 12, 18 and 24 months after switching to second-line ART, 85.7%, 96.4%, 96.4% and 92.9% of patients achieve undetectable HIV RNA (<50copies/mL), respectively. Median (IQR) CD4 cell count at the corresponding times were 318 (159-366), 399 (247-461) and 393 (264-467) cell/mm³, respectively. Regarding adverse events, 1 patient had developed mild anemia at 6 month and returned to normal at 18 month. Another patient had creatinine rising and TDF was switch to abacavir. No patient had new opportunistic infection.

Conclusion: TDF/AZT as an NRTI backbone used with PI/r for second-line ART is effective and safe. Virologic and immunologic outcomes through two years of second-line ART are good. Further study with larger population is needed to confirm our findings.

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Long-term Virologic and Immunologic Outcomes of Antiretroviral Therapy in Elderly HIV-infected Patients

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Background: Elderly HIV-infected patients have been reported to achieve better virologic control compared to younger patients, possibly due to better medication adherence. However, CD4 cell recovery after initiation of antiretroviral therapy (ART) may be limited in elderly HIV-infected patients, due to age-associated decrease in thymic function. To date, there is limited information on the long-term virologic and immunologic outcomes of ART for elderly HIV-infected patients.

Methods: A cohort of elderly HIV-infected patients, defined as 50 years and older, was conducted in Infectious Disease Clinic, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand between 2010 and 2016. Patients were followed up for 48 months. HIV RNA and CD4 cell counts were monitored every 6 months.

Results: Of 104 patients with a mean (SD) age of 63.1 (9.5) years old, 56 (53.8%) were males. Sixty-one (58.7%) patients had underlying diseases and the most common were diabetes, hypertension, dyslipidemia and chronic kidney disease. Of all, 7.8% and 5.0% of patients had HBV and HCV co-infection, respectively. Thirty-one (29.8%) had opportunistic infections prior to ART initiation. Median (IQR) CD4 cell count was 147 (54-255) cell/mm³. At 6, 12, 18, 24, 30, 36, 42 and 48 months after ART initiation, 91.3%, 94.2%, 93.4%, 92.3%, 90.4%, 88.5%, 88.5% and 87.5% of patients achieve undetectable HIV RNA (<50copies/mL), respectively. Median (IQR) CD4 cell count at the corresponding times were 222 (124-353), 299 (203-419), 428 (236-547), 359 (262-495), 379 (280-498), 437 (331-592), 432 (328-550) and 427 (314-610) cell/mm³, respectively.

Conclusion: Long-term virologic and immunologic outcomes of ART in elderly HIV-
infected patients are good. These treatment outcomes appear to be similar to the outcomes among HIV-infected patients younger than 50 years in the literatures.

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HIV-related stigma in health facility staff in Lao PDR

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Background: Stigma and discrimination (S&D) against people living with HIV (PLHIV) are major obstacles to the HIV response. While S&D towards PLHIV are pervasive in all spheres of life, S&D in health facilities are of particular concern, as health facilities are the entry point into, and influence retention across, the HIV treatment cascade. A necessary first step in responding to S&D in health facilities is understanding the levels of drivers and manifestations of S&D. Therefore, the Centre for HIV/AIDS/STI, Lao PDR with support from USAID and PEPFAR through the Inform Asia program and RIHES, has led a study to measure S&D in health facilities.

Methods: This cross-sectional study was conducted in two central and two provincial government hospitals in Lao PDR during April-May 2016. Eligible respondents were all staff with direct patient contact, therefore excluding back office staff. Random selection from a list of eligible staff was carried out, with a final sample size of 622 respondents. The self-response questionnaire was adapted to the Lao context from a questionnaire previously used in Thailand, which in turn was adapted from a standardized global questionnaire. Questions captured S&D domains covering both actionable drivers and manifestations of stigma. Drivers included: 1) fear of HIV infection (3 items); 2) attitudes towards people living with HIV (4 items), attitudes towards key populations (6 items) and attitudes towards health facility staff living with HIV (1 item); 3) health facility policies (4 items). The manifestations of S&D included: 1) stigmatizing avoidance behaviors (2 items), and; 2) observed discrimination towards patients living with or assumed to be living with HIV (2 items); The results are reported as ‘composite indicators’ which are the percentages of agreement with at least one of the question within a particular domain.

