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1st Asia Pacific AIDS & Co-infections Conference

Translating Science into Clinical Practice in Asia Pacific

Abstracts
Oral Presentations
Abstract: 1

Epidemiology and surveillance

An overview of drug resistance mutations in HIV-1 pol gene (Hong Kong, 1994 – 2013)

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Background: In Hong Kong, over 7,500 new HIV-1 infections have been recorded since 1984. Prior to reveal the secret of complete cure, antiretroviral (ARV) treatment is the only option to control HIV and allows infected patients to live like normal. Clinicians often rely on the identification of any drug resistance mutations (DRMs) related to the prescribed ARV and ensure the regimen is fully active. Our ARV resistance surveillance program has successfully genotyped over one-third of the patients in Hong Kong. This study gives an overview of DRMs that have been recorded in the last twenty years.

Materials & Methods: All available samples were genotyped by our validated in-house assay to obtain DRMs and subtypes information. Negative results were further confirmed by ViroSeq™ HIV-1 Genotyping System (Celera Diagnostics). The nucleotide sequences were submitted to the Stanford University HIV Drug Resistance Database and REGA HIV-1 & 2 Automated Subtyping Tool for DRMs and subtyping, respectively. Either Fisher’s Exact or Pearson’s Chi-Square tests were used to compare the natural polymorphisms and DRMs among treatment-naïve and treatment-failure patients or in different subtypes.

Results: A total of 2,157 treatment-naïve and 774 treatment-failure samples from 2,475 patients were included in this study. Over 80% of the enrolled patients were male, with an overall median age at 38 (inter-quartile range 30 – 45 years) during their first sample collection. Both subtype B (42.1%) and CRF01_AE (39.7%) were the predominant subtypes. Other subtypes such as subtype A1, C, D, F1, G, CRF02_AG, CRF06_cpx, CRF07_BC, CRF08_BC and CRF12_BF were also identified. Several protease (PR) and reverse transcriptase (RT) mutations were suggested for transmitted HIV-1 drug resistance surveillance. In the PR region, M46I/L mutations were observed in 1.3% of the treatment-naïve patients while in the RT region, M41L and M184I/V mutations were observed most frequently in 0.6% of naïve patients. No obvious trend was observed for transmitted drug resistance.

In comparison, the situation for treatment-failure samples was more complicated. By 2013, over 20% of treatment-failure patients were resistant to at least two ARV classes and up to 5% of patients were even resistant to all PR inhibitors (Pis) and RT inhibitors (RTIs) at different susceptibility level. Within the PR region, L24I, L33F, M46I/L, I47V/A, I54V/T/A/M/L, V82A/T/S/F/L, I84V, N88D/S and L90M were observed in the samples. In particular, M46I/K was identified in over 10% of PIs-experienced samples. For RT region, the most frequently observed discriminatory mutations were M184V/I, accounted for over 30% of treatment failure cases. Other RT thymidine analogue mutations including M41L, D67N, K70R, L210W, T215F/Y and K219Q/E/N/R were also identified frequently in treatment-failure patients.

Conclusions: In comparison, a rising trend of DRMs was observed in the last decade, possibly due to the prolonged usage of ARV and accumulation of DRMs within the circulating virus.

No conflict of interest
Abstract: 2

Drug resistance and pharmacology

Transmitted drug resistance mutations among antiretroviral-naive adult patients in northern Vietnam

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Background: As antiretroviral therapy (ART) coverage in Vietnam continues to increase, monitoring the trend and patterns of transmitted drug resistance mutations is important to guide national strategies.

Methods: We evaluated the prevalence and patterns of transmitted drug resistance mutations in antiretroviral-naive patients consecutively initiating first-line ART in the clinical trial of Virological Monitoring in Vietnam (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 (SDRM) list. Predefined variables including age, gender, CD4+ T cell count, HIV RNA load, and HIV risk factor were included in the logistic regression model to identify risk factors for transmitted drug resistance.

Results: Amongst 392 patients assessed, plasma samples from 388 patients were successfully sequenced in both protease and reverse transcriptase regions. The median CD4 was 98 (IQR: 32-258) cells/mm³. The median HIV RNA was 5.2 (IQR: 4.7-5.6) log₁₀ copies/mL. 69 (17.8%) patients had history of injection drug use. SDRMs were identified in 24 (6.2%) patients. Among them 10 (41.7%) patients carried mutations conferring resistance to nucleoside/tide reverse transcriptase inhibitors (NRTIs) (D67N, K65R, K70E, V75M, T215S, K219N/E, M184V), 6 (25.0%) to protease inhibitors (PIs) (M46L, I54L/T, L90M), and 3 (12.5%) to both NRTIs and NNRTIs (L74I, V106M, M184V, T215F, K101E, K103N, G190A). All 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 intermediate level despite the scale up of ART in Vietnam over the past 10 years. However, the detection of transmitted drug resistance to PIs, the fundamental agent of second-line therapy is a concern and requires further investigation.

No conflict of interest

Abstract: 3

Drug resistance and pharmacology

The impact of NRTI resistance on the public health approach to PI-based second-line therapy in resource limited settings

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Background: The public health approach in resource-limited setting to recycle nucleotide reverse transcriptase inhibitors (NRTIs) in second-line antiretroviral therapy (ART) raises a concern about treatment effectiveness due to preexisting NRTI resistance.

Methods: We evaluated a cohort of patients aged ≥15 years who initiated second-line ART after documented virological failure of first-line
ART and had genotype testing performed before therapy switch at the Hospital for Tropical Diseases in Ho Chi Minh City. The genotypic susceptibility scores (GSS) of NRTI backbone were predicted using the Stanford drug resistance algorithm. The primary outcome was treatment failure defined as time to death, or a new or re-occurrence of a WHO-defined immunological or clinical failure event. The secondary outcome was virological failure, defined as a confirmed HIV RNA measurement >1,000 copies/mL. The impact of GSS on the primary and secondary outcomes was analysed using Cox proportional hazard model and the logistic regression model. GSS was analysed as either categorical or continuous variable.

Results: Amongst 326 patients initiating second-line ART between November 2006 and August 2011, genotype data were available for 246 patients. The median age was 32 years (IQR: 28-36). 201 (81.7%) were men. 97 (41.3%) patients had history of injecting drug use. The median CD4 count and HIV RNA were 41 cells/mm$^3$ (IQR: 14-82) and 5.1 log copies/mL (IQR: 4.6-5.5), respectively. 138 patients (56.1%) received lopinavir-ritonavir (LPVr) in combination with tenofovir (TDF) and lamivudine (3TC). 93 patients (37.8%) received zidovudine (AZT), in addition to LPVr, TDF and 3TC. Half of the patients had no active NRTI in second-line regimen. During the median follow-up of 29 months (IQR: 15-44), 40 patients (16.3%) experienced treatment failure, including 8 immunological failures, 1 WHO stage IV events, and 31 deaths. Amongst 173/246 patients who were alive and had a cross-sectional virological assessment in June 2012, 17 patients (9.8%) had virological failure. After adjusting for confounders, GSS was not predictive of time to death, immunological or clinical failure and was not predictive of virological outcome. However, older age, history of injection drug use, lower CD4 count, high HIV RNA load, sub-optimal adherence, and previous protease inhibitor use independently predicted second-line ART clinical failure.

Conclusions: Our study shows that resistance to NRTI backbone does not affect PI-based second-line ART clinical or virological outcomes and supports the current public health approach in second-line therapy in resource-limited settings.

No conflict of interest

Diagnostic Tools for Immunological and Virological Monitoring

Next Generation Sequencing for Detection of Drug Resistance Mutations in HIV-1

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Introduction: Resistance of Human Immunodeficiency Virus (HIV) to antiretroviral drugs is the most common cause for therapeutic failure in people infected with HIV. We compared two sequencing-based HIV-1 drug resistance monitoring (DRM) systems. Subtypes and resistance-associated mutations were determined using an established CLIP-based system (TruGene HIV-1 Genotyping Kit) and a novel Next Generation Sequencing (NGS)-based test (Sentosa SQ HIV-1 Genotyping Assay).

Materials and Methods: We used an automated NGS-based integrated workflow (Sentosa SQ System), comprised of a robotic liquid handling system, kits for RNA extraction and library preparation, Ion Torrent based deep sequencing system, bioinformatics analysis tools and reporting software. Reporting includes 86 known Nucleoside RT Inhibitor (NRTI), Non-Nucleoside RT Inhibitor (NNRTI), Protease Inhibitor (PI) and Integrase Inhibitor (INI) resistance mutations across the Reverse Transcriptase (RT), Protease (PR) and Integrase genes; sequences obtained can be blasted against those contained in established DRM databases.

Results: This pilot study included 111 HIV-1 samples from 8 consecutive instrument runs. All samples were tested by both methods. The majority of the samples were subtyped as CRF01_AE (n=108). In total, 634 drug resistance mutations were detected (199 mutations in the PR gene and 435 mutations in...
the RT gene). The Sentosa SQ HIV Genotyping Assay detected 100% (199/199) of all mutations in the PR gene and more than 98% mutations (427/435) in the RT gene. In total, 130 mutations were detected by the Sentosa SQ HIV Genotyping Assay, that were not found by TruGene and 8 mutations were missed by the Sentosa HIV Genotyping Assay (but detected by TruGene). Mutation detection rate for the HIV PR gene was 100% (95% CI: 98.11–100%) for the Sentosa SQ HIV Genotyping Assay and 90.45% (95% CI: 85.57–93.80%) for the TruGene HIV-1 system. In the RT gene, 98.16% (95% CI: 96.41–99.07%) of mutants were recorded by the Sentosa SQ HIV Genotyping Assay and 74.48% (95% CI: 70.18–78.35%) by TruGene. Overall mutation detection rates aggregated were 98.74% (95% CI: 97.53–99.36%) for the Sentosa SQ HIV Genotyping Assay and 79.5% (95% CI: 79.02–79.62%) for the TruGene HIV-1 Genotyping Kit.

All HIV strains were carrying 1 or multiple resistance-associated mutations in 61 AA positions of the RT gene and 16 AA positions of the PR gene. The most prevalent mutations in the RT gene were: M184V was present in 48.7% (54/111) of the samples, K103N in 29.7% (33/111), Y181C was found in 27.9% (31/111), G190A and D67N (both 18.9% (21/111)), K20R 21.6% (24/111) and L10I 20.7% (23/111).

Conclusions: Considering the pivotal role of DRM in HIV patients under HAART the newly developed Sentosa SQ HIV Genotyping NGS workflow appears as a promising new tool for detecting clinically relevant HIV variants. Given its high sensitivity (up to 5% mutation frequency) compared to Sanger based systems and the comparatively short turnaround time of 2.5 days the workflow offers relevant improvements in HIV DRM.

No conflict of interest

Abstract: 5

Prevention of Mother-to-Child Transmission

Timely delivery of antiretroviral prophylaxis during pregnancy effectively reduces HIV vertical transmission: a prospective observational study during 2004-2011

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Background: China has drastically scaled up HIV surveillance, care and treatment since 2004. This study investigates the improvement of the prevention of mother-to-child transmission of HIV (PMTCT) over the period of 2004-2011.

Methods: An institution-based prospective study was conducted among HIV-positive pregnant women and their children in eight counties across China. Information of HIV transmission and antiretroviral prophylaxis (ARV) were collected. Associated factors of mother-to-child transmission was analyzed using regression analysis.

Results: A total of 1,387 HIV+ pregnant women and 1,377 HIV-exposed infants were enrolled. The proportion of pregnant women who received HIV testing increased significantly from 45.1% to 98.9% during the study period 2004-2011. Among these women, the proportion that received ARV prophylaxis increased from 61% to 96%, and the corresponding coverage in children increased from 85% to 97% during the same period. Notably, 87.7% of HIV+ pregnant women are receiving multi-ARVs in 2011, significantly improved from 2.8% in 2004. In contrast, the proportion required a made-up ARV regimen during delivery declined substantially from 97.9% to 12.7%. As a result, vertical transmission of HIV in this population significantly declined from 11.1% in 2004 to 1.2% in 2011. Regression analysis indicated that women who had vaginal delivery (in comparison with emergency Caesarian-section (OR=0.46; 0.23-0.96) and mothers on multi-
ARVs (OR= 0.11; 0.04-0.29) were less likely to transmit HIV to their newborns.

**Conclusions:** Increasing HIV screening among pregnant women and exposed children has improved timely HIV care and prophylaxis to reduce vertical transmission of HIV. Early and consistent treatment with multi-ARVs during pregnancy is vital for PMTCT.

No conflict of interest

**Abstract: 6**

**Epidemiology and surveillance**

**Psychosocial Determinants of Anxiety and Depression among Children of HIV-infected Parents: a 3-year Longitudinal Study in Mainland China**

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**Introduction:** HIV/AIDS has profound negative impact on children of HIV-infected parents (CHIP). Globally, 17 million children are orphaned by AIDS. Exposed to a range of parental HIV-related stressors, CHIP are vulnerable to mental illness. However, longitudinal evidence on the role of psychosocial factors was limited. This study aimed to investigate the prediction of anxiety and depression by self-stigma, self-esteem, resilience and social support among CHIP using a three-year longitudinal study.

**Material & Methods:** Setting & Participants: The study was conducted in a rural county of central China, where many people were infected with HIV through unhygienic blood donation. A total of 195 CHIP were recruited at baseline (mean age: 12.59 years old); 161 subjects (82.6%) participated in the 3-year follow-up survey. Data collection: Self-administered questionnaires were given twice at baseline and follow-up. Anxiety was measured by the Screen for Child Anxiety Related Emotional Disorders. Depression was measured by the Children’s Depression Inventory. Dichotomous status was identified with scores above cut-off of 25 for anxiety and 19 for depression. Exposure to psychosocial factors was measured by validated scales and change score was calculated by subtracting baseline score from follow-up one. Statistical analyses: Linear regression analyses were used to examine the associations between baseline or change in each psychosocial factor and mental health outcomes at follow-up. Stepwise regression was then used to select predictive factors with p-value <0.05 for entry and <0.10 for removal of variables at each step.

**Results:** 67 (41.6%) and 39 (24.2%) participants presented anxiety and depression status at follow-up respectively. Incidence over three-year was 20.3% for anxiety status and 32.9% for depression status. Associations between baseline psychosocial factors and either mental health outcome at follow-up were consistently non-significant. Adjusted for significant background variables, increase in score of self-stigma over three years was significantly associated with higher levels of follow-up anxiety and depression. Increase in score of self-esteem, resilience, overall and source-specific social support was significantly associated with lower levels of both mental outcomes. Stepwise regression models identified decrease in social support, increase in self-stigma, baseline anxiety and poor self-report health status as positive predictors of follow-up anxiety (R²=0.221, F=10.879, p=0.000), while decrease in self-esteem, resilience and social support, increase in self-stigma and baseline depression as positive predictors of follow-up depression (R²=0.249, F=10.269, p=0.000).

**Conclusions:** Prevalence and incidence of mental health problems were high among Chinese CHIP. Current study extended prior research with findings that temporal change in psychosocial determinants but not one-time baseline measurement predicted the levels of follow-up anxiety and depression among CHIP. This indicates the importance of long-term monitoring and improving psychosocial well-being in future prevention of mental health problems in CHIP. Only data on occurrence of mental health outcomes were presented at International Behavioral Health Conference on January 17, 2016 in Hong Kong.

No conflict of interest
Abstract: 7

Epidemiology and surveillance of co-infections

Concurrent outbreaks of hepatitis A and shigellosis among HIV-infected MSM in Taiwan, 2015-2016: the emerging threat of enteric coinfections

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Background: Acute hepatitis A virus (HAV) infection and shigellosis, both fecal-orally transmitted infections, are notifiable conditions in Taiwan with routine surveillance through physicians’ mandatory reporting. During March 2015-January 2016 Taiwan Centers for Disease Control (TCDC) received an unprecedented number of reports of 61 acute HAV cases and 48 shigellosis cases among HIV-infected men who have sex with men (MSM). We characterize these two concurrent outbreaks and identify associated factors.

Material and Methods: We conducted a 1:3 matched case-control study. We defined acute HAV cases as positive IgM anti-HAV with symptomatic hepatitis or elevated serum alanine transferase levels and shigellosis cases as gastrointestinal or febrile illness with positive stool culture growth of Shigella species. Each case was matched to three HIV-infected MSM controls reported in TCDC’s Notifiable Disease Surveillance System (NDSS) on age (+/-5 years), HIV diagnosis date (+/-30 days), and county/city of residence at HIV diagnosis. The NDSS databases of HAV, shigellosis, HIV, syphilis, gonorrhea, and Entamoeba histolytica infection were cross-linked to collect demographic and clinical characteristics of cases and controls. Conditional logistic regression analyses were conducted to identify factors associated with HAV and shigellosis among HIV-infected MSM. Genotyping and phylogenetic analysis of the VP1 gene sequence were conducted in HAV-PCR-positive serum and stool samples. Shigella isolates were characterized using antimicrobial susceptibility testing and molecular subtyping including pulse-field gel electrophoresis (PFGE), multiple-locus variable number tandem repeat analysis (MLVA), and single-nucleotide polymorphism (SNP).

Results: Of 109 HIV-infected MSM with acute HAV infection or shigellosis, the median age was 29 years (range: 19-47). Taipei-Taoyuan metropolitan residents accounted for 56 (92%) and 39 (81%) of the HAV and shigellosis cases, respectively. Oral-anal sex before illness onset was reported in 28 (26%) cases. In conditional logistic regression, a syphilis report within 6 months was associated with acute HAV (adjusted odds ratio [aOR]: 23.4; 95% confidence intervals [CI]: 7.1-77.3) and shigellosis (aOR: 13.6; 95% CI: 3.9-47.6). Shigellosis was also associated with an AIDS report within 6 months (aOR: 9.1; 95% CI: 1.7-47.2). All HAV were determined as genotype IA with an identical VP1 gene sequence. Of 36 S. sonnei isolates, 34 (94%) were ciprofloxacin-resistant and 31 (86%) TMP/SMX-resistant whereas three (25%) of the 12 S. flexneri isolates were resistant to ciprofloxacin and TMP/SMX. Molecular subtyping demonstrated a major intercontinentally-transmitted SS18.1 clone of S. sonnei which falls into the globally prevalent phylogenetic sublineage IIIb. Inter-database pattern similarity searching indicated that the two PFGE genotypes had emerged in the United States and Japan.

Conclusions: The concurrent outbreaks among HIV-infected MSM were characterized by younger urban residents in northern Taiwan, association with recent syphilis, and strong phylogenetic clustering, suggesting roles of risky sexual behaviors or networks in disease transmission. Association with recent AIDS indicated immunosuppression might be a risk factor for shigellosis. Spread of HAV and ciprofloxacin-resistant shigellosis among HIV-infected MSM has led to revised recommendations of HAV vaccination for MSM and first-line antibiotics for HIV-associated infectious diarrhea in Taiwan. We urge enhanced surveillance and risk-reduction interventions regionally against interplay of HIV and the emerging enteric coinfections.

No conflict of interest
Abstract: 8

Approaches and Tools for Prevention (PREP, treatment as prevention)

The Patterns of Primary Cotrimoxazole Prophylaxis in Adult HIV Patients in HIV Integrated Clinic Cipto Mangunkusumo Hospital Jakarta in 2004-2013

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Background: Cotrimoxazole was standard of primary prevention against toxoplasmosis infection and Pneumocystis jirovecii pneumonia (PCP) in patients with CD4 less than 200 cell/mm3 and tuberculosis. Some study found that prophylactic use cotrimoxazole in patients with HIV was inappropriate with national guideline. It was necessary to have research in order to know clinician adherence to prescribe primary cotrimoxazole prophylaxis.

Objective: to know initiation, discontinuation, dosage, adverse events, duration and duration percentage of primary cotrimoxazole prophylaxis in adult HIV patients.

Methods: This was cohort retrospective study and was done in HIV Integrated Clinic Cipto Mangunkusumo Hospital and subject of study were all patients more than 18 years old from 2004 to 2013 and had indication of primary cotrimoxazole prophylaxis. Variable in this study were initiation, discontinuation, dosage, duration, duration percentage and adverse events of primary cotrimoxazole prophylaxis.

Result: There were 3818 patients had indication of primary cotrimoxazole prophylaxis with median age of study subjects were 29 years old, 79,1% were male, 58,5% were tuberculosis, WHO clinical stage 3 and 4 were 86%. Median CD4 at beginning was 51 cell/mm3 (IQR 101). Initiation of primary cotrimoxazole prophylaxis was performed in 83% patients who met indication. 99,8% patients used appropriate dose of cotrimoxazole. Frequent adverse events were increasing hepatic transaminase (38,1%), leucopenia (16,9%), anemia (16,5%), nausea (15,4%), vomiting (7,8%), thrombocytopenia (7,4%) and hypersensitivity (5,3%). Adverse event causing discontinuation were hypersensitivity (100%), anemia (2,4%), increasing hepatic transaminase (2,1%), vomiting (0,8%) and leucopenia (0,6%). Inappropriate discontinuation of cotrimoxazole was 61,6% with median duration percentage was 87,5% (IQR 39) and median of duration was 20 month (IQR 20). Duration in patients with CD4≤100 cell/mm3 and >100 cell/mm3 was 21 month (IQR 22) and 12,5 month (IQR 14,75) p=0,000.

Conclusion: although initiation of primary cotrimoxazole prophylaxis was done in 83% adult HIV patients with appropriate dosage, but 61,6% discontinuation was inappropriate with guideline.

No conflict of interest

Abstract: 9

Antiretroviral Therapies in Adults (Clinical Trials and Observational Cohort Studies)

Hyperlipidaemia and its association with CD4 recovery following antiretroviral therapy

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Background: With highly active antiretroviral therapy (HAART), morbidity and mortality of HIV patients have generally fallen. Hyperlipidaemia is however not uncommon in patients on HAART. The potential influences of hyperlipidaemia on immunological recovery, an important outcome of antiretroviral therapy, are, becoming an emerging concern. Studies have suggested the associations between hyperlipidaemia and nadir CD4 cell count, while the effects of apolipoprotein (APO) gene polymorphisms on lipid profile have likewise
been reported. The complex inter-relationship between hyperlipidaemia, APO gene single nucleotide polymorphism (SNP) and CD4 recovery would need to be better characterized, so that optimized HAART regimens could be designed to reduce HIV related morbidity in the future.

**Materials and Methods:** A retrospective observational cohort study was conducted involving treatment-naïve HIV patients with the same ethnicity attending a major HIV specialist clinic in Hong Kong. The maximum CD4 count and its rise 2-3 years after HAART initiation were evaluated, in conjunction with their associations with abnormal total cholesterol (TC), triglyceride (TG) levels and 8 selected APO SNP at multiple time-points. Univariate analysis was conducted to compare between suboptimal and optimal CD4 recovery followed by multivariable analysis. Linear generalized estimating equation (GEE) with unstructured working correlation matrix was applied to examine the variation of APO SNP and hyperlipidaemia with CD4 count, using the latter's values across time as the outcome variable.

**Results:** A total of 197 Chinese treatment-naïve HIV patients under clinical monitoring for ≥2 years following treatment initiation were assessed. At baseline, abnormal levels of TC, TG, HDL-C and LDL-C were detected in 13%, 26%, 59% and 19% of the recruited patients respectively. APOA5 -1131T>C and c.553G>T were significantly associated with high pre-HAART TG while APOE R158C was correlated with high TG at baseline and/or a rise 2-3 years following HAART initiation. Suboptimal CD4 achievement was defined as a highest CD4 count <350/μL in conjunction with a net gain of <100/μL. It was associated with a low pre-HAART CD4 count ≤200/μL and a rise of TC beyond 5.17mmol/L following HAART initiation. In the analyses, the prescription of anti-lipid agents was considered as a surrogate of pre-existing dyslipidaemia. Optimal CD4 achievement was associated with APOC3 3238GG genotype. From the GEE analysis, APOA5 -1131T>C was shown to be a predictor of a weaker temporal trend for CD4 response in the presence of a low baseline CD4 ≤200/μL.

**Conclusions:** Dyslipidaemia appears to play a predictive role in impacting CD4 recovery following HAART, which could be partly explained by APO gene SNP. The association between dyslipidaemia and immune recovery could be explained by the phenomenon of systemic inflammation, a hallmark of chronic HIV infection. By focusing on treatment-naïve patients with the same ethnic background in this study, we managed to minimize the influences of confounders. Generalisability of the results should however be cautioned because of the relatively small number of patients studied and the focus on 8 selected APO SNP.

**No conflict of interest**

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**Abstract: 10**

**Co-Morbidities and Complications (Including those related to ART)**

**HIV Associated Osteoporosis in Singapore: Prevalence and Risk Factors**

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**Background:** Effective antiretroviral therapy has transformed HIV infection into a chronic disease. Clinical emphasis is now on the management of the consequences of life-long HIV treatment and associated toxicities including osteoporosis and fragility fractures. The prevalence of osteoporosis in a HIV-positive cohort is significantly higher than in matched HIV-negative controls with prevalence rates of more than three times higher than HIV-negative controls being reported. HIV-associated osteoporosis is particularly relevant in an aging Asian society such as Singapore, where new HIV diagnosis is often made in an older cohort or in patients with advanced stages of immunodeficiency, in comparison to the west. There is paucity of data on HIV-associated osteoporosis in Singapore.
**Methodology:** We conducted a prospective cross-sectional study of 104 HIV-patients (versus 52 age-matched healthy volunteers) from the National University Hospital (NUH) HIV clinic to examine the prevalence and relevant risk factors for HIV-associated osteoporosis. Patient demographic, lifestyle and HIV specific information were obtained through patient interview and from hospital records. Bone mineral density (BMD) was measured by dual-energy x-ray absorptiometry (DXA) and normalized to a Singapore population reference range. Serum 25-hydroxy vitamin D was measured using an electrochemiluminescence immunoassay. This study was approved by the relevant ethics review board. Statistical methods used for univariate analysis included Student t-test, Wilcoxon Mann–Whitney U-test, chi-squared test or Fisher's Exact Test as appropriate. Multivariate analysis was carried out using multiple logistic regression including those variables significant or close to significance on univariate analysis and any variable considered particularly relevant to the outcome of interest. Statistical significance was considered at P < 0.05.

**Results:** The prevalence of osteopenia/osteoporosis of the hip and/or lumbar spine in the HIV-positive cohort was 51.9% and 11.5% respectively. Low body mass index was the single most important independent predictor of reduced BMD in our study cohort (spine BMI 24.2 ± 4.7 vs 21.8 ± 3.5, p=0.016; hip BMI 24.4 ± 5.09 vs 22.6 ± 3.76, p=0.039). We did not find any association between the traditional risk factor for low BMD and HIV clinical status with osteopenia/osteoporosis. Surprisingly, 54% of the age-matched healthy volunteers had low BMD. A high proportion of subjects in both the HIV-positive and healthy volunteer groups did not have sufficient dietary intake of calcium. 70.2% of the HIV-positive cohort (versus 67.3% in the healthy volunteer group) were 25-hydroxy vitamin D deficient (<30ug/ml).

**Conclusion:** The observed prevalence of low BMD in our Singaporean HIV cohort was similar to those in the US and Europe. Our results suggest that there is a need for continued BMD screening, monitoring and treatment in HIV-positive patients. Surprisingly, we did not observe any difference in prevalence of low BMD between the HIV-positive versus healthy groups. We postulate that the high background prevalence of low BMD and vitamin deficiency in the Singapore population may have attenuated the relative contribution of HIV and its treatment on the pathogenesis of osteoporosis.

**Abstract: 11**

**HIV Clinical Science (ext. abstract submission)**

**Metabolic Syndrome among Malaysian HIV-Infected Patients: Preliminary Results from the HIV & Ageing Cohort**

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**Background:** The continuing success of potent antiretroviral therapy has resulted in a dramatic decrease in AIDS-related morbidity and mortality. However, the decline has been clouded by the emergence of a number of metabolic derangements that resemble metabolic syndrome (MS) in the general population. These derangements are increasingly recognized and significantly associated with the development of metabolic syndrome (MS) in the general population. These derangements are increasingly recognized and significantly associated with the development of cardiovascular disease (CVD) in the ageing HIV population. Given that MS contribute substantially to the incidence of CVD in the older non-HIV population, our aim in this study was to determine the prevalence of MS, calculate the 10-year Framingham Cardiovascular Risk (FCR) score and identify the association between MS with FCR and various biological markers associated with CVD in our cohort of HIV-infected patients.

**Materials & Methods:** A total of 255 HIV-infected patients attending the Infectious
Disease Clinic in University Malaya Medical Centre, Malaysia were evaluated in a cross sectional study as part of the satellite arm of the Malaysian Elders Longitudinal Research (MELoR) group. The patients were ≥25 years, virologically stable with HIV viral load <50 copies/µL and on combination antiretroviral therapy (cART) for ≥1 year. Anthropometric measurements and biochemical screening including high sensitivity C-reactive protein (hsCRP) test were performed in all patients. MS was defined using the revised National Cholesterol Education Programme: Adult Treatment Programme III criteria. The associations of MS with the various variables in our cohort were analysed using multivariate analysis.

Results: Of the 255 HIV-infected patients, majority were male (79.6%), Chinese (72%) with median age (IQR) and CD4 count (IQR) of 43.4 (37.9-50.6) years and 536 (394-735) cells/mm$^3$ respectively. The overall prevalence of MS was 42.4% (38.9% in male, 55.8% in female). The prevalence of the components was as followed: hypertension (61.2%), hypertriglyceridemia (55.7%), low HDL-cholesterol (46.7%), abdominal obesity (33.3%) and hyperglycaemia (31.8%). According to FCS, 54.6% patients with MS had moderate- to-high 10-year FCR score. Age [OR 1.068 (1.036-1.100)] and hsCRP >1 mg/L [OR 4.479 (2.436-8.238)] were found to be significantly associated with higher odds of MS.

Conclusion: There was a high prevalence of MS in our HIV cohort. MS was found to be significantly associated with 10-year FCR, age and hsCRP. The results of our study highlight the high risk of developing CVD in the HIV population and the potential utility of hsCRP as a biological marker of metabolic syndrome. Further investigations will involve comparison with the general population and exploration of the immunological markers.

No conflict of interest

Abstract: 12

HIV Clinical Science (ext. abstract submission)

Aspartate Aminotransferase to Platelet Ratio Index (APRI) is a Simple Test for Diagnosis Liver Cirrhosis in HIV Patients

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Introduction: Liver biopsy, the gold standard for assessment of liver fibrosis, is invasive, expensive and the accuracy is sometimes questionable due to sampling variations, inadequate specimen size, and observer variability. During recent years, the natural history of HIV-related diseases has changed. Cohort studies have shown that the progression of liver fibrosis to cirrhosis is faster in HIV co-infected patients than in HCV-mono-infected patients. It is important to evaluate the liver fibrosis in HIV patient. We need a simple, inexpensive, easy to perform, reproducible and accurate test to evaluate liver fibrosis. This study aim to test the aspartate aminotransferase (AST) to plateletratio index (APRI) as a simple test compares with fibroscan on HIV patients.

Methods: Patients who were HIV positive and who had given their informed consent were included in this cross-sectional study performed at Sanglah General Hospital, Bali Indonesia. Diagnosis of HIV infection was confirmed by western blot. Patients with chronic viral hepatitis B or C were determined by detection of hepatitis B surface antigens and hepatitis C virus antibodies. Liver fibrosis was evaluated with fibroscan as a reference test and APRI. AST and Platelet were collected from the medical record. The APRI was categorized according to cutoffs defined by Wai et al. (<0.5, no significant fibrosis; 0.5–1.5, fibrosis; >1.5, cirrhosis). For fibroscan, A good correlation has been established with Metavir scores as follows: F0–F1, <7.1 kPa; F2–F3, 7.1–12.5 kPa; and F4 >12.5 kPa.
Results: Eighty-seven HIV patients were enrolled in the study (65% male, 35% female). Sixteen (18.4%) cases with hepatitis B co-infection, and 10 (11.5%) cases with hepatitis C co-infection. Base on fibroscan result vs APRI, 67 (77%) vs 63 (72.4%) patients without significant fibrosis, 18 (20.7%) vs 21 (24%) with significant fibrosis, and 2 (2.3%) vs 3 (3.4%) with cirrhosis. APRI score have a good correlation with Fibroscan ($r=0.45$, p<0.001) and have negative correlation with CD4 count ($r=-0.33$, p=0.002). APRI was an accurate index for the diagnosis of cirrhosis, with the area under the receiver operating characteristic curve (AUROC) = 0.98, p=0.019, but not for the diagnosis of significant fibrosis (AUROC = 0.68, p=0.012). The best cutoff value to diagnose cirrhosis and non-cirrhosis was APRI 1.54 (sensitivity 100%, specificity 98.8 %). The best value to diagnose significant fibrosis and non-significant fibrosis was APRI 0.37 (sensitivity 70%, specificity 64%).

Conclusions: APRI is a simple and an accurate test to determine cirrhosis in HIV patients, but not for grading fibrosis.

No conflict of interest

Abstract: 13

Novel HCV therapeutics and treatment approaches

Sofosbuvir and Ribavirin therapy for the Treatment of HIV/HCV co-infected patients with HCV GT1-4 Infection: The PHOTON-1 and -2 Trials


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Introduction: Interferon-free treatments for HCV that can be safely administered with antiretroviral therapy (ART) are needed for HIV/HCV co-infected patients. These two studies evaluated the safety and efficacy of sofosbuvir (SOF), a pan-genotypic HCV NS5B inhibitor, with ribavirin (RBV) in individuals co-infected with HIV and HCV genotype (GT) 1-4.

Materials and Methods: 497 HCV-HIV co-infected patients, were enrolled in the PHOTON-1 or PHOTON-2 Phase 3 studies and received SOF 400 mg QD and RBV 1000-1200 mg/day for 12 or 24 weeks, based on HCV genotype and prior treatment status. Multiple ART regimens were permitted as were patients with compensated cirrhosis. The primary efficacy endpoint in this pooled analysis was sustained virologic response 12 weeks after treatment (SVR12). Safety assessments included adverse events (AE), discontinuations, laboratory abnormalities, HIV RNA and CD4 cell levels.

Results: In Photon-1 and Photon-2 study, 497 patients with GT1 (46%), GT2 (15%), GT3 (33%) and GT4 (6%) were enrolled; 82% were male, 11% were Black, mean baseline HCV RNA was 6.4 log10 IU/mL (range 5.0-7.3), mean baseline CD4 count was 590 cells/µL (range 304 - 960), 15% had cirrhosis, 39% were IL28B CC genotype and 96% were on ART. SVR12 rates were 80-91% with the exception of GT3 HCV patients treated with 12 weeks of SOF+RBV (67%). Among 76 patients with cirrhosis, 59 (77%) achieved SVR12. Multivariate analyses of baseline characteristics associated with SVR, by HCV genotype, showed that significant predictors for SVR12 were non-black race and absence of cirrhosis for GT1 patients, and lower HCV RNA level at baseline and a longer treatment duration for GT3 patients. Among patients suppressed on ART,
1% had HIV virologic breakthrough though none of these subjects required a change in ART.

**Conclusions:** HCV GT 1-4 patients coinfected with HIV achieved high rates of SVR12 with an interferon-free, all-oral regimen of SOF+RBV. This pooled analysis from two Phase 3 studies further demonstrates that SOF+RBV treatment was well-tolerated and safely co-administered with multiple ART regimens, and suggest that concurrent HIV-1 infection does not reduce SVR12 rates with sofosbuvir-based regimens.

**Conflict of interest**

**Abstract: 14**

*Novel HCV therapeutics and treatment approaches*

**Ledipasvir/Sofosbuvir for 12 Weeks in Patients Coinfected With HCV and HIV-1**


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**Introduction:** Historically HIV coinfection was considered a negative predictor of HCV response to treatment with interferon/ribavirin (IFN/RBV). For sofosbuvir-based regimens, HIV/HCV patients have achieved similar sustained virologic response (SVR) rates as HCV monoinfected patients. We evaluated the safety and efficacy of the IFN-free, RBV-free, single tablet regimen of ledipasvir/sofosbuvir (LDV/SOF) in HCV genotype 1 or 4 patients co-infected with HIV-1 in the Phase 3 ION-4 study. Coinfection is no longer considered a special population and HIV/HCV-coinfected persons should be treated the same as persons without HIV infection.

**Materials and Methods:** HCV treatment naïve and experienced HIV co-infected patients on stable, antiretroviral (ARV) regimens were enrolled and received LDV/SOF (90mg/400mg) once daily for 12 weeks. Permitted concomitant ARVs included tenofovir and emtricitabine (TDF+FTC) with raltegravir (RAL), efavirenz (EFV) or rilpivirine (RPV). Safety evaluations included adverse event (AE) and laboratory monitoring including renal parameters, CD4 count and HIV-1 RNA levels. The primary efficacy endpoint was SVR12. The pharmacokinetics (PK) of LDV, SOF, GS-331007 (SOF predominant circulating metabolite) and tenofovir (TFV) were evaluated in all subjects with measurable plasma concentrations using previously established population PK models. A genome-wide association study (GWAS) was conducted to identify common host genetic determinants of HCV relapse after LDV/SOF therapy in HIV/HCV individuals on antiretrovirals (ARVs).