Results: Majority of respondents were female (76.4%). Of all the stigma domains, negative attitudes towards PLHIV (95.2%) was the most frequently reported by health facility staff. Fear of HIV transmission in the workplace was also high (77% expressed at least one fear), as was self-reported use of unnecessary and stigmatizing avoidance behaviors (80%). Less than half of respondents (41%) reported that their facilities had written guidelines to protect patients living with HIV from discrimination. Male staff (44.2%) tended to report witnessing discriminatory practices towards PLHIV in their facilities in the past 12 months more than female staff (34.3%). 40% of all respondents reported observing discrimination towards key populations in their facilities in the past 12 months. Younger staff (30 years or less), reported fear of HIV infection, over protected themselves, and were not comfortable to work with HIV-positive staff more than their older counterparts.

Conclusion: This cross-sectional survey demonstrates that S&D towards PLHIV persist in the government health care facilities of Lao PDR and that the actionable drivers of stigma are also high. The findings from this study can inform the development and roll-out of stigma reduction policies and well as interventions to ensure stigma-free health facility environment in Lao PDR.
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HIV stigma in people living with HIV who receive care from Lao PDR’s government health care facilities

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Background: HIV-related stigma and discrimination (S&D) in health care facilities is a serious problem faced by people living with HIV (PLHIV) worldwide. The Centre for HIV/AIDS/STI of Lao PDR, with support from USAID and PEPFAR through the Inform Asia program and RIHES, conducted a survey among PLHIV receiving care in government health care facilities to establish baseline information on this issue for the nation.

Methods: Data was collected in April-May 2016 in two central and two provincial government hospitals. All patients living with HIV receiving care at the hospitals during the time of study, regardless of ARV treatment, were eligible to take part in the study. Convenience sampling was used to recruit 634 respondents from HIV clinics. Clinicians informed clients about the study and where to go for an interview, if interested in participating. Once informed consent was obtained, face-to-face interviews were administered by trained project staff external to the facility where participants were receiving care. The questionnaire covered the following key stigma domains: experienced discrimination at health facilities (10 items); internalized stigma (2 items); unauthorized disclosure (2 items), and; discrimination specifically related to sexual and reproductive health (4 items). All participants were further asked if they had avoided or delayed accessing HIV-specific services or care for a general health problem for reasons relating to stigma in the past 12 months. Women who reported being pregnant since learning of their HIV diagnosis were similarly asked about ever avoiding or delaying ANC services because of stigma. The results are reported as ‘composite indicators’ which are the percentages of agreement with at least one of the question within a particular domain.

Results: Fifty-two percent of respondents were female. The average age and time of knowing HIV positive status were 37 and 6 years respectively. Eighteen percent of respondents reported experiencing at least one form of discrimination in a health facility in the past 12 months, 5.4% reported having their HIV status disclosed unwillingly by a health provider, and 8.7% reported being discriminated on reproductive health issues. Nine percent reported ever avoiding or delaying utilization of necessary health services near their home during the last 12 months. Of these, 70.2% reported stigma as the primary reason for avoidance or delay. Nearly a third (28.9%) of respondents avoided going to a health facility in the past 12 months due to internalized stigma. Respondents who had more recently learned their status (<2 years) were more likely to report discrimination than those who had known their status longer. There were no significant differences by age or gender.

Conclusion: A significant proportion of PLHIV in Lao PDR report avoiding needed health services due to internalized stigma and almost a fifth report experiencing discriminatory practices while receiving care from government health care facilities in the past 12 months. The results of this study support the need to develop stigma reduction interventions in health care facilities in Lao PDR.
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