**Results:** In the ION-4 study, 335 patients with GT1a (75%), GT1b (23%) and GT4 (2%) were enrolled; 82% were male, 61% were white, mean age was 52 (range 26-72), mean baseline HCV RNA was 6.7 log_{10} IU/mL (range 4.1-7.8), median baseline CD4 count was 662 cells/µL (Q1, Q3=469, 823), 20% had cirrhosis, 24% were IL28B CC genotype and 55% had not responded to prior HCV treatment. Overall, the SVR12 rate was 96% (322/335); 2 patients had on-treatment virologic failure likely due to non-compliance and 10 had virologic relapse after discontinuing treatment. SVR12 was similar among non-cirrhotic (96%) and cirrhotic (94%) patients and also among treatment naïve (94%) and treatment experienced (97%) patients. SVR12 by ARV regimen was as follows: 94% for EFV+TDF+FTC, 97% for RPV+TDF+FTC, and 97% for RAL+TDF+FTC. AEs occurring in ≥10% of patients were headache (25%), fatigue (21%) and diarrhea (11%). Exposures of LDV, SOF and GS-331007 were comparable across ARV regimens, race and treatment outcome. There were no clinically relevant differences in the PK of LDV/SOF in HIV/HCV co-infected subjects compared to HCV-monoinfected subjects. GWAS did not reveal significant associations with HCV relapse.
Conclusions: The IFN-free, RBV-free, single tablet regimen of LDV/SOF administered once daily for 12 weeks is highly effective and well tolerated in treatment-naïve and experienced, genotype 1 or 4 HCV-infected patients with HIV-1 co-infection, including those with cirrhosis.

Conflict of interest

Abstract: 15

Co-Morbidities and Complications (Including those related to ART)

Liver Fibrosis and Fatty Liver in Asian HIV-monoinfected Patients

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Background: Liver complications have emerged as one of the major causes of non-AIDS related morbidity and mortality. However little is known about the importance of liver fibrosis and fatty liver in HIV-monoinfected individuals without hepatitis virus co-infection, particularly among the Asian population.

Materials and Methods: A cross-sectional, case-control study was conducted. Eighty HIV-monoinfected individuals and 160 matched (for age, gender, and drinking status) HIV-uninfected controls were recruited. Transient elastography was performed to measure liver stiffness. The cut-off values of 7.0 kPa and 10.3 kPa were used to estimate the number of subjects with significant fibrosis and cirrhosis respectively. Proton magnetic resonance spectroscopy (¹H-MRS) was performed to measure hepatic steatosis, with fatty liver defined by intrahepatic triglyceride content ≥5%. Blood samples were analyzed for metabolic profiles and markers of steatohepatitis (e.g. cytokeratin-18).

Results: HIV-infected individuals (93% male, mean±SD age 54±11 years, 94% Chinese, infection duration 8 (IQR 4, 13) years, 100% receiving anti-retroviral therapy; all tested negative for HBV/HCV) more frequently had diabetes, dyslipidemia, and metabolic syndrome compared with controls. Fatty liver disease was common (28.7%). There was significantly higher degree of liver stiffness [4.9 (IQR 4.1,6.2) kPa vs 4.2 (IQR 3.6,5.0) kPa, P<0.001], and a greater proportion developed significant fibrosis (14.3% vs 3.1%, P=0.001) and cirrhosis (5.2% vs 0.6%, P=0.040). HIV infection was an independent risk factor for liver fibrosis [OR 2.16 (95% CI 0.11-2.38), P=0.032]. In a sub-analysis involving subjects with fatty liver, there was excessive liver stiffness among the HIV-infected (significant fibrosis 27.3% vs 4.5%, P=0.014). One case of hepatocellular carcinoma was detected.

Conclusion: HIV-monoinfected patients are at risk for liver fibrosis and cirrhosis. Fatty liver disease and HIV-infection related mechanisms may play important roles. Screening and intervention to prevent severe outcomes are indicated.

No conflict of interest
Abstract: 16

Treatment as prevention for HCV

Modelling treatment scale-up in Australia to achieve global hepatitis C virus incidence and mortality elimination targets

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Introduction: The World Health Organisation (WHO) hepatitis C virus (HCV) elimination targets propose an 80% reduction in incidence and a 65% reduction in HCV-related deaths by 2030. We estimate the treatment scale-up required and cost-effectiveness of reaching these targets among injecting drug use (IDU)-acquired infections using Australian disease estimates.

Methods: A mathematical model of HCV transmission, liver disease progression and treatment among current and former people who inject drugs (PWID). Treatment scale-up and the most efficient allocation to priority groups (PWID or people with advanced liver disease) were determined; total healthcare and treatment costs, quality-adjusted life years (QALYs) and incremental cost-effectiveness ratios (ICERs) compared to inaction were calculated.

Results: 5,565 (95%CI 5,016-6,669) courses per year (30/1000 IDU-acquired infections) were required, prioritised to patients with advanced liver disease, to reach the mortality target. 4,636 (3,198-7,944) courses per year (58/1000 PWID) were required, prioritised to current PWID, to reach the incidence target; this also achieved the mortality target, but to minimise total HCV-related deaths an additional 5,565 (2,525-5,137) treatments per year (30/1000 IDU-acquired infections) were required for the first five years for people with advanced liver disease. Achieving both targets in this way cost AUS$21,986 ($11,454-40,137) per QALY gained.

Conclusion: Achieving WHO elimination targets with treatment scale-up is likely to be cost-effective, based on Australia HCV burden and demographics. Reducing incidence should be a priority to achieve both WHO elimination goals in the long-term.

Data in this abstract are under review, but not accepted, at time of submission for presentation at the Australian Society of Infectious Diseases Annual Scientific Meeting, Launceston Australia, 20-23 April 2016.

Conflict of interest: Gilead Sciences, Bristol Meyers Squibb and Abbvie. No pharmaceutical funding was provided for this study.

Abstract: 17

Novel HCV therapeutics and treatment approaches

Eliminating hepatitis C transmission by enhancing care and treatment among HIV co-infected individuals: The co-EC Study

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Background: Hepatitis C virus (HCV) infection is a significant health issue among individuals with HIV infection, including rapid progression to liver disease and increased risk of liver cancer. In Australia, the highest prevalence of HCV/HIV co-infection is in gay and bisexual men (GBM). New HCV medications provide a unique opportunity to increase the number of...
people accessing HCV treatment. Importantly it is likely that these treatments can be administered in the primary health care setting, improving system capacity and accessibility, whilst potentially reducing treatment costs. This abstract presents the study design of the HIV co-infection Elimination of HCV (co-EC) Study, which aims to offer proof of concept that scaling up treatment could lead to elimination of HCV/HIV co-infection in GBM in Victoria, Australia.

Methods: Aims: Primary objectives are (1) achieving HCV sustained virological response (SVR12) among HIV co-infected participants in a real-world primary care or hospital clinic setting; and (2) measuring the impact of treating HCV among HIV-infected individuals on HCV prevalence, incidence, and reinfection incidence GBM in Victoria. Secondary objective include increasing the number of HIV infected GBM who have an annual HCV test, complete management plan, and who commence treatment in the real-world setting using DAA therapy.

Study design: An open label, non-randomised, clinical trial of government-subsidized standard of care HCV treatment among people with HIV co-infection. Any combination of HCV DAA approved for use in Australia appropriate for the participant’s HCV genotype can be initiated open-label at the decision of their treating clinicians. Treatment will be between 8 and 24 weeks according to approved indications and prescribing restrictions. The study will follow participants for up to 80 weeks in total comprising screening, 8-24 weeks treatment, and follow-up after treatment at weeks 12, 24 and 48 post-treatment. An enhanced statewide surveillance system linking clinical and laboratory data will be used to monitor HCV epidemiology.

Target population: Any individual >18 years with well-controlled HIV able to consent will be eligible. Testing, liver assessment and treatment will be delivered by trained nurses at primary care or tertiary sites in Melbourne under clinician supervision.

Endpoints: Primary endpoints include SVR12 and community HCV viral load; and HCV prevalence, incidence and reinfection incidence among HIV infected individuals in Victoria.

Statistical assumptions and sample size: After scaling-up treatment to cure 90% of 375 GBM in our HCV/HIV co-infected population over two years, the statewide prevalence of HCV may fall from 10% to 3.4% before any additional prevention impact treatment may have on transmission. Achieving a lower rate of treatment scale up to 50% in our cohort will have the effect of almost halving HCV prevalence among HIV-infected GBM from 10% to 5.5% over two years. The study protocol is registered at clinicaltrials.gov.

Conclusion: This study will provide proof of concept that scaling-up treatment could lead to elimination of HCV/HIV co-infection in GBM by treating prevalent infection thereby reducing new primary infections and re-infection. It will inform the implementation of treatment as prevention strategies among HCV/HIV co-infected GBM in jurisdictions with similar epidemics.

Conflict of interest Gilead Sciences, Bristol Meyers Squibb, Abbvie and BMS.
Methods: A cross-sectional study was performed in a cohort of Vietnamese HIV-infected patients in the National Hospital of Tropical Disease in Hanoi, Vietnam. Urinary β-2 MG, protein, creatinine, and serum creatinine were measured for every adult patient who visited the hospital on October 2014. Multivariate logistic regression was used to determine the factors associated with TI (defined as urinary β-2 MG > 1000 μg/ml) and RD (defined as creatinine clearance (crcl) less than 60 ml/min or urinary protein/creatinine ratio (uP/C) > 0.15 g/gCre).

Results: Of 1394 patients eligible in this study, 1320 were on antiretroviral therapy (ART) and 74 were treatment naïve. Urinary β-2 microglobuline was significantly higher in the patients on ART (1049.1 μg/ml vs 313.4 μg/ml, p<0.001). Of the 1320 patients on ART, 892 were on TDF-containing regimen. Urinary β-2MG was significantly higher in the patients being treated with TDF (1282.4 μg/ml vs 562.9 μg/ml, p < 0.001), and uP/C and crcl were not significantly different between the TDF and non-TDF groups (p = 0.389 and p = 0.622, respectively). Multivariate analysis showed that factors associated with TI were older age (OR: 1.055, 95% CI:1.034-1.076, p < 0.001), female sex (OR: 0.295, 95% CI:0.184-0.471, p < 0.001), use of TDF (OR: 2.738, 95% CI:1.756-4.270, p < 0.001) and lopinavir boosted with ritonavir (LPVr) (OR: 4.810, 95% CI:2.895-7.992, p < 0.001). RD was associated with older age (OR: 1.121, 95% CI: 1.100-1.142, p < 0.001), low body weight (OR: 1.081, 95% CI:1.060-1.103, p < 0.001), use of TDF (OR: 1.740, 95% CI:1.250-2.421, p = 0.001) and use of LPVr (OR: 2.362, 95% CI:1.460-3.823, p < 0.001). In a sub-study of the patients being treated with TDF, duration of TDF was associated with TI (p < 0.001), and TI was associated with RD (p<0.001).

Conclusions: TDF use was significantly associated with high urinary β-2MG and RD. Further prospective studies are needed.

No conflict of interest

Abstract: 19

Co-Morbidities and Complications (Including those related to ART)

Tenofovir-induced kidney tubular dysfunction in HIV-infected patients in Hong Kong


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Introduction: Tenofovir disoproxil fumarate (TDF) is a widely used antiretroviral drug for the treatment of HIV infection. However, decline in renal function, including proximal kidney tubular dysfunction (KTD) occurs in a subset of patients receiving TDF regimen. This study aimed to assess the prevalence of KTD in TDF-exposed patients and identify predictors that are associated with TDF-induced KTD.

Material & Methods: HIV-infected patients receiving TDF for at least 3 months and with suppressed viral load were enrolled in the study. Markers of tubular abnormalities including β2-microglobulinuria, α1-microglobulinuria, urinary fractional excretion of phosphate, fractional excretion of uric acid (FEUA), N-acetyl-β-D-glucosaminidase (NAG) and retinol-binding protein (RBP), were measured. KTD was defined as the presence of three or more abnormal urinary markers of proximal tubular function. Polymorphisms in the ABCC2 gene (ABCC2 C-24T and ABCC2 G1429A) were analyzed using TaqMan SNP genotyping assay. Predictors associated with KTD were performed by univariate logistic regression analysis.

Results: From June 2014 through May 2015, a total of 140 HIV-infected patients (88.6% males) with median age of 46 years were included. Median body weight was 65.8 kg and median CD4+ cell count was 496 cells/μL. Patients had been treated with TDF for 3.8 years (interquartile range [IQR], 1.5-5.5) and eGFR was 88.9 ml/min/1.73 m² (IQR, 71.8-107.9). Overall, 29 (20.7%) patients had KTD. Patients
with KTD had higher levels of tubular markers of urinary β2-microglobulin (median 7276.7 vs 376.4 µg/g Cr, \( P < 0.001 \)), α1-microglobulin (32.9 vs 4.4 mg/g Cr, \( P < 0.001 \)), NAG (3.6 vs 2.0 U/g Cr, \( P < 0.001 \)), RBP (24.1 vs 7.2 µg/mmol Cr, \( P < 0.001 \)), FEUA (11.2% vs 7.0%, \( P < 0.001 \)), and showed lower level of fractional tubular reabsorption of phosphate (78.7% vs 85.7%, \( P < 0.001 \)). Differences in the polymorphisms in the \( ABCC2 \) gene (\( ABCC2 \)-24C and \( ABCC2 \)-1429A alleles) were not observed. In univariate analysis, older age (odds ratio [OR], 1.1; 95% confidence interval [CI], 1.01-1.10; \( P = 0.027 \)) and longer duration of TDF treatment (OR, 1.2; 95% CI, 1.06-1.46; \( P = 0.007 \)) were associated with KTD.

**Conclusions:** TDF-exposed patients are likely to have KTD, especially those with older age and on long term TDF treatment. Screening for urinary markers of proximal tubular function, in addition to serum creatinine and eGFR, would be helpful in the early diagnosis of TDF-induced KTD and for better management of HIV-infected patients on TDF treatment.

*No conflict of interest*

**Abstract:** 20

**Approaches and Tools for Prevention (PREP, treatment as prevention)**

**Safety and efficacy of tenofovir disoproxil fumarate plus emtricitabine for HIV pre-exposure prophylaxis in Thailand**

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**Background:** Pre-exposure prophylaxis (PrEP) with oral tenofovir disoproxil fumarate plus emtricitabine (TDF/FTC) has been proven to be effective at preventing HIV infection for MSM and other high-risk groups. However, awareness about PrEP and knowledge about its efficacy is still low among high-risk populations in Asia. In the region there is limited experience providing PrEP and very limited availability of this new HIV prevention method.

**Methods:** The Thai Red Cross Anonymous Clinic (TRCAC) has implemented the PrEP-30 project since December 2014 in order to provide additional HIV prevention options for at-risk populations. PrEP is prescribed as a single combination tablet of TDF 300 mg + FTC 200 mg taken orally once a day. The cost of the service is covered through user fees of 30 THB (US$1) per day. Baseline evaluations include an HIV test, creatinine, and hepatitis B surface antigen. Syphilis screening and hepatitis B surface antibody are recommended but not required. Regular follow-up includes clinical examination, risk-reduction counseling, provision of condoms and lubricants, monitoring renal function, and HIV testing every 3 months.

**Results:** PrEP was initiated by 197 people from December 2014 to December 2015. Clients were 98% male and 91% MSM. Median age was 32 years (range 19-67). Risk factors as indications for PrEP included condomless anal intercourse (42%), known HIV-infected sex partner (22%), multiple sex partners (35%), previous non-occupational post-exposure prophylaxis use (14%), and/or sex work (4%). Overall, PrEP was well tolerated. No clients stopped PrEP for symptomatic side effects. Six clients (3%) stopped PrEP due to asymptomatic laboratory abnormalities; all were mild (grade 1) decreases in renal function. Among those who completed follow-up HIV testing, no new HIV infections have been detected.

**Conclusions:** PrEP using oral daily TDF/FTC can successfully and safely be provided to high-risk populations through HIV testing centers in Asia. More awareness and education is needed to inform individuals in Thailand and other Asian countries that PrEP is both highly efficacious and available.

*No conflict of interest*
Abstract: 21

Approaches and Tools for Prevention (PREP, treatment as prevention)

Treat-all strategy decreased HIV infection but increased syphilis in a community-based MSM cohort in Ulaanbaatar in 2015

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Background: Mongolia has been regarded as a very low HIV-1 epidemic country. However, HIV-1 infection was rapidly spreading in Mongolian MSM recently. Mongolia has implemented the treat-all strategy in which HIV infected patients were treated with ART irrespective of their CD4 counts since 2013. We established a Mongolian MSM cohort in Ulaanbaatar in December 2013. One of the purposes of this cohort is to follow incidence of HIV infection.

Methods: Subjects were MSM who were 20 years and older. MSM who provide a written consent were enrolled as participants in this study. HIV testing and counseling were conducted at two cooperative testing sites for MSM in Ulaanbaatar. This study and testing site were introduced to MSM by NGOs in Mongolia. To register MSM, we are using the finger vein authentication system that can manage MSM anonymously. Blood sample was collected and tested for HIV, HBV, HCV and Syphilis with rapid diagnostic tests by free of charge. Confirmatory tests and medical treatments have been provided in National Center for Communicable Diseases in Mongolia if at least one of them were positive.

Results: A total number of registration was 513 MSM and STI tests were conducted in 883 times. Participant of 20’s and 30’s have accounted for 87.3%. HIV tests were repeated in 40.7% of study participants. Among 513 participants, HIV antibody and TPHA were positive in 9.0% and 17.0% of them, respectively. Eight persons were newly diagnosed HIV infection during the study period. If the study period was divided into two periods; from December 2013 to December 2014 (the first period) and from January 2015 to December 2015 (the second period), 6 (2.2%) out of 271 persons tested at the first period and 2 (0.6%) out of 332 persons tested at the second period were diagnosed as HIV infection, respectively. There were 13 persons with TPHA seroconversion from negative to positive during the same period. The syphilis incidence was 2.0/100 person-year in the first period. It is to note that the incidence increased to 13.3/100 person-year in the second period.

Conclusion: It is too short to conclude our result but it is possible to say that the treat-all strategy was effective to reduce HIV transmission in MSM even they were conducting risky sexual behavior.

No conflict of interest

Abstract: 22

HIV Prevention Science (ext. abstract submission)

Test and Treat strategy has high potential to reduce HIV and syphilis infections in a prison setting

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Background: Prisons are settings in which onward transmissions of HIV, hepatitis B virus (HBV), hepatitis C virus (HCV), syphilis and tuberculosis can easily occur due to unsafe and same-sex sexual practices, injection drug use, and overcrowded conditions. We studied the prevalence of these infections and the feasibility to implement the 'Test and Treat' strategy in one major prison in Pathumthani province, Thailand.

Material & Methods: Community outreach staff from the Thai Red Cross AIDS Research Centre (TRCARC) provided 9 health educational sessions at the prisons during May – September 2015. Each session was attended by approximately 50-70 inmates and intended to create awareness on the risk of acquiring and transmitting HIV, HBV, HCV, syphilis and tuberculosis in a prison setting. Within 2 weeks of each educational session, a medical team from the TRCARC visited the prison to provide pre-test counseling and testing services for HIV, HBV, HCV, and syphilis to inmates who showed their interest to receive the services. Symptom screening for tuberculosis was also provided. Blood samples were collected and brought back for laboratory testing at the TRCARC. Confirmatory test results along with post-test counseling services were given to each inmate within 2 weeks after that. Those who tested positive for HIV and syphilis were offered treatment in the prison. Antiretroviral therapy was provided regardless of CD4 count. Further investigations were arranged for those with positive symptom screening for tuberculosis.

Results: A total of 510 inmates (484 male, 26 females) received the counseling and testing services. 66.86% of them were incarcerated due to drug charges, 77.84% aged between 25-35 years, 75.29% had less than Grade 9 education, and 71.17% never tested for HIV before. HIV infection was diagnosed in 8 (1.6%), HBV in 36 (7.1%), HCV in 37 (7.3%), and syphilis in 4 (0.8%) individuals. All of these infections, except for 1 HIV case, were found in male inmates. All HIV and syphilis cases started treatment successfully within 2 months of diagnosis. HBV and HCV cases were counseled on how to prevent transmission of viruses to others and how the clinical and laboratory conditions should be monitored. 8% screened positive for symptoms of tuberculosis and were referred for chest x-ray and sputum examination.

Conclusions: The ‘Test and Treat’ strategy, combining health education and provision of counseling and testing services, was implemented successfully in a major prison in Thailand. A package of screening services for HIV, HBV, HCV, syphilis and tuberculosis was shown to be attractive for inmates in this setting. Immediate treatment could be made available for HIV and syphilis cases in prison and therefore allowed this model to have high potential to control HIV/syphilis syndemic in a prison setting.

No conflict of interest
Abstract

Results: A total of 34,980 HIV testing clients visited the TRCAC in 2015. Among these clients, 25,581 (73.1%) were new clients and 9,399 (26.9%) were former clients. HIV was diagnosed in 2,236 new clients (8.7%); 2,221 at their first visit (HIV prevalence of 8.7%) and 15 at their subsequent visits (HIV seroconversion rate 1.71 per 100 person-years). Among former clients, 349 (3.7%) had HIV-positive test results; 324 at their first visits in 2015 (HIV-positive rate of 3.4%) and 25 at their subsequent visits in 2015 (HIV seroconversion rate 1.82 per 100 person-years). New clients were more likely than former clients to be tested positive during their first visit in 2015 (8.7% vs. 3.4%, p<0.001). HIV seroconversion rates at subsequent testing visits in 2015 were similar between new clients and former clients (1.82 vs. 1.71 per 100 person-years, p=0.87). Of new clients who tested more than once (13.5%) in 2015, 76.4% tested 2 times, 16.2% tested 3 times, 4.2% tested 4 times, and 3.2% tested more than 4 times. Interval between each testing was <3 months in 37%, 3-6 months in 23%, and 6-12 months in 40% of new clients. Of former clients who came back more than once (32.3%) in 2015, 63.4% tested 2 times, 20.9% tested 3 times, 8.4% tested 4 times, and 7.3% tested more than 4 times. HIV testing interval of all former clients was <3 months since their last visits in 22%, 3-6 months in 24%, 6-12 months in 39%, and >12 months in 15%. New clients were less likely to test more than once in a year (13.5% vs. 32.3%, p=0.001) and were more likely to only test no more than 2 times in that year (86.5% vs. 67.7%, p<0.001) than former clients.

Conclusions: High rate of HIV seroconversion was seen among clients of the TRCAC who received repeat HIV testing and counseling over a certain period of time. These clients may represent a group of clients who have continued to practise high risk behaviors and are in urgent need for additional HIV prevention interventions such as post-exposure prophylaxis (PEP) and pre-exposure prophylaxis (PrEP). Innovative measures are needed to further promote repeat HIV testing as a social norm for communities at high risk for HIV infection and to empower them to engage repeat HIV testing and PEP/PrEP as part of their routine health-seeking behaviors.

No conflict of interest

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Population-Specific Interventions and Prevention Strategies

A randomized controlled trial promoting HIV self-testing with online real-time counseling on increasing HIV testing rate among MSM in Hong Kong

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Background: HIV testing is an important global HIV prevention strategy but under-utilized by local men who have sex with men (MSM). In 2014, the WHO endorses the potential of using HIV self-testing to increase overall access to HIV testing. This study is to evaluate the relative efficacy of an intervention promoting a new HIV testing service (free HIV self-testing with real-time online counseling) versus a control promoting free traditional HIV testing and counseling (HTC) services on increasing the prevalence of HIV testing among MSM in Hong Kong.

Materials and Methods: A parallel-group, non-blinded randomized controlled trial was conducted. Two follow-up evaluative telephone surveys were performed three and six months afterwards. Participants were local MSM having access to online face-to-face communication tools. Those who were HIV positive or have been tested for HIV antibody within 6 months were excluded. 430 participants were randomized into the intervention group (n=215) and the control group (n=215); 200 in the intervention group and 201 in the control group completed the Month 3 follow up.

Participants in the control group watched an online video promoting traditional HTC. On top of the same health promotion offered to the control group, participants in the intervention group watched an additional online video promoting the new HIV self-testing and real-time online counseling service. A brief motivational interviewing by phone was then
performed. Unless objection shown, a free oral-fluid based HIV self-testing kit was sent to them by mail. Implementation was made by appointment; standard-of-care pre-test and post-test counseling were provided by experienced nurses via social media.

Results: At Month 3, participants in the intervention group reported higher prevalence of taking up any type of HIV testing in the last 3 months as compared to the control group (81.9% vs. 33.6%, RR=2.43, ARR=48.3%, p<.001, intention-to-treat analysis). Among 176 MSM who had taken up HIV testing in the intervention group, 172 (97.8%) had utilized our new HIV testing service. One positive case was identified by HIV self-testing with online real-time counseling. Mental health first aid was provided by the administrator. The participant received confirmatory testing at the Department of Health and confirmed to be positive, and has been linked to care and treatment. The process evaluations of our new testing service were positive.

Conclusion: The new testing service is of good potential in increasing coverage of HIV testing among local MSM. It is possible to develop a new service model, which can be scaled to non-governmental organizations in Hong Kong. Future implementation studies are warranted.

No conflict of interest

Abstract: 25

Population-Specific Interventions and Prevention Strategies

Go Viral On-line: Social Media Strategy in HIV Testing Behaviour in Hong Kong

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Background: There is an increasing tendency of HIV infections among gay and bisexual male community in recent years in Hong Kong. Regular testing with appropriate follow-up treatments and counselling is crucial to put the epidemic under control, especially within the gay community. However, the testing rate in last 12 months in Hong Kong MSM community was merely around 50%, suggesting there is a need for promoting the regular testing behaviour.

Material & Methods: In 2015, AIDS Concern has launched a MSM-targeted campaign called 'Chrysanthemum tea' to motivate the testing behavior through social media platform. A video introducing the benefit of testing was spread on YouTube and Facebook. 758 questionnaires were collected from MSM who used AIDS Concern testing services to see the effectiveness of the campaign after launch.

Results: The video has reached a view rate 69,498 from October to December 2015. From the data of our testing services, 51.5% MSM testing users have been reached by the campaign. Overall, the campaign has successfully motivated almost 40% of the target reached to go for testing. 66.5% of the users rated this campaign is highly effective.

Conclusions: The campaign achieved an overall success in reaching a large percentage of target audience by means of social media. It is because the spreading effect using social media and key opinion leader (KOL) in those platforms. In the future, we would continue the strategy with more awareness of the diversity in MSM community. We also plan to invite their KOL and oversea cooperation to support the whole campaign.

No conflict of interest
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Population-Specific Interventions and Prevention Strategies

A randomized controlled trial evaluating the efficacy of a brief social media intervention in reducing sexual risk behaviors among MSM in Beijing

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Introduction: HIV epidemic among men who have sex with men (MSM) in China has been worsening. QQ is a well-known social media platform which has extensive reach among MSM in China. This study aimed to evaluate the efficacy of a brief intervention delivered by QQ in changing HIV/syphilis risk perceptions and sexual risk behaviors among them.

Materials & Methods: A parallel-group and non-blinded randomized controlled trial was conducted. Evaluation was performed six months afterwards. Setting/Participants: 398 HIV-negative MSM in Beijing, China were randomized into the intervention group (n=200) and the control group (n=198). 145 in the intervention group and 140 in the control group completed the Month 6 follow up evaluation.

Intervention: One of the brief health communication messages on the following topics: 1) HIV, 2) syphilis, 3) sauna, 4) intimate relationship, 5) HPV, 6) HSV was sent to participants in the intervention group by QQ every week. Participants in the control group did not receive any intervention.

Main outcome measures: Primary outcomes were prevalence of: 1) UAI with regular, non-regular and any male partners in the last three months; 2) UAI with these male partners during the last anal intercourse and 3) multiple male sex partnerships in the last three months. Secondary outcomes were perceived risk of HIV and syphilis infection at the time of survey.

Results: Using intention-to-treat analysis, the prevalence of UAI, multiple male sex partnerships, as well as the level of HIV/syphilis risk perception did not differ between groups as measured at Month six.

Conclusions: Brief intervention through QQ without interactive components may not be sufficient to change risk perceptions and sexual risk behaviors among MSM. However, given the promising feasibility and potential reach, efforts to further understand how QQ can be used in health promotion should be pursued.

No conflict of interest

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Integration of HIV services with other programmes

Acceptability study on HIV Self-Testing among female entertainment workers, men who have sex with men, and transgender women in Cambodia: A Qualitative Analysis

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Introduction: HIV self-testing (HIVST), a process in which an individual performs an HIV rapid diagnostic test and interprets the result in private, is an emerging approach that is well accepted, potentially cost- effective and empowering for those who may not otherwise test, particularly Key Populations (KPs). Increasing uptake of testing among KPs whose HIV prevalence is higher compared to general population is the most important way to decrease HIV transmission in concentrated epidemic countries. In Cambodia, while HIV...
prevalence rate among the general adult population was 0.6% in 2013, HIV prevalence rate was still high among KPs: Female Entertainment workers (FEW 14%), Men who have sex with men (MSM 2.1%), and Transgender women (TG women 4.2%). Introducing HIV self-test to KPs will potentially overcome under diagnosis of HIV and significantly increases testing rates and receipt of the results. However, there are limited studies on the acceptability of HIV self-testing in Cambodia. Therefore, this present study aims to determine the acceptability of HIVST among the three KPs.

**Methods:** This current study is qualitative in design conducted through focus group discussion (FGD) among FEW, MSM, and TG women in Phnom Penh city, Kampong Cham, Battambang, and Siem Reap provinces of Cambodia.

**Results:** All most all of the participants among the three groups (FEW, MSM, and TG women) haven’t heard about HIV self-test, but all participants across the three groups expressed willingness to try HIV self-test. They perceived HIV self-test as confidential, convenient, time-saving, and high-tech. Barriers to obtaining the HIVST include cost, access to self-test, administration technique, as well as embarrassment and fear of pain. Majority preferred counseling before and after testing. There is no significant difference across the three groups regarding the awareness of self-test, perceived benefits, and concerns.

**Conclusion:** Participants have shown high willingness to HIVST even though it was not linked to confirmatory test or care and treatment. The price for self-test should be reasonable and affordable for these KPs and advertisement would play an important role in promoting HIVST, while at the same time program intervention on promoting testing is still needed to increase awareness and provide encouragement. Research on accuracy and reliability of the test results performed by skilled personals and lay person is necessary to avoid false positive and false negative results. Providing tutorial on how self-test is performed on television, and social media will be beneficial for KPs to self-administer the test. Further intervention would be on how to encourage post-test counselling and facilitate test link to care and treatment.

*No conflict of interest*
1st Asia Pacific AIDS & Co-infections Conference

Translating Science into Clinical Practice in Asia Pacific

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Diagnostic Tools for Immunological and Virological Monitoring

Mutations in HIV GAG Peptides and Their Effect on Cellular Immune Response in Pakistani Patients

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Introduction: Cytotoxic T lymphocytes (CTLs) play an important role in controlling HIV infection while the virus encounters and evade the CTL response through a variety of escape mutations. The infected cells present viral antigens to the CTLs through MHC class I, leading to the generation of immune response and destruction of infected cells. Presentation of viral epitopes by antigen presenting cell to the CTL involve many steps including proteosomal cleavage, transport to the ER, binding by the HLA molecule, and finally presentation to the TCR. The anti HIV immunity is influenced by the diversity of host factors particularly human leukocyte antigen (HLA). Response of the CTLs with particular HLA type e.g HLA-B*5701 is known to be associated with slower disease progression as compared to rapid disease progression in patients with HLA-B*5802.

Objective: Our study is to identify Mutations in gag gene of HIV-1 and their effect on proteosomal degradation of peptides and association of HLA types with selected viral mutations and its effect on the immune response.

Methodology: Blood samples were collected from HIV positive patients followed by DNA extraction which was used in HLA typing and in Nested PCR to amplify the HIV gag gene followed by sequencing. The sequences were analyzed using bioinformatics tools including ClustalX to identify mutations and for potential proteosomal degradation sites using Netchop. The selected peptides containing the proteosomal degradation sites were synthesized and used in proteosomal degradation assay. Digested peptides were run on SDS gel to observe the degradation pattern.

The digest products were send for MALDI-MS to confirm the exact cutting sites of the peptides.

Results: We identified T303V mutation in gag region in most of the Pakistani isolates which is a stronger proteosomal degradation sites as compared to T303T in majority of the sequences that we retrieved from Los Alamos HIV sequence database. The in-vitro proteosomal degradation assay and MALDI-MS also support these results. The HLA types of the patients were relatively diverse but HLA A*68 was found more prevalent than other HLA types, showing some correlation with T303V mutation.

Conclusion: The HIV infection in the region is relatively new and the virus is evolving according to the local environment and immune pressure by the patients. We have identified T303V mutation in locally spread virus. We intend to use the peptide containing this particular residue in ELISpot experiments to further elucidate the interaction between HIV and the host immune system.

No conflict of interest

Abstract: 29

Novel Treatment and Cure Strategies

Development of Engineered Nanocarrier for Controlled Delivery of a Protease Inhibitor

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Background: AIDS is a chronic, progressive syndrome, characterized by intense viral replication and profound immunosuppression, resulting in the development of life threatening opportunistic infections. HIV infection leads to deterioration of immune functions. The objective of the present study was to develop, optimize and characterize engineered nanocarriers for controlled delivery of a
Abstract

protease inhibitor. Lopinavir was the drug of choice as it is an effective antiretroviral drug having specific and prominent anti-HIV action. In the present study, it is envisaged to develop and characterize a controlled delivery system wherein the drug lopinavir (LPV) will be entrapped in engineered nanocarrier. Engineered nanocarriers targeted towards the prespecified target tissues by coupling with mannose delivers the drug in a controlled manner to the site of action. Thus it results in increased bioavailability and avoids the adverse effects associated with the drug. Overall the approach leads to a safe, economical and effective Anti-HIV formulation.

Materials: The uncoupled Solid Lipid Nanoparticles (SLN) were prepared by Solvent diffusion method and then coupled with mannose. Characterization studies were done by Scanning & Transmission Electron Microscopy (SEM & TEM). X-ray diffraction (XRD) and Differential scanning calorimetry (DSC) studies were performed along with the in-vitro studies followed by in-vivo studies on albino rats.

Results: In-vitro & in-vivo studies results shows Mannose coated SLNs (MSLN) deliver their contents to macrophage rich organs and tissues, which are the reservoir of HIV. Low elimination and better distribution profile can be achieved by MSLNs. The dose of the antiviral agent can be reduced due to the site-specific delivery from this carrier.

Conclusion: ligand-mediated bio-disposition and cellular interaction of MSLNs, especially at the target sites, would be a focal paradigm for upcoming research in the field of anti-HIV drug delivery. MSLNs have paved the way for the bio-stable, site-specific and ligand-mediated delivery systems with desired therapeutics.

No conflict of interest

Abstract: 30

Novel Treatment and Cure Strategies

Discovery of Novel 1,3,5-triazines as Non-Nucleoside Reverser Transcriptase Inhibitors via extension into the entrance channel of HIV-1 reverse transcriptase

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Introduction: Following to the discovery of diaryltriazine analogues (DATAs) as a class of novel, potent and selective compounds for NNRTI of HIV-1 RT, attention has been focused on the alteration of the substitution at 1,3,5-triazine, leading to the development of novel analogues, with potency against HIV-1 replication. Present study deals with the advancement of novel derivatives of 1,3,5-triazines (DATA) to increase its efficacy and potency to make them viable drug candidate.

Material and Method: Synthesis of title analogs were achieved by clubbing of some heterocyclic analogues to 1,3,5-triazine core scaffold via S\textsubscript{N}Ar reaction respectively to generate higher DATAs via amine bridge. These molecules have been subsequently tested for anti-HIV activity using TZM-bl cell lines along with Luciferase expression profile of the TZM-bl cells after infecting with NL4.3 virus and MTT assay for the cytotoxicity determination. Molecular docking studies were also performed to explicate the binding affinity of designed ligands at the non-nucleoside inhibitor binding pocket (NNIBP) of HIV-RT.

Results: In Anti-HIV assay, compound 8a showed utmost 95 % inhibition with K\textsubscript{i} = 867.12 nM against HIV-RT. Rest of the molecules exhibit significant activity except compound 6c which displayed least activity against HIV (32 % inhibition with K\textsubscript{i} = 23.36 µM). Moreover in cytotoxicity assay, none of the molecules lower the percentage of cell viability. Molecular docking studies suggest that, these molecules were able to fit into the highly conserved...
protein/solvent interface respectively close to Pro236/Val106/Leu234 and an open region in front of Lys101/Glu138/Val179 which is considered as the entrance channel for the NNRTI in NNIBP.

Conclusion: As a concluding remark, we have developed novel DATA analogues with potent anti-HIV activity, while presenting no considerable toxicity at the test dosages.

No conflict of interest

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Super- and Co-Infections (Including Opportunistic Infections)

Hepatitis C Virus (HCV) and Human immunodeficiency Virus (HIV) genotypes circulate in HIV/HCV-Coinfected Patients in Pakistan

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Background: Human immunodeficiency virus (HIV) and hepatitis C virus (HCV) are major public health concerns. Because of shared routes of transmission, HIV-positive individuals are at risk of coinfection with HCV infections. The prevalence rates of coinfection with HCV in HIV-patients have been variable worldwide depending on the geographic regions, and the type of exposure. It is likely that certain genotypes or genetic variants in this study the HIV and HCV genotype in coinfected and single infected patients will be analyzed in Pakistani patients. The objective is to investigate the HIV and HCV genotype in co-infected patients.

Materials and methods: In this study total sample size 150 comprising of 25 HIV and HCV co-infected cases and 70 HIV, 55 HCV single infected cases. Hepatitis C virus (HCV) RNA and Human immunodeficiency virus (HIV) DNA extracted from patient Sample was amplified and after their sequencing genotype was analyzed using bioinformatics tools for this study.

Results: Blood samples of 150 subjects were analyzed. Total of 11(7.3 %) were <20 years, 82 (54.6%) were between 21-40 years and 57 (38 %) were >40 years. There were 112 (74.7%) male and 38 (25.3%) female patients and total of 70 (46.6%) patients suffered from HIV mono infection, 55 (36.7%) HCV mono infection and 25(16.6%) HIV and HCV co-infection. In HIV and HCV coinfection 52% of patient's co circulate HIV-1 Subtype A1 and HCV genotype 3a and 24 % of Patients was co circulate HIV-1 subtype C and HCV genotype 3a.

Conclusions: In the present study the most prevalent genotype was HIV-1 subtype A and HCV genotype 3a which co circulate in co infected patients. We also found HIV-1 subtype C in our population which is new finding and most of our patients were male and of younger age.

No conflict of interest

Abstract: 32

Super- and Co-Infections (Including Opportunistic Infections)

Latent Toxoplasma infection in HIV reactive ART naive patients in Tamil Nadu, India

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Abstract: Toxoplasmosis is a zoonotic disease caused by an obligate intracellular protozoan parasite *Toxoplasma gondii*. Approximately one third of world’s populations are infected with *T. gondii*. About 90% of acute infections are asymptomatic. Acute infection progresses to chronic or latent infection which persist for rest of the life. *T. gondii* is an important opportunistic parasitic infection in HIV-infected individuals with CD4+ T cells <100cells/cumm. Typically, toxoplasmosis in HIV-infected patients occurs due to reactivation of chronic infection, and it usually presents as Toxoplastic Encephalitis. Reactivation of latent *T. gondii* infection in patients with AIDS typically manifests as Cerebral Toxoplasmosis. Studies have also shown that latent *T. gondii* infection modulates immune response during HIV infection. The present study was undertaken with the aim of detecting Latent Toxoplasma infection by estimating the prevalence of antitoxoplasma IgG antibodies in HIV reactive Anti Retroviral Therapy (ART) naive patients.

Materials and Methods: This was a cross sectional study conducted in the Department of Experimental Medicine, The Tamil Nadu Dr.M.G.R Medical University and ART centre at Thanjavur Medical College from September 2013 to September 2014. Serum samples from consenting HIV reactive ART naive patients from ART centre at Thanjavur Medical College were sent to Department of Experimental Medicine, The Tamil Nadu Dr.M.G.R Medical University for detection of Antitoxoplasma IgG antibodies along with their CD4+ T cell counts. Antitoxoplasma IgG antibodies were detected using WEL Toxo Ig G ELISA 96T- Calbiotech ELISA kit (USA) as per manufacturer’s instructions.

Results: Total of 100 HIV reactive ART naive patients were enrolled in the study. There were 56 men and 44 women with mean age of 40 years, SD 11.8 years. Majority of the patients were less than 50 years of age. Overall, 23% of patients were positive for Antitoxoplasma IgG antibodies. Among them, 18 were males and 5 were females. Majority of them were in 31 to 50 years age. The CD4+ T cell count ranged from 121-978 cells/cumm. The median CD4+ T cell counts were 563.50 cells/cumm and mean CD4+ T cell count among Antitoxoplasma IgG positive and negative were 587 and 520 cells/cumm respectively. Seven patients had CD4+ T cell counts below 200cells/cumm, and among them 3 were positive for Antitoxoplasma IgG antibodies. No significant difference was observed in the CD 4+ T cell counts in antitoxoplasma IgG antibodies positive and negative patients (P>0.05).

Conclusion: In the present study, the prevalence of latent toxoplasma infection in HIV reactive ART naive patients were 23%. The median CD4+ T cell counts were 563.50 cells/cumm. Prevalence of Latent Toxoplasma infection in HIV reactive patients is similar to the prevalence in general population. But in HIV positive and AIDS patients, reactivation of latent toxoplasma infection leads to Toxoplastic Encephalitis and Cerebral Toxoplasmosis respectively. Screening for Antitoxoplasma IgG antibodies in HIV reactive patients should be done, and when positive, prophylactic treatment can be initiated much before the reactivation of latent infection. As latent toxoplasma infection modulates immune response, progression of HIV disease should be monitored.

No conflict of interest
Methods: A total of 89 patients suspected for Cryptococcosis with neurological involvements were screened for Cryptococcal antigen (CrAg) using the newly introduced POC test, IMMY CrAg Lateral Flow Assay (Immunochromatography principle) manufactured by Immuno-Mycologics, Inc, Norman, USA. The cerebrospinal fluid (CSF) and serum specimens were subjected parallelly to detect Cryptococcal infections. The study was conducted at tertiary care centre, Asha Kirana Hospital, Mysore.

Results: Of 89 patients, 57 were males, 32 were females and the age is ranging between 18 and 69 years. The CD4+ T-cell count of study population was ranging between 7 and 1160 (IQR: 66-211). A total of 23 (26%) patients were found to be positive for Cryptococcal infection. The CD4+ T-cell count of these 23 CrAg positive individuals are between 9 and 759 (IQR: 29-97). It was observed, the sensitivity in detecting Cryptococcal infection with serum was better than using CSF (100% versus 91.3%).

Conclusion: Detection of Cryptococcal antigen among suspected cases with low-cost, (approximately US $ 3) low-tech POC test could benefit the patients in resource limited-settings (RLS). Use of serum is generally preferred as invasive procedures in collecting CSF in RLS might lead to unwanted infections.

No conflict of interest

Abstract: 34

Super- and Co-Infections (Including Opportunistic Infections)

Factors Associated with Mortality of Cerebral Toxoplasmosis in HIV Infected Patients at Sanglah Hospital, Bali, Indonesia

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Background: Cerebral toxoplasmosis is major cause of morbidity and mortality among HIV infected patients, particularly from developing country such as Indonesia. This study was design to know clinical feature and factors that associated with mortality of cerebral toxoplasmosis in HIV infected patients.

Material and Methods: Study was conducted by review medical report of HIV infected patients during 2014 to 2015, cerebral toxoplasmosis was presumptive diagnosis by clinical manifestation, serology and head CT scan. Outcome of treatment as good response or mortality was evaluated during treatment (3 months). Logistic regression was used to identify factors that associated with mortality.

Results: There were 70 cerebral toxoplasmosis patients, mostly male (81.4%), median of age was 32 years old and heterosexual (67.1%) as commonly risk factor. Clinical manifestations were head ache (66.7%), decrease of consciousness (41.4%), hemiparesis (24.3%) and convulsion (15.7%) respectively. The other opportunistic infections were oroesofageal candidiasis (61.1%), wasting syndrome (55.7%) and lung TB (11.4%). Location of cerebral lesion mostly multiple lesion in parietal (21%), temporal (21%) and capsula interna (7.1%). Median of CD4 level was low (25.5 cell/uL) and level of Ig G toxoplasmosis was over than 300 in 52.9% patients. All of the patients were treatment with pirimethamine and clindamycine. There were 14 patients (20%) death on toxoplasmosis treatment. Decrease of consciousness (p 0.01), hemiparesis (p 0.03) were associated with mortality. Other opportunistic infections oroesofageal candidiasis (p 0.01) and wasting syndrome (p 0.03) were also associated with mortality. Level of CD4, Ig G toxoplasmosis and multiple or single lesion on cerebral by head CT scan were not associated with mortality.

Conclusions: Cerebral toxoplasmosis was common in male, middle age and heterosexual. Clinical manifestation were head ache, decrease of consciousness, hemiparesis and convulsion. There were associated between mortality with other opportunistic infections such as oroesofageal candidiasis and wasting syndrome. Neurological deficit hemiparesis and decrease of consciousness were also associated with mortality in cerebral toxoplasmosis patients.

No conflict of interest
Abstract: 35

Vaccine Development

Cross reactive potential of HIV-1 Subtype C infected Indian Individuals against Multiple HIV-1 Potential T cell Epitope Gag variants

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Introduction: Enormous genetic diversity of HIV-1 present globally is a major obstruction to the development of an effective HIV-1 vaccine. Over the years, HIV has evolved into different subtypes and circulating recombinant forms. Therefore, identification of a vaccine immunogen against this dynamically evolving population of HIV that can recognize and cross react with multiple epitope variants within and outside the regional subtype is the first logical step towards the control and prevention of HIV-1 infection. The study was undertaken to predict the cross reactivity of T cell immune response in HIV-1 infected Indian Individuals using Potential T cell epitopes (PTE) Gag peptides.

Materials and Methods: This was a cohort study wherein 22 HIV-1 Infected individuals were enrolled at the Immunology Division, Department of Microbiology, All India Institute of Medical Sciences (AIIMS), New Delhi. A set of 320 PTE Gag peptides were used for characterisation of T cell immune response and intracellular cytokine assay was performed to characterise HIV-1 PTE Gag-specific T-cell immune responses in the study subjects.

Results: p-24 Gag subunit dominated the magnitude immune response followed by p-17 and p-15 regions. Within p-24 Gag subunit, magnitude of response was found to be highest in the CD4+ T cell compartment compared to CD8+ T cell compartment (CD4 Median 1.455, IQR 0.2125-4.643%; CD8 median 0.7000 IQR 0.08225-3.638%). Similarly p-17 and p-15 Gag subunit also followed the same trend (p-17: CD4 Median 2.14, IQR 0.42-4.990%; CD8 median 0.650 IQR 0.043-2.6%; p-15: CD4 Median 1.38, IQR 0.21-4.2%; CD8 median 0.385 IQR 0.03-2.45%). We observed a sharp difference in the amount of IFN-γ produced when the same peptide was targeted by two different individuals. CD4+ T cells were found to be more responsive terms of IFN-γ production against all the different subunits of Gag gene including p-24, p-17 and p-15 compared to CD8+ T cells (p<0.05). We observed positive correlation of the IFN-γ producing HIV specific CD4+ T and CD8+ T cell subsets (CD8+IFN-γ+) with both CD4 counts and plasma viremia in p24 and p17 Gag subunits respectively (p-24 CD4+IFN-γ+ CD4 count r=0.04 and viral load r=0.2179, CD8+IFN-γ+ CD4 count r=0.2299 and viral load r=0.0133; p-17 CD4+IFN-γ+ CD4 count r=0.2468 and viral load r=0.030, CD8+IFN-γ+ CD4 count r=0.048 and viral load r=0.2469). However in p-15 Gag subunit, an inverse correlation was observed for CD4+IFN-γ+ and CD8+IFN-γ+ T cell subset with plasma CD4 T cell count (CD4+IFN-γ+ CD4 count r=-0.3513; CD8+IFN-γ+ r=-0.17) but a positive correlation was observed with plasma viral load for CD4+IFN-γ+ and CD8+IFN-γ+ T cell subsets.

Conclusion: Maximum cross reactivity was observed in p-24 Gag subunit followed by p-15 and p-15 subunits. The dominant target in terms of magnitude and breadth of responses as well as the most frequently recognized Gag subunit protein was observed to be the p24 subunit in both T cell compartments. The current research provides us with new insights about the ability of infected population to broadly recognize multiple variants of Gag PTE peptides representing different subtypes and circulating strains of HIV-1 worldwide.

No conflict of interest
Abstract: 36

Approaches and Tools for Prevention (PREP, treatment as prevention)

Behavioral intention to disclose HIV to regular female sex partner among HIV positive MSMW in China: the Expanded Theory of Planned Behavior

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Introduction: HIV positive men who have sex with men and women (MSMW) functions as the bridge in transmitting HIV from high-risk group (MSM) to low-risk group (general female). Disclosing HIV status could protect partners from HIV infection and also improve patients' adherence to antiretroviral treatment and mental health. However, few studies focused on HIV disclosure to female sex partners among HIV positive MSMW in China, and evidence about factors associated with behavioral intention to disclose HIV is very limited. We aimed to investigate potential factors associated with behavioral intention to disclose HIV status to regular female sex partner, using the Expanded Theory of Planned Behavior (TPB)

Material & Methods: We conducted a cross-sectional anonymous survey among HIV positive MSM, who also had regular female sex partners, and aged 18 years or older from four cities (Chengdu, Shijiazhuang, Baoding, and Nanjing) of China between January to August, 2015. Participants' recruitment was facilitated by local NGO and CDC. After telephone screening by CDC staffs and MSM peers, all eligible ones were invited to join. We used individually structured questionnaire to measure the characteristics of MSMW, as well as variables (attitudes, perceived behavioral control, subjective norms, anticipated regret, past HIV disclosure behavior and self-identity) derived from the Expanded Theory of Planned Behavior (TPB). The most recent regular female sex partner was considered as the index person (her) for the analysis. Univariate and multivariate logistic regression were used for data analysis, with SPSS version 21.

Results: Of 217 HIV positive MSMW who had not disclosed HIV to her at the time of interview: 12.4% had the behavioral intention to disclose HIV in the next six months; 39.6% were self-identified sexual orientation as bisexual, 69.6% were on antiretroviral treatment and 36.4% lived with her. After adjusting for two significant background variables (sexual orientation and living together with her), behavioral intention to disclose HIV status to her was positively and significantly associated with four constructs derived from the Expanded TPB: including Positive attitudes toward HIV disclosure (AOR=1.14, P<0.01), Perceived behavioural control on HIV disclosure (AOR=1.55, P<0.001), Subjective norm in favoring of HIV disclosure (AOR=1.14, P<0.05) and Anticipated regret (AOR=1.67, P<0.05); while this intention was negatively and significantly associated with two constructs derived from the Expanded TPB: including Negative attitudes toward HIV disclosure (AOR=0.93, P<0.05) and Self-identity as HIV patient (AOR=0.73, P<0.1). However, past HIV disclosure behavior to significant others had no association with this intention.

Conclusions: Low behavioral intention to disclose HIV status to regular female sex partner among HIV positive MSMW was reported. Cognitive variables derived from the expanded TPB could help us understand this sensitive and important problem related to public health, and also provide us a useful framework for future programs design and implementation.

No conflict of interest
Abstract: 37

Approaches and Tools for Prevention (PREP, treatment as prevention)

Patients Perception on HIV testing, Stigma, and Discrimination in a Charity Hospital in Phnom Penh, Cambodia

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Introduction: To target people for early HIV diagnosis and early link to care and treatment remain challenging in Cambodia. Early HIV testing and timely receiving care and treatment are approaches to reduce HIV transmission and HIV related co-morbidity and mortality. We aim to explore patients' perception on HIV testing, HIV disclosure, and HIV related stigma and discrimination experience as barriers to timely seek care and treatment.

Material & Methods: We conduct a mixed quantitative and qualitative study on 136 newly enrolled HIV enrolled in Sihanouk Hospital Center of HOPE from 1st February to 31st July 2014. 20 patients were randomly selected to participate in In-depth interview (IDI). An semi structure questionnaire was use for the interview.

Results: Of 20 new patients who were interviewed, 10 were women, 9 were men, and 1 was transgender. Median age is 35 (IQR: 30-44). Median CD4 count is 94 (IQR: 29-224). 10, 3, 4, and 3 patients had initial CD4 cell count below 100 cells/mm3, below 200 cells/mm3, below 350 cells/mm3, and above 351 cells/mm3, respectively. 12 patients were married, 4 were single, 2 were widow, and 2 were divorced or separate. For education, 5 patients couldn't read, 5 finished primary school, 2 finished junior high school, 6 finished high school, and 2 up to university. For reasons to have HIV testing, majority (16 patients) tested HIV only when they were sick, or partner were sick and tested HIV positive. 15 patients disclosed their HIV result to partner or family later or sooner after testing. 12 patients had partner known HIV infected, 3 patients had partner HIV sero-discordant, 1 patient had partner not yet tested. All patients received support and care either from partners or family or close friend. Only 1 patient was abandoned by partner, 1 patient was discriminated by children, 1 patient felt discriminated by friends when they knew the patient's HIV status, 1 patient had self stigma by avoiding communication with her friends although the friend did not discriminated her. Most of patients didn't want neighbors or community knew their HIV status. Concern of being recognized when come to HIV clinic was stated by one third of patients 'That's why I always wear mask when I come the clinic'. 50% of patients also valued quality of care as priority.

Conclusions: Our finding identified that HIV voluntary testing was not yet common in our setting. Disclosure of HIV status to either partner of family were improving. The feeling of self stigma and fear of prejudice remain obstacles for PLHIV accessing care and treatment. Education and full information on HIV knowledge about transmission and protection, and HIV care and treatment should be persistent and strengthened. Support group interventions should also be carried through.

No conflict of interest

Abstract: 38

Prevention of Mother-to-Child Transmission

Mother-to-Child HIV Transmission and Predictors among HIV-Exposed Infants under Prevention of mother to Child Transmission Program in Ethiopia

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**Background:** Ethiopia is among countries most affected by HIV/AIDS pandemic. HIV prevalence among pregnant women is estimated at 2.4% and approximately 38,401 pregnant women are living with HIV in 2012. Mother-to-child HIV transmission (MTCT) accounts for more than 90% of pediatric AIDS cases. Despite the marked progress in coverage of prevention of mother to child HIV transmission (PMTCT) programs, high rate mother to child HIV transmission (MTCT) was documented among exposed infants. This raised questions about the effectiveness of PMTCT program and the need for more research on identifying predictors of MTCT. This study aimed to quantify MTCT rate and identify predictors among HIV-exposed infants at PMTCT clinic in Southwest Ethiopia.

**Methods:** A retrospective follow-up study was conducted at Jimma University Specialized Hospital (JUSH) PMTCT clinic from September 2011 to December 2013. Medical records of HIV-exposed infants and their HIV infected mothers were reviewed. Data were collected by a trained nurse working at the PMTCT clinic using a structured data extraction format. Data were then analysed by SPSS version 20. Univariate and multivariate logistic regression analyses were carried out to identify potential infant and maternal factors predicting mother to child HIV transmission.

**Result:** A total of 146 HIV exposed infants' and their mothers’ records were included in the final analysis. Majority, (83.6%), of HIV infected pregnant women were enrolled in ANC and 78.8% either were started on HAART or received a single dose of nevirapine (NVP) during labour. More than 80% of HIV-exposed infants received ARV prophylaxis (single dose of NVP plus AZT) for 7 days after birth. Out of 146 exposed-infants, 25 (17%, 95% CI: 11%-23.2%) were HIV positive. In the adjusted multivariate logistic regression analysis, mothers on late AIDS stage (stage 3 or 4) during child birth (OR=5.8; 95% CI: 1.6-16.5), absence of maternal PMTCT interventions (OR=4.9; 95% CI: 1.4-16.5), home delivery (OR=8.1; 95% CI: 2.1-31.9) and mixed infant feeding (OR=5.6; 95% CI: 1.4-41.2) were independently associated with mother to child HIV transmission among exposed infants.

**Conclusion:** We documented a high rate of mother to child HIV transmission among exposed infants on follow up at the PMTCT clinic in Southwest Ethiopia. All pregnant HIV positive mothers should be enrolled in PMTCT program at earlier stage and receive antiretroviral therapy. In addition, delivery at health center and exclusive breast feeding should be encouraged so as to decrease mother to child HIV transmission.

No conflict of interest

**Abstract: 39**

**Prevention of Mother-to-Child Transmission**

**Antiretroviral combination regimens to prevent mother-to-child transmission for japanese HIV-1 infected patients**

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**Introduction:** Without treatment, the likelihood of HIV passing from mother-to-child is 15-45 percent. However, antiretroviral treatment (ART) and other effective interventions for the prevention of mother-to-child transmission can reduce this risk to below 5 percent. In the 2010 guidelines, the recommended first-line regimens for pregnant women were Azidothymidine+Lamivudine+Nevirapine etc. However, regimen discontinuations by adverse reactions, such as nausea and anemia, were often confirmed for individuals. In this study, we intended to evaluate ART combination regimens for Japanese HIV-1 infected pregnant women.

**Material & Methods:** We examined medical records of Nagoya Medical Center from 2012 to 2015 for Japanese HIV-1 infected pregnant women. We found 8 pregnant women treated with ART and checked combination regimens and efficacy of ART for these pregnant women, retrospectively.
Results: Mean age of 8 HIV-1 infected pregnant women was 33.4 years. Antiretroviral combination regimens from 2012 to 2013 were Azidothymidine + Lamivudine + Lopinavir/Ritonavir (n=1), Azidothymidine+Lamivudine + Saquinavir + Ritonavir) (n=1), and Tenofovir + Didanosine + Lopinavir/Ritonavir (n=1), respectively. After 2013, antiretroviral combination regimens were Tenofovir/ Emtricitabine + Darunavir + Ritonavir (n=4), and Abacavir/Lamivudine + Atazanavir + Ritonavir (n=1), respectively. In ART regimens containing Lopinavir/Ritonavir, one of 2 pregnant women had continuing diarrhea. On the other hand, in ART regimens containing Darunavir+Ritonavir, one of 4 pregnant women had transient rash. After starting ART, HIV viral load were soon less than the detection limit for all pregnant women. At the 36 week of pregnancy, Caesarean section administering Azidothymidine was done. After birth, all babies were treated with Azidothymidine by oral administration. Finally, all babies were not infected with HIV-1.

Conclusions: In the latest guidelines, a two nucleoside reverse transcriptase inhibitors+Efavirenz or Lopinavir/Ritonavir or Atazanavir+Ritonavir have been recommended as the first-line preferred regimens. In this study, we confirmed protease inhibitor-based regimens containing Darunavir+Ritonavir were most effective ART for HIV-1 infected pregnant women. Because Darunavir is tolerable and available as components of once daily complete regimen, reducing pill burden for pregnant women result in regimen continuations.

No conflict of interest

Abstract: 40

Prevention of Mother-to-Child Transmission

Pregnancy Outcomes Over 15 Years in a HIV Centre in Hong Kong

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Background: Universal antenatal HIV screening was introduced in 2001, while rapid HIV testing in labour ward was started in 2008, both of which being pivotal for the prevention of perinatal HIV transmission in Hong Kong. However, there’s still paucity of local data assessing the pregnancy outcomes in HIV-infected women, leading to this study to address the issue.

Methods: A retrospective review was carried out in a major HIV specialist clinic in Hong Kong. All pregnancies in HIV-infected women during the period January 2001 to December 2015 were included.

Results: Sixty-two pregnancies were recorded in 49 women during the 15 year-period, among whom 28 (57.1%) were non-Chinese Asians, 16 (32.7%) were Chinese, and 5 (10.2%) were Africans. Among the 62 pregnancies, 22 (35.5%) were diagnosed antenatally, 3 (4.8%) were diagnosed intrapartum and 3 (4.8%) were diagnosed retrospectively post-partum. All together, 39 pregnancies led to singleton livebirths, 18 had termination of pregnancies, 3 had miscarriages, 1 was still in pregnancy while 1 returned to home country for antenatal care.

Among 8 mothers with pre-existing HIV who gave birth, 7 were taking a median duration of 3.8 years of antiretrovirals treatment (ART), and were virologically suppressed from conception till delivery, while 1 was started on ART at eight weeks of gestation.

Among 25 mothers having an antenatal diagnosis of HIV and gave birth, the median timing of HIV diagnosis was 17 weeks of gestation, with a median baseline CD4 count of 331 and viral load (VL) of 19,143 copies/mL. ART was started at a median of 18.5 gestational weeks, with a median duration of treatment of 18.5 weeks before delivery. Near delivery, 44% and 76% achieved an undetectable VL and a VL below 1,000 copies/mL respectively.

Among 3 mothers who did not have any antenatal care and were diagnosed HIV intrapartum, the VL at delivery were 1,216, 32,654 and 188,309 copies/mL respectively. All received intravenous zidovudine intrapartum. There was one HIV-infected infant among pregnancies that received antenatal and/or intrapartum ART prophylaxis, giving a rate of perinatal HIV transmission of 2.8%. The mother was diagnosed antenatally and had history of substance abuse. She did not attend the clinic for HIV treatment but presented again near
delivery, receiving only few days of treatment before giving birth. The mode of deliveries were mostly caesarean section (25 elective and 8 emergency) with only 3 vaginal deliveries. There were 2 preterm labor at 34 weeks of gestation, and 2 preterm prelabor rupture of membrane at 31 and 36 weeks of gestation. The median birth weight was 2.81kg with 4 having a low birthweight of less than 2.5kg.

Conclusions: Universal antenatal screening is crucial in the prevention of mother-to-child transmission of HIV, and rapid HIV testing in labour ward for women without previous testing offers additional benefit. The three-component antiretroviral prophylaxis was successful in preventing vertical transmission of HIV.

No conflict of interest

Abstract: 41

HIV Prevention Science (ext. abstract submission)

Violence, HIV risk behaviour and depression among female sex workers of eastern Nepal

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Introduction: Owing to the worldwide concern regarding the spread of HIV/AIDS through this group, most of the time preventive measures are focused on the risks associated with the transmission of HIV/AIDS rather than on the health questions in general or mental health consequences of sex work in particular. The objective of the study was to estimate the prevalence of depression among female sex workers (FSWs) of eastern Nepal and to search for an association between depression, violence and HIV risk behaviour.

Materials & Methods: This Cross-sectional/observational study was carried out in five cities of eastern Nepal. Both restaurant-based and street-based FSWs were recruited in the study. Women who had been involved in commercial sex activity in the past 6 months and gave informed consent were included in the study. Face-to-face interviews were conducted with respondents who were sought through a snowball sampling technique.

Results: We interviewed 210 FSWs (both restaurant-based and street-based). The prevalence of depression among respondents was 82.4%. FSWs that had experienced violence were five times more likely to be depressed than those who were not victims of violence. The odds of depression were six times higher among respondents who were involved in any HIV risk behaviour compared with those who were not involved.

Conclusions: The present study reports a high prevalence of depression, HIV risk behaviours and violence among FSWs of eastern Nepal. As a group with highest risk of HIV in Nepal, mental health of FSWs should also be regarded as an important aspect of HIV prevention efforts which can help to promote the overall health of this population.

No conflict of interest

Abstract: 42

HIV Prevention Science (ext. abstract submission)

Improving communication skills of healthcare professional for better approach to adolescent sexual health and HIV prevention – Experience in India

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**Introduction:** India has more than 86% of the HIV transmission from sexual route. In the closed society where sex and sexuality are not discussed openly, it is more difficult to generate awareness and encourage the community to avail reproductive and sexual health services. Adolescents are the most affected section of the society since there are no special services for them. Inadequate information, services and expertise is an important factor that continue to elevate the HIV incidences in India. Further, healthcare professionals are not given adequate training in communication and other soft skills to interact with the adolescents.

**Materials & Methods:** In order to address the gap between healthcare professionals and adolescents availing services, Christian Medical Association of India and SHALOM Manipur has implemented a project which trained 210 adolescents on improving sexual health, life skills and HIV and AIDS. The programme also 90 healthcare professionals were trained in a one day interactive sessions. The main topics include communication skills through role play, sex and sexuality, legal aspect of sexual abuse and other topics of relevance. These are conducted through participatory manner.

**Results:** Even though healthcare professionals have technical knowledge about sexual health, it is important to understand the difficulties for adolescents to approach healthcare facilities. Soft skills like communication skills, adolescent-friendliness of health services plays an important role in service delivery. All 90 healthcare professionals trained showed improvement in knowledge and communication skills through pre and post-tests. All trained healthcare professionals also mentioned that they do not have adequate knowledge about the legal aspect of sexual health.

**Conclusions:** In order to deliver a comprehensive adolescent sexual health services, it is important to build the communication skills of healthcare professionals. Topics like legal aspect of adolescent sexual health and abuse is important for awareness to ensure that adolescents are protected and receive the best comprehensive services in order to reduce the HIV incidence of a country.

No conflict of interest

**Abstract: 43**

**HIV Prevention Science (ext. abstract submission)**

**The prevalence and risk factors for noncommunicable diseases among people living with HIV in Cambodia**

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**Background:** Studies have linked HIV and antiretroviral treatment (ART) with the increased risk of noncommunicable diseases (NCDs) and risk factors such as diabetes, hypertension and elevated blood cholesterol. While 96% of people living with HIV (PLHIV) in need of ART are receiving the treatment, concerted effort is needed to better understand the risks for NCDs among PLHIV in Cambodia.

**Material & Methods:** A cross-sectional study was conducted among PLHIV randomly selected from five provinces. A questionnaire survey and anthropometric measurements were performed to collect information on the history of NCDs and known risk factors. The following criteria were used to define the presence of NCDs: (1) having been diagnosed with diabetes, elevated blood cholesterol, or hypertension by a healthcare provider; (2) having blood glucose level >117 mg/dL, systolic blood pressure >140 mmHg and/or diastolic blood pressure >90 mmHg, or total cholesterol level >232 mg/dL; (3) having been on treatment for diabetes, hypertension or elevated blood cholesterol. A multivariate logistic regression model was constructed to identify independent risk factors for NCDs.

**Results:** This study included 510 PLHIV, of whom 66.7% were female, with a mean age of 44.8 years (SD= 8.4). Based on our definition, the prevalence of NCDs among PLHIV in this study was 32.2% (35.9% among males and 30.3% among females). Of those with NCDs, 72.6% had low education (completed primary school or less); 62.8% were >45 years or old; 43.9% were not married/cohabiting; 9.2% were
current smokers, 42.7% have consumed alcohol in the past 12 months, 39.6% were not active at work, 48.2% were not active in their leisure time, 3.1% did not eat five servings of fruits and vegetables each week. After adjustment for other covariates, the odds of having NCDs were significantly higher among males (AOR=1.80; 95% CI = 1.14-2.85), among people who were not current smokers (AOR=0.28; 95% CI=0.14-0.57), and among people who were ≥45 years (AOR=2.21; 95% CI = 1.50-3.27).

Conclusions: We found that NCDs were common among PLHIV in this study. By better understanding the significant association of gender, age, and smoking with NCDs, future interventions will be better informed to prevent morbidity and mortality due to NCDs among PLHIV.

No conflict of interest

Abstract: 44

Antiretroviral Therapies in Adults (Clinical Trials and Observational Cohort Studies)

Adverse reactions on the pharmacokinetics of dolutegravir in Japanese HIV-1 infected patients

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Backgrounds: Dolutegravir is a second-generation HIV-1 integrase inhibitor that is high potent against both wild-type and drug-resistant HIV-1 strains. Dolutegravir has a good toleration, few drug interactions, minimal drug resistance and once-daily dosing for treatment-naive patients. Therefore, dolutegravir is approved for use in a broad population of HIV-infected patients. However, pharmacokinetic study of dolutegravir for Japanese is still not clear. In this study, we intended to evaluate the pharmacokinetic properties of dolutegravir in Japanese HIV-1 infected patients and the relationship between adverse reactions and plasma dolutegravir concentrations.

Material & Methods: We recruited 100 Japanese HIV-1-infected patients who were treated with dolutegravir containing regimen in Japan. All patients had been administered with 50mg dolutegravir once daily in combination with other antiretrovirals. Plasma dolutegravir concentrations were determined by our developed LC-MS method. Adverse reactions were assessed by interview at outpatient clinic.

Results: In this study, mean dolutegravir plasma concentration for Japanese HIV-1 infected patients at trough was 0.54±0.38 μg/ml. Mean dolutegravir concentration at peak was 3.32±0.62 μg/ml. A calculated elimination half-life was 12 hours and AUC was 40.7 μg•h/ml. These pharmacokinetic profiles were similar with dolutegravir concentrations seen in foreign HIV-1-infected patients’ trials. Adverse reactions were seen in 20 of 100 recruited Japanese HIV-1 infected patients. The most commonly seen treatment emergent adverse reactions were diarrhoea (n=6), severe tiredness (n=3), skin rash (n=3), numbness of the hands (n=2), vomiting (n=2), abdominal pain (n=2), and headache (n=2). ALT and AST level were not elevated in all patients. Serum creatinine level was slightly elevated in 2 patients. Also no correlation was observed between these adverse reactions and plasma dolutegravir concentrations in an individual patient.

Conclusions: The pharmacokinetic profiles and adverse reactions of dolutegravir in Japanese HIV-1 infected patients were almost similar to what has been seen in foreign trials. In general, body build of Japanese people is poor in comparison with Caucasian. Therefore, high plasma dolutegravir concentrations may result in severe adverse reactions and dose reduction for Japanese. However, our data showed that the dose adjustment of dolutegravir is not also required for Japanese HIV-1-infected patients.

No conflict of interest
Abstract: 45

Antiretroviral Therapies in Adults (Clinical Trials and Observational Cohort Studies)

Treatment outcome for NRTI sparing regimen consisting of dolutegravir and rilpivirine

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Backgrounds: The nucleoside reverse transcriptase inhibitors (NRTI) have been an important 'back-bone' of an antiretroviral therapy (ART) regimen. However these agents have been associated with both short and long term toxicity. There has therefore been growing interest in evaluating NRTI sparing regimens. Now we have administered dolutegravir and rilpivirine to patients as a new NRTI sparing regimen because of reducing pill burden and few drug-drug interactions. However, there are few data on the outcome of ART regimen consisting of dolutegravir and rilpivirine. In this study, we examined treatment outcome for NRTI sparing regimen consisting of dolutegravir and rilpivirine in Japanese HIV-1 infected patients.

Material & Methods: We examined medical records of Nagoya Medical Center from 2014 to 2015 for Japanese HIV-1 infected patients. We found 27 patients treated with NRTI sparing regimen consisting of dolutegravir and rilpivirine. In this study, we examined treatment outcome for NRTI sparing regimen consisting of dolutegravir and rilpivirine in Japanese HIV-1 infected patients.

Results: Median duration of regimen for 27 Japanese HIV-1 infected patients (26 males, 1 female; mean age, 57 years) was 323 days (3-404 days). At May 2015, 25 patients have continued NRTI sparing regimen consisting of dolutegravir and rilpivirine. Only two patients had changed to other ART combination regimens because of low drug susceptibility and drug-drug interactions. After starting NRTI sparing regimen consisting of dolutegravir and rilpivirine, HIV viral load were soon less than the detection limit for all patients. Virologic failure and regimen discontinuations by severe adverse reactions were not confirmed for individuals. In addition, abnormal laboratory data were not shown for all patients.

Conclusions: Current UK and US treatment guidelines do not recommend NRTI sparing regimens for people starting ART due to concerns about toxicity, premature treatment discontinuation, and drug resistance. However, NRTI sparing regimen, such as dolutegravir + rilpivirine, will be available in the future because of reducing pill burden, few drug interactions and low toxicity.

No conflict of interest

Abstract: 46

Antiretroviral Therapies in Adults (Clinical Trials and Observational Cohort Studies)

Is Dolutegravir-based antiretroviral therapy safe and tolerable in Asian people?

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Introduction: Dolutegravir (DTG), a new HIV integrase inhibitor, has antiviral activity with once daily, unboosted dosing and has shown a favorable safety profile. In Japan, DTG was approved in April 2014. There are few data on use of DTG in Asian, thus the aim of this study to evaluate safety, tolerability and efficacy of DTG-based regimen in Asian patients with HIV-1 infection.

Material & Methods: We enrolled consecutive 21 HIV-1 positive patients treated by DTG-based regimen from May 2014 to August 2015 in our institute. The dosage of DTG, using as a key-drug of anti-retroviral therapy (ART), was 50mg once daily. Nucleoside reverse transcriptase inhibitors as backbone-drugs were used (abacavir-lamibdines for 7 patients and emtricitavine-tenofovirs for the other).
Subjects were generally middle-aged, predominantly male and Asian. Of these, 16 patients were male, 20 were Asian. The average age was 45±66.7 years old. 2 patients were HIV treatment-naive and 19 patients had been treated. First, we evaluated safety tolerability and efficacy of all patients. Second, in order to evaluate the differences in efficacy between DTG and another key-drug, we investigate change in the average CD4 cell counts of three consecutive measurements between before and after switch in key drug in 14 patients who had been previously treated by other regimen for at least three years and been switched to DTG based regimen using same backbone drugs and tolerated the new regimen for more than 6 months.

**Results:** DTG was well received in all the patients, which is due to the small dosage form and less influence of diet on drug absorption. Two patients were dead within 4 months after switch to new ART regimen with DTG. The causes of mortalities were sudden cardiac death and aspiration pneumonia. In 2 treat-naive patients, viral loads were decreased to less than 20 copies per mL at 10 weeks. Clinical and laboratory adverse events occurred in 7 patients who all were Asian. Of these, 5 patients were led to discontinuation of DTG. The adverse events were liver dysfunction in 2 patients, drowsiness in 2, headache in 1, diarrhea in 1 and rhabdomyolysis in 1. Drowsiness and headache were occurred just after 1-3 hours taking drugs in female patients. The drowsiness were solved by taking at night and the other events were improved after returning to the previous regimen. In patients without adverse event, the virus has been sufficiently suppressed. In 14 patients whose key drug had switched to DTG (from fosamprenavirs in 3 patients, efavirenz in 4 and raltegravirs in 3), CD4 cell counts were increased from 502±197 to 534±235 cells per µL.

**Conclusions:** While the efficiency of DTG were excellent, 24% were needed to discontinuation of DTG due to adverse events. The frequency of side effects of DTG treatment in Asians may be higher than the rate in the previous studies performed in Western countries. Through our experience, especially in using DTG for Asian women, it seems to be necessary to pay attention to symptom associated with the central nervous system.

No conflict of interest
of the non-elderly patients were Chinese. Overall, man-who-have-sex-with-man (MSM) accounted for 28.6% (n=8) and 39.3% (n=22) of the cases and controls respectively (p=0.33). Both subtype B (39.3%) and CRF01_AE (39.3%) were common in the elderly cases whereas CRF01_AE predominated (55.8%) in the younger controls. The viral load level at baseline was similar. Before HAART initiation, a lower proportion of elderly had a CD4 count ≤200/μL (57.1% vs 87.5%; p<0.05). The median time from diagnosis to HAART initiation was 9.95 months for cases and 5.42 months for control, but the difference did not reach statistical significance (p=0.31). Seventeen (60.7%) elderly patients were 'satisfactory responders' and 4 of them continued to have increases of CD4 cells (>100 cell/μL) in the 4th year. There is no significant difference of responder classification between elderly and non-elderly patients (p=0.32). Most could not reach a CD4:CD8 ratio of 1.00 by the end of the 4-year period, an observation that applied to both cases and controls (p=0.11). Nevertheless, 2 out of the 5 elderly patients achieving a ratio >1.00 were 'poor responders'.

Conclusion: While it is generally believed that elderly HIV patients might not perform as well as their young counterparts in term of immunological recovery following HAART, our study did not show any significant difference in CD4 recovery between elderly and non-elderly patients. The use of CD4:CD8 ratio as a supplementary indicator of immunological recovery would need to be further investigated.

No conflict of interest

Background: There is no guideline concerning choice of antiretroviral therapy (ART) for HIV patients after unplanned interruption. As first line ART is cheap and simple, we wanted to know the consequences of restarting and the affecting factors.

Material & Methods: We conducted a retrospective cohort study of HIV patients reintroduced to first line ART after having unplanned interruption for at least one month. The data were collected from medical records of Dr. Cipto Mangunkusumo Hospital in Jakarta. Viral load (VL) was evaluated at 6-18 months after first line ART reintroduction with success defined as achievement of VL <400 copies/mL. Analyses to the affecting factors were done using bivariate and multivariate logistic regression tests.

Results: Between January 2005 and December 2014, 100 subjects restarted first line ART and were tested for VL after 6-18 months. Virological success was achieved in 55 subjects. Virological success was associated with history of interrupted once (aOR 5.51%, 95%CI 1.82-16.68, p=0.003) and CD4 ≥200 cell/mm³ at the time of reintroduction (aOR 4.33, 95%CI 1.14-16.39, p=0.031).

Conclusions: Probability of virological success on first line ART reintroduction after unplanned interruption was 55%. Patients who were interrupted once and patients with CD4 ≥ 200 cell/mm³ at the time of reintroduction had a higher probability of success treatment.

No conflict of interest
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Antiretroviral Therapies in Adults (Clinical Trials and Observational Cohort Studies)

Ten year experience with antiretroviral treatment in Cambodia: trends in patient characteristics and treatment outcomes

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Background: Although HIV disease stage at ART initiation critically determines ART outcomes, few reports have longitudinally monitored this within Asia. Using prospectively collected data from a large ART program at Sihanouk Hospital Center of Hope in Cambodia, we report on the change in patient characteristics and outcomes over a ten-year period.

Methods: We conducted a retrospective analysis including all adults starting ART from March 2003 to March 2013 in a non-governmental hospital in Phnom Penh, Cambodia. The cumulative incidence of death, lost to follow-up (LTFU) and attrition (death or LTFU) were calculated using Kaplan-Meier methods. Independent risk factors for these outcomes were determined using Cox regression modeling.

Results: Over the ten-year period, 3581 patients initiated ART. The median age was 35 years (IQR 30-41), 54% were female. The median CD4 count at ART initiation increased from 22 (IQR 4-129) in 2003 to 218 (IQR 57-302) cells/µL in 2013. Over a median follow-up time of 4.8 years (IQR 2.8-7.2), 282 (7.9%) individuals died and 433 (12.1%) were LTFU. Program attrition was 11.1% (95% CI: 10.4%-12.4%) at one year, 16.3% (95% CI: 15.1%-17.7%) at three years, 19.8% (95% CI: 18.5%-21.2%) at five years and 23.3% (95% CI: 21.6-25.1) at ten years (figure1). One year attrition decreased from 27% in 2003-2005 to 14% in 2012-2013; mortality decreased from 16% in 2003-2005 to 5.2% in 2012-2013; lost to follow-up decreased from 11.3% in 2003-2005 to 9.2% in 2012-2013. Male sex and low baseline body mass index (BMI) were associated with increased attrition. Factors independently associated with mortality included a low baseline CD4 count, older age, male sex, low baseline BMI and hepatitis B co-infection. Individuals aged above 40 years old had an increased risk of mortality but were less likely to LTFU (table).

Conclusions: Despite gradually earlier initiation of ART over the ten year period, ART is still initiated at too low CD4 count levels, warranting increased efforts for early HIV diagnosis and enrolment/retention into HIV care. Tailored strategies for poor prognostic groups (older age, male, low BMI) should be designed and evaluated.

No conflict of interest

Abstract: 50

Antiretroviral Therapies in Adults (Clinical Trials and Observational Cohort Studies)

Dual Ritonavir-Boosted Protease Inhibitors Plus Lamivudine Regimens in Treatment-experienced Adult HIV-1-infected Patients: a Pilot Study in Taoyuan, Taiwan.

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Introduction: Zidovudine remained in the first-line antiretroviral regimens in Taiwan. Problems of long-term zidovudine (AZT) exposure included bone marrow suppression, macrocytic anemia, mitochondrial toxicities, lipoatrophy, and diabetes, etc. We aimed to explore the efficacy and changes of metabolic profiles of AZT-sparing ritonavir-boosted protease inhibitors (PI) regimen switching from standard triple therapy.
Methods: Patients aged 20 years and above who were virologically suppressed by triple therapy and negative for hepatitis B antigen were invited for simplification between May and Oct. 2015. CD4+ T cell counts, HIV viral loads, total cholesterol (CHO), triglyceride, low-density lipoprotein (LDL), high-density lipoprotein (HDL), HbA1C, and fasting glucose were evaluated. Patients who remained on AZT-containing PI regimens were treated as comparison group. Chi-square tests, Mann-Whitney U tests and student’s t-tests were used when appropriate.

Results: Totally 112 patients were enrolled and had stably switched to lamivudine + ritonavir-boosted PI. Among them, 77.6% of subjects were male, the mean age (± standard deviation, SD) was 38.1 (± 8.89) years, and the proportions of homosexual, heterosexual, and injection drug-using patients were 52.7%, 9.8%, and 36.6%, respectively. The boosted PI components were lopinavir/ritonavir, 75.8%; and darunavir/ritonavir, 24.1%. Before enrollment, mean duration of antiretroviral drugs was 4.02 (± 3.75) years. HIV viral load <50 copies/ml before switch, 4 weeks, 12 weeks, and 24 weeks after switch were 88.3%, 80.9%, 87.7%, and 92%, respectively. Among them, 6 patients (5.3%) had terminated dual therapy, and the reasons were virological rebounds (2, 1.8%), lamivudine allergy (2, 1.8%), diarrhea (1, 0.9%), and personal decision (1, 0.9%). There were significant increases in total CHO level (180.1 ± 31.4 vs. 195.8 ±38.2 mg/dl, \(p = 0.004\)), LDL level (99.9 ±27.5 vs. 108.4 ± 31.3 mg/dl, \(p = 0.037\)), and HbA1C level (4.90 ± 0.47 vs 5.10 ± 0.47 %, \(p < 0.0005\)) after 3-6 months of dual therapy. Comparing to control group (46 patients), the changes of HDL (+2.28 ± 12.66 vs. -2.27 ± 7.00 mg/dl, \(p = 0.044\)) and HbA1C (+0.19 ± 0.29 vs. -0.002 ± 0.26 %, \(p = 0.002\)) were statistically significant in AZT-sparing group.

Conclusions: We concluded simplification of antiretroviral therapy to dual regimen is safe and efficacious. Increases of HbA1C may be related to normalization of red blood cells. However, the implications of increasing CHO, LDL, and HDL levels deserved longer term of observation.

No conflict of interest

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Antiretroviral Therapies in Adults (Clinical Trials and Observational Cohort Studies)

Risk factors of Failure of First-line Antiretroviral Therapy and Switch to Second-line ART in Cambodia, 2003–2013

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Background: While the first line failure is a key challenge for antiretroviral therapy (ART) programs in low income countries, there are few studies that have assessed this over the long term. Using prospectively collected program data from a large ART program in the Sihanouk Hospital Center of HOPE, Phnom Penh, Cambodia. We report on the 10-year incidence of first line treatment failure and associated risk factors.

Methods: We conducted a retrospective analysis including all adults starting ART from March 2003-March 2013 in a non-governmental hospital in Phnom Penh, Cambodia. Definition treatment failure and indication for second line treatment followed WHO guidelines for the different periods. The cumulative incident of first-line antiretroviral treatment failure and switch to second line antiretroviral therapy were calculated using Kaplan-Meier methods. Independent risk factors were determined using Cox regression modeling.

Results: There were a total of 137 individuals with first line ART failure starting second line treatment occurring a median of 4.8 years (IQR:2.4-7.1) after ART initiation. Of the 137 individuals were file review was done, a detectable viral load before was documented before the initiation of second line treatment in 137 (3.83%); 135 had at least one viral load measurement above 1000 copies/ml. The probability of first line failure was estimated at 0.3% (95% CI: 0.1%-0.6%) at 3 years, 1.2% (95% CI: 0.8%-1.8%) at 5 years and 9.1% (95% CI 11.15%-12.05%) at ten years of ART.
Factors independently associated with an increased risk of treatment failure included ART-experience, NVP-based ART and a baseline CD4 count below 200 cells/µl. Conversely, a lower risk was observed among individuals starting ART during the 2006-2008 periods.

**Conclusion:** The probability of first line treatment failure was particularly high in the first few program years, partly due to the relatively high number of ART-experienced patients. Earlier ART initiation and the increased use of Efavirenz-based treatment could contribute to reduced first line failure rates.

No conflict of interest

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### Abstract: 52

**Antiretroviral Therapies in Adults (Clinical Trials and Observational Cohort Studies)**

**Implication of the WHO Antiretroviral guidelines revision over twelve years of HAART in Sanglah Hospital**

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**Background:** The free antiretroviral therapy (ART) program was launched in 2004 in Sanglah Hospital a tertiary referral hospital for HIV care in Bali one of province with highest numbers of HIV infected patients in Indonesia. This study was conducted to evaluate the characteristic of HIV patients on ART initiation and treatment outcomes, regarding changes in National ART initiation guidelines while reflecting WHO ART guidelines revision in 2006 and 2010

**Material & Method:** Cross sectional overtime study. Data were obtained from the HIV cohort database at Nusa Indah Clinic Sanglah Hospital. Information was extracted and statistic analysis were performed on patients enrolling in care and initiating ART in 3 times periods; I (2004-2006), II (2007-2010) and III (2011-2015) matching availability of different WHO ART guidelines

**Results:** Over the twelve years period a total of 3748 ARV-naive patients enrolled, with females 16.3% in I period, up to 35.9% in II period and 42.3% in III period. Older adult patients (age 50 and older) constitute; 2.8% (I) increase to 3.1% (II) and 4.9% (III). Over the same periods; mean baseline CD4⁺ cell count was 76 cells/mm³ and 72 cells/mm³, up to 163 cells/mm³ (p for trend<0.001) and proportion initiating ART with advanced HIV disease (CD4⁺<200 and/or WHO stage III-IV) was 96.7%, 94.9% and 70.5%, in patients starting ART (p <0.001). Proportion of functional status; (I) only 30% were able to working (W) and 70% were only able to perform activity of daily living or bedridden (NW), (II) 31.4% W: 68.6% NW, (III) 52.2% W: 47.8% NW. The use of zidovudine backbone first line ART regimen decreased (I)88.2%. (II)89.3% and (III)60.1% (p<0.001), tenofovir based regimen increased (I)0.4%, (II)0.7% and (III)39% (p<0.001) and stavudine based regimen decreased (I)11.4%, (II)10%, (III)0.8% (p<0.001). Among patients remaining in six months treatment the mean CD4⁺ cell count was (I)183 cell/mm³, (II)201 cell/mm³ and (III)225 cell/mm³, with functional status; (I) W80.8%; NW19.2, (II) W90.2%; NW9.8%; and (III) W89.3%; NW10.7 %. Six months mortality and lost of follow up (LFU) in ART were respectively; (I) 28.9% and 10.2%, (II)11% and 12.5%, falling to (III) 6.2% and 1.7%.

**Conclusions:** Result of this evaluation indicate significantly improvements in mean CD4⁺ count and functional status on ART initiation patients, and decline proportion of advanced HIV disease following the expansion of ART eligibility criteria. The progressively reduce the use of stavudine in favour of increasing use of tenofovir were consistent with revises the WHO ART guidelines. One issue has been addressed successfully in HAART is improvement of ability for working with dramatic decline mortality and LFU during six months follow up-visit, although a substantial elimination of new HIV infection among women and older adult remains an important challenges in our setting.

No conflict of interest
Peripheral Neuropathy in HIV Patients Receiving Non-Stavudine Antiretroviral Therapy

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Background: Peripheral neuropathy is a common neurologic complication of HIV disease. Stavudine increased neuropathy risk but is no longer used as first line AntiRetroviral Therapy (ART). However, studies of neuropathy patients treated without stavudine were scarce. This study determined prevalence of peripheral neuropathy in HIV patients receiving ART without stavudine.

Material and methods: A cross-sectional study was conducted using 12 month time point of a longitudinal study of patients treated without stavudine in Jakarta (JakCCANDO study) and primary data from HIV patients receiving ART without stavudine for at least 12 months in an inner city integrated HIV outpatient clinic in Cipto Mangunkusumo General Hospital. Detailed clinical histories were taken and neuropathy was assessed using the Brief Peripheral Neuropathy Screen (BPNS), a Nerve Conduction Study (NCS), and Stimulated Skin Wrinkling (SSW) using lidocaine 2.5%;prilocaine 2.5% cream. Data were analysed using SPSS 17.0.

Results: The prevalence of neuropathy from 68 study subjects based on BPNS, NCS, SSW was 16%, 25%, 29%, respectively but 53% of subjects were classified as having neuropathy by one or more tests. Subjects with nadir CD4 T-cell counts below 50 cells/µl were 2.85 times more likely to have neuropathy than subjects with higher nadir CD4 T-cell counts(CI 95% 2.0-8.3). Subjects taller than 170 cm (p<0.03) or with plasma HIV RNA over 35000 copies/ml (p<0.05) had significantly lower sensory nerve conduction velocities in their lower legs.

Conclusions: Peripheral neuropathy remains a common neurological complication in our clinic even when stavudine is no longer used. Multiple diagnostic tools detected higher number of neuropathy cases compared to a single diagnostic modality. Subjects with advanced HIV disease were at greater risk, and an effect of height and viral load was evident. Further studies are required to assess the relative roles of HIV and non-stavudine ART in the neuropathy detected here.

No conflict of interest

Baseline patient characteristics and incidence of cardiovascular diseases in HIV-infected individuals in Hong Kong

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Introduction: Cardiovascular disease (CVD) has become an important cause of morbidity and mortality among HIV-infected patients as they are living longer with successful antiretroviral therapy. The aim of this study is to assess the incidence and predictors of CVD among HIV-infected individuals in Hong Kong.

Methods: A cross-sectional analysis of CVD risk factors was conducted at baseline. All consecutive HIV-infected patients who attended clinic during a 4-month period with informed consent were enrolled. Exclusion criteria
included opportunistic infections within 4 weeks of screening and prior history of CVD. Data collection included demographic variables, anthropometric parameters, traditional CVD risk factors, CD4 cell count, HIV RNA, high-sensitivity C-reactive protein (hsCRP), and antiretroviral therapy. Patients were then followed-up longitudinally for clinical CVD events. Only the first CVD event for each subject was counted. Cox regression models were used to study association of baseline variables with CVD events.

Results: This study was conducted between April 2011 and December 2015 in a major HIV referral center in Hong Kong. A total of 678 patients were enrolled at baseline with a median age of 45 years old (IQR 38-52). Majority was male (79.6%) and Chinese (82.7%). Over half (56.6%) of them were taking combination antiretroviral therapy for > 5 years. About 88.8% of patients had CD4 cell counts ≥ 200 cells/μL and 92.8% had HIV RNA < 1,000 copies/ml. The proportion of current smoker, ex-smoker, and non-smoker were 24.4%, 22.7%, and 52.8%, respectively. The prevalence of other CVD risk factors were as follows: dyslipidemia 30.3%, diabetes mellitus 15.9%, hypertension 29.7%, physical inactive 18.4%, obesity 21.7%, and metabolic syndrome 12.3%. About 12% had family history of CVD, Framingham risk scores were low, intermediate, and high in 81.1%, 15.6%, and 3.2% of patients, respectively. Plasma level of hsCRP was also measured at baseline, and 48.6%, 30.9%, and 17.4% of patients had levels indicated low, average, and high CVD risk, respectively. Median follow-up was 3.6 years (IQR 3.48 - 3.71 years) with a total of 3,358 patient-years follow-up. There were 16 clinical CVD events reported during the study period (acute myocardial infarction 3, ischaemic heart disease 10, and cerebral vascular disease 3). Incidence of CVD was 0.476 per 100 patient-years. CVD was diagnosed in 8 patients of age < 50 years old. Baseline demographic, CVD risk factors and hsCRP were not associated with subsequent CVD events in this cohort.

Conclusions: The occurrence of CVD events in this relatively young cohort was not infrequent and half of these events were diagnosed in HIV-infected individuals of age less than 50. Optimal screening strategy and risk stratification algorithm has not yet established.

No conflict of interest

Abstract: 55

Co-Morbidities and Complications (Including those related to ART)

HIV Drug Resistance is on rise among IDUs and MSMs in Karachi, Pakistan.

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Background: Pakistan has witnessed a transition from low prevalence to a country with concentrated epidemic in high risk groups. Similarly, with the passage of time increase in resistance against antiretroviral drugs is now being observed due to random mutations mainly of two types, major and minor that are continuously occurring in HIV genome. Contradictory to the previous researches that showed a very high sensitivity pattern towards antiretroviral drugs, our study shows high drug resistance pattern when we recently studied the data from the current HIV patients. The objective is to study the current HIV drug resistance in IDUs and MSMs in Karachi, Pakistan.

Methodology: 100 HIV-1 infected patients who are on treatment were included in the current ongoing study. DNA was extracted from whole blood using DNA extraction kit and the extracted DNA was subjected to nested PCR to amplify the HIV RT region using specific primers. PCR products were sequenced using sequencing primers. Sequences were assembled, blast, cleaned and aligned using mega5 to reference sequences on hiv-1 database to ensure the quality of the sequences. RT gene sequences were entered into Stanford HIV drug resistance database for analysis of drug resistance and mutations.

Results: 60 percent of the patients showed major and minor mutations to NRTI and NNRTI. According to our results virus is showing high level, potential low level, low level and intermediate resistance to both NRTI and NNRTI drugs such as Lamivudine (3TC), Emtricitabine (FTC), Stavudine (D4T), Didanosine (DDI), Abacavir (ABC), Tenofovir (TDF), Zidovudine (AZT) and Etravirine (ETR),

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Nevirapine (NVP), Tenofovir (TDF), rilpivirine (RPV) respectively.

**Conclusion:** Majority of patients receiving Anti-Retroviral drugs have shown major or minor mutations resulting in a drug resistant virus in our community. Data indicates that virus is becoming resistant to most of the drugs. Our results are showing High level to Potential low level resistance which indicates that HIV drug resistance is on rise on our part of the world. These results are alarming on contrary to the previous reported data in which hardly any drug resistance has been reported from this area.

No conflict of interest

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**Abstract: 56**

Co-Morbidities and Complications (Including those related to ART)

**Insulin resistance and total cholesterol levels in HIV positive individuals on combination Antiretroviral Therapy in Chennai, South India**

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**Introduction:** Insulin resistance (IR) is one of the long term complications of combination Antiretroviral Therapy (cART). Limited data is available from India on insulin resistance in HIV positive individuals. As the HIV infected individuals on ART ages, there is likely to have an increase in IR. Indian population is genetically susceptible to heart diseases and diabetes. The objective of this study was to estimate the prevalence of insulin resistance and its association with total cholesterol levels in HIV infected individuals on cART in South India.

**Material and Methods:** A cross sectional study was conducted among consenting HIV positive men and women attending an ART centre in a tertiary care hospital in Chennai, South India. HIV positive individuals on cART for 12 months or more were enrolled into the study. Demographics collected included age, gender, ART regimen and duration of ART. Anthropometric measurements were taken and BMI was calculated. Fasting Insulin levels were tested using ELISA (Monobind Inc. USA). Fasting serum glucose and total cholesterol levels were measured by enzymatic-linked colorimetric methods. Insulin resistance was calculated applying the homeostasis model assessment (HOMA) formula. HOMA>3.0 was defined as IR. Data was analysed using mean, median and correlation coefficient.

**Results:** From September 2013 to October 2015, 133 HIV positive patients were recruited into the study. Fifty nine percent (79/133) were males, 40% (53/133) were females and one transgender (TG). Their age ranged from 21-60 years with a mean age of 42± 8.1yrs. Duration of ART ranged from 1-15 years with a mean of 4 years. The recent median CD4 counts were 655 ± 275 cells/µl and median BMI was 21.7±3.62. Mean total cholesterol was 215 ± 41mg/dl and hypercholesterolemia was observed in 40 (30%) patients (24 males & 16 females).

The fasting blood sugar ranged from 65 to 293 mg/dl with a mean value of 82 ±24.8mg/dl. The mean of fasting insulin was 21.73 µIU/ml. Fifty (37%) patients were diagnosed with IR in which 30 (60 %) were men, 20 (40 %) women and one was TG. Among the 50 HIV positive patients with IR, 45 (90%) were on Zidovudine / Lamivudine / Nevirapine, 3 were on Tenofovir / Lamivudine / Efavirenz and 2 were on Tenofovir / Lamivudine / Nevirapine regimens. There was positive correlation between CD4, BMI and total cholestrol with IR (r=0.09, r=0.19, r=0.098 respectively)

**Conclusions:** In this study, insulin resistance and total cholesterol levels were found to be high among the HIV positive individuals on long term cART. It was observed that IR was higher in HIV positive males (60%) patients than females. While cART decreases morbidity and mortality, risk to diabetes and cardiovascular events are high. Therefore these patients should be monitored for the development of atherosclerosis, hypertension and type II diabetes mellitus. Management of IR may be
incorporated into the long term HIV treatment strategies.

No conflict of interest

Abstract: 57

Co-Morbidities and Complications (Including those related to ART)

Evaluation of Screening Tools for HIV-Associated Neurocognitive Disorder

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Introduction: HIV-associated neurocognitive disorder (HAND) is a disabling complication in HIV disease progression. Due to high prevalence and negative impacts of HAND such as functional disorders, loss of employment, and dependence to caregivers, therefore it's necessary to have some practical tools to screen HAND to prevent disabilities. Standard cognitive assessment is not routinely done due to its complexity, time-consumption, low availability, and requirement of experts. International HIV Dementia scale (IHDS) and Montreal Cognitive Assessment-Bahasa Indonesia Version (MOCA-INA) are validated clinical screening tools to detect HAND. This will be the first study in Indonesia to look into the sensitivity and specificity of IHDS and MOCA-INA as a screening tool for HAND and to determine which cognitive domains are mostly affected.

Material & Methods: This was a diagnostic study in Integrated HIV Outpatient Clinics in Cipto Mangunkusumo Hospital in September to December 2015. Patients included in the inclusion criteria were screened for cognitive disorder using IHDS and MOCA-INA as well as complete cognitive assessment. Cognitive disorder was present if the IHDS score was ≤10 and MOCA-INA was <26. The diagnosis of HAND was made when there were disturbance in at least two cognitive domains with at least one lower standard deviation based on demography. The sensitivity and specificity of IHDS and MOCA-INA were then determined compared to complete cognitive assessment. The cognitive disturbance pattern was then described based on the cognitive domain.

Result: There were 120 subjects with median (range) age of 33 (21-40) years, with male predominance (54.2%). Level of educations was less or equal to 12 years in 70.8% subjects, and as much as 45.8% subjects complained decrease memory and concentration. The median CD4 count was 415 (3-1508) cell/μl. Most subjects (97.5%) received Antiretroviral Treatment (ART) with median duration of 47 (1-240) months and median duration of HIV diagnosis of 48 (1-240) months. Prevalence of HAND based on IHDS, MOCA-INA, and complete cognitive assessment were 45%, 57.5%, and 60%, respectively. The sensitivity and specificity of IHDS were 45.8% (95% CI 0.348-0.573) and 56.3% (95% CI 0.423-0.693), respectively. The sensitivity and specificity of MOCA-INA were 70.8% (95% CI 0.595-0.801) and 62.5% (95% CI 0.484-0.748). Memory function (98.6%) was the most affected domain, followed by impairment of executive function (77.8%) and verbal fluency disturbance (43.1%).

Conclusion: MOCA-INA is a validated screening tool for HAND with higher sensitivity and specificity compared to IHDS. The most frequent disorders were memory impairment, impairment of executive function, and disturbance in verbal fluency.

No conflict of interest

Abstract: 58

Co-Morbidities and Complications (Including those related to ART)

Trends in Mortality and Cause of Death in HIV-infected Patients in Shenzhen, China, 2005-2014

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Abstract

Introductions: This study performed a retrospective analysis of mortality trend, causes of death and associated risk factors among HIV-infected adults in Shenzhen, a southern city in China. Materials and Methods: 9169 HIV-infected adults in Shenzhen were followed up from January, 2005 until December, 2014 for mortality analysis. All deaths among these patients during this period were classified into categories following the Coding Causes of Death in HIV (CoDe) protocol (Version 2.3). Results: Two hundred and twenty nine deaths were reported, with the crude mortality rate of 24.98‰. The annual death rate decreased from 26.25‰ in 2005 to 4.66‰ in 2014. Among those who died, HIV infection had been diagnosed recently (within 6 months before death) in 65.5% and only 27.1% received highly active antiretroviral therapy (HAART). The median CD4 cell count at the time of death was only 15 cells/mm3. The most frequent cause of death was AIDS-related (168 deaths, 73.4%) and viral hepatitis (22, 9.6%) accounted for the main cause of Non-AIDS-related death. Patients dying of CVD had a significantly higher rate of HAART treatment than those dying of AIDS-related and liver diseases (P<0.01). Conclusions: The mortality rate has significantly decreased among HIV-infected patients with increasing treatment coverage of HAART in Shenzhen. AIDS-related causes remain the strongest factor associated with mortality in the era of HAART because of delayed medical consultation and treatment. The prevention of HBV/HCV co-infection with HIV and HAART-induced cardiovascular disease are important for the control of non-AIDS related death.

No conflict of interest

Abstract: 59

Co-Morbidities and Complications (Including those related to ART)

Short – term Survival of Human Immunodeficiency Virus associated Pneumocystis Pneumonia

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Background: After more than one decade since the first HIV case in Indonesia being detected in Bali, and despite the use of antiretroviral therapy has led to improved AIDS-associated mortality, Pneumocystis pneumonia, is still pose as a problem. There is no firm data establishing that it represent the survival of HIV associated Pneumocystis pneumonia in Indonesia. The objective is to measure the 30 days survival rate of treatment naïve HIV associated PCP

Methods: An observational cohort study of treatment naïve newly diagnosed HIV-infected patients with clinical diagnosis of PCP at Sanglah hospital from January 2015 to December 2015. The difference of survival by the time of PCP diagnosis were estimated by using Log Rank method and survival risk was measured by using Cox proportional hazard.

Results: There were 69 (69/852; 8%) HIV associated PCP among newly diagnosed HIV patients. Two third of the case were male with median age 34 year old (range 21 – 65 year) and severe immunodeficiency state (median CD4 14 cells/uL; range 1 – 144 cells/uL). Half of the cases were moderate PCP (34/69; 49%) the rest were mild PCP (23/69; 33%) and severe PCP (12/69; 18%). The 30 days survival rate was 83%. Case fatality rate during hospitalstay was 75% for severe PCP with total cohort mortality was 47%. Estimated median of survival time was 21 days (95% CI=7.421 – 34.597). Log rank test shows significant difference in the survival distributions for PCP severity, x²(2)= 35.164, p< 0.0005. Patients with moderate to severe PCP were less likely to
survive (OR=0.347; 95% CI=0.143 – 0.842) compared to mild PCP.

Conclusion: Moderate to severe PCP was 2.88 times less likely to survive compared to mild PCP.

No conflict of interest

Abstract: 60

Drug resistance and pharmacology

Low fecal carriage rate of Extended-Spectrum β-lactamase producing Enterobacteriaceae in HIV infected patients

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Background: The gastrointestinal colonization by extended-spectrum β-lactamase (ESBL)-producing bacteria has been increasing worldwide. Fecal carriage of ESBL producing enterobacteriaceae has not been extensively investigated in HIV infected individuals. The aim of this pilot study was to determine and compare the rate of gastrointestinal carriage of extended-spectrum beta-lactamase (ESBL) and carbapenemase producing Enterobacteriaceae (CPE) in the HIV infected people and healthy individuals in Western Nepal.

Material & Methods: A cross sectional study was conducted. Participants in the HIV positive group were enrolled from day care centers and from those visiting Manipal Teaching Hospital and Western Regional Hospital, Pokhara for routine checkup. The specimens from healthy subjects from community were obtained using cluster random sampling method. Rectal swabs from HIV infected patients (n=48) and healthy individuals from community (n=207) were screened for ESBL and CPE by using ESBL CHROM agar and MacConkey agar with 1 µg/ml imipenem (hi-media, India) respectively. The phenotypic confirmation of ESBL production was performed by the double-disc synergy test as per CLSI guidelines. Antibiotic susceptibility testing was performed using Kirby-Bauer disk diffusion method against the following antibiotics (µg/disc): amikacin (30), piperacillin (100), ciprofloxacin (30), azithromycin (15), nalidixic acid (30), gentamicin (10), and tetracycline (30).

Results: Fecal samples from 207 healthy volunteers (95 female and 112 male) and 48 HIV infected individuals (32 female and 16 male) from community with a median age of 34 years were included in the study. In total, 142 (68.6% [CI 61.8, 74.9]) and 17 (35.4% [CI 22.2, 50.5]) were ESBL producers in healthy and HIV infected participant respectively. HIV infected subjects had low fecal ESBL carriage rate (odds ratio 0.251 [CI 0.130, 0.486]) compared to healthy subject’s (p<0.01). The ESBL-producing enterobacteriaceae showed co-resistance to many other classes of antibiotics tested. In this study no carbapenemase producing bacteria was isolated.

Conclusion: This study divulges the low fecal carriage rate of ESBL producing bacteria in HIV positive group compared to healthy individuals in western Nepal. The factors driving the low carriage rate in HIV infected subjects is unidentified and require further large scale study for better understanding and monitoring the spread of these organisms, which could have great impact on HIV infected individuals.

No conflict of interest
Abstract: 61

HIV Infection and Treatment in Children and Adolescents

Persistently lower intracellular concentrations of zidovudine-triphosphates in infants during prevention of mother-to-child HIV-1 transmission

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Introduction: Zidovudine (AZT) is mainly used to prevent mother-to-child HIV-1 transmission (PMTCT). Despite serious concerns on AZT-associated toxicity, there is little information on pharmacokinetics of intracellular AZT metabolites in infants.

Material & Methods: We conducted a prospective study in 31 HIV-uninfected infants who received AZT for PMTCT. Blood samples were obtained from 14 infants on post-delivery days (PDD) 1, 7, 14, and 28, and from 17 infants at 0 and 4 hours after dosing on PDD-1. Plasma AZT concentrations (pAZT) and intracellular concentrations of AZT-monophosphate (icAZT-MP), diphosphate (icAZT-DP), and triphosphate (icAZT-TP) were determined.

Results: Plasma AZT and icAZT-MP concentrations were 2713 nmol/L and 79 fmol/10^6 cells in PDD-1, but decreased to 1437 nmol/L and 31 fmol/10^6 cells by PDD-28 (p=0.02 and p=0.07 for all PDDs, respectively), whereas those of icAZT-DP and icAZT-TP remained low throughout the sampling period (p=0.29 and p=0.61 for all PDDs, respectively) There were no differences in icAZT-TP between infants of the 2 mg/kg 4 times a day dose and 4 mg/kg twice daily dose (p=0.25), whereas pAZT and icAZT-MP levels were higher in the latter (p<0.01 and <0.01, respectively). The pAZT and icAZT-MP significantly increased from 0 to 4 hours after dosing (p<0.001 and <0.001, respectively), whereas icAZT-DP, icAZT-TP levels were not changed (p=0.41 and 0.33, respectively).

Conclusions: The level of icAZT-TP did not change with age, time, or a single dose despite the wide range of pAZT concentration. A safer dosage needs to be determined since high pAZT levels do not parallel those of icAZT-TP.

No conflict of interest

Abstract: 62

HIV Infection and Treatment in Key Populations

Adherence barriers among drug addicts on free of charge antiretroviral therapy

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Background: Delivering antiretroviral therapy (ART) to patients free of charge augments comfort and lessens the number of opportunistic infections. ART success relies on near perfect patient adherence for excellent results. The objective of study was to identify factors underlying ART adherence. Results would be helpful for developing strategy for best adherence to ART.

Materials: Study was conducted in Lahore Pakistan. To recognize factors underlying ART adherence, three focus group discussions were conducted with 40 HIV-infected drug addicts who were on ART. A semi-structured interview schedule covering many aspects of experience of taking medicines and adherence barriers was used.
Results: All drug addicts were aware of their HIV status. Fifty one percent of respondents lived with family members, twenty percent had their both parents alive, and forty-five percent had one parent alive. Respondents identified barriers to ART adherence which included: need for privacy to hide medicines, job related delays, forgetting to take medicine, tired of daily taking ART, lacking food, recurrent sickness and remote health facility. Most respondents showed non-adherence to ART during group discussions, and explained reservations about disclosing non-adherence to their family members and healthcare providers.

Conclusion: Even with free of charge ART, the patients have still barriers to ART adherence which influence the quality of care. Strategies to maintain high level of adherence must include efficient watching and promotion of ART adherence. This approach will help to pave the way for generation of AIDS free community.

No conflict of interest

Abstract: 63

HIV Infection and Treatment in Key Populations

Comparison of Young Key Population (YKP) Accessing HIV-Related Health Services in Bandung, Indonesia

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Background: Indonesia is the fourth country which has a high HIV epidemic; approximately 610.000 Indonesians are living with HIV and around 0.43% in people aged 15-19. An HIV linkage of quality care program for young key population (LOLIPOP) was tried in Bandung – one of the biggest cities in Indonesia – in 2015 using 4 components (enabling environment, community support, strengthening health providers and strategic information). The aim of this study is to compare YKP access to HIV health services before and after the program.

Method: This is an observational descriptive study using secondary data collected at primary health service providers through an integrated system. We extracted annual data before starting the LOLIPOP program (2014) and throughout the program (2015) from 13 private and public health centers and compared the numbers of YKP who access health services related to HIV between the two years.

Results: The number of YKP tested for HIV increased among young sex workers age 15-24, from 141 in 2014 to 257 in 2015, followed by young people who inject drugs from 14 to 25, transgenders from 7 to 11, and men who have sex with men (MSM) from 146 to 176, respectively. Number of YKP tested for HIV increased from 308 in 2014 to 469 in 2015 and the proportion of those whose test results were positive decreased from 14% to 9%. YKP who were referred to ARV treatment increased around 23%, with 75% of the referred cases are identified as young MSM.

Conclusions: These results suggested an increasing engagement of YKP in HIV-related health services in Bandung, although whether this is an effect of the LOLIPOP program or due to other factors are yet to be determined. Youth-friendly health services enable YKP to access VCT centers and strategies to reach other young risk groups not identified by this program and to increase HIV re-testing may be needed.

No conflict of interest
**Abstract: 64**

HIV Infection and Treatment in Key Populations

The level of adherence among men who have sex with men who undergone ARV treatment in Bali medika clinic, Bali, Indonesia

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**Introduction:** Patient adherence during anti-retroviral therapy (ART) is very essential to achieve the optimal result of HIV/AIDS therapy. Poor adherence may lead to drug resistance. There is national policy to start ARV treatment regardless the level of CD4 count, particularly among key population including men who have sex with men (MSM). Despite the evidence of the success of HIV transmission providing early ARV treatment, there are big challenge in maintaining adherence on ART. This study aimed to describe level of adherence among MSM living with HIV/AIDS in Bali Medika Clinic who underwent ART.

**Material and Methods:** An analysis of cohort study was conducted in Bali Medika Clinic, where mostly served MSM patient. A total 236 MSM underwent ARV treatment on 2013 and 2014 were initially included in this study. Only 215 MSM patients were eligible for the study. The level of adherence was divided into five categories (95%=very high; 90%=high; 85%=moderate; 80%=less; <80%=poor) based on the total days of not taking ARV medicines during 365 days. Data were collected through medical record extraction and analyzed descriptively.

**Results:** In this study, 95.30% participants were homosexual and 4.7% were bisexual, mostly had age of 21-30 years old, had well condition (average of body weight was 59.57±10.05 kg, and 79.50% were not anemic in their initial therapy). Respectively, the proportion of adherence levels from very high to poor adherence were 43.90%, 15.30%, 6.50%, 5.10%, and 29.80%. There were no different trend found in the level of adherence within each MSM category (education, occupation, and ARV supervisor).

**Conclusions:** Majority of MSM have a very high adherence, but those with poor adherence is still account for one third of total MSM. This data may provide general overview of MSM patient adherence during a year of ARV therapy.

No conflict of interest

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**Abstract: 65**

HIV Infection and Treatment in Key Populations

Hospital Anxiety and Depression Scale for Evaluation of Impacts of Recreational Drugs on HIV-infected Patients: Experiences in Taoyuan, Taiwan

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**Introduction:** There is a rapid surge of consuming recreational drugs among HIV-positive populations, especially men who have sex with men, in Taiwan. A negative influence of antiretroviral adherence and mental health had emerged. In this study, we applied the hospital anxiety and depression scale (HADS) to evaluate the emotional distress in HIV-infected patients.

**Methods:** Self-assessment HADS were distributed ramdonly to HIV-infected patients who visited out-patient clinics of Taoyuan General Hospital between Jan. and May 2015. Ages, genders, CD4+ T cell counts, HIV viral loads, use of antiretroviral agents, use of recreational drugs, and psychosomatic symptoms were collected as well.
Abstract

Objective: Currently, an increasing number of HIV-positive patients are using recreational drugs. This study explores the prevalence and characteristics of drugs being used, as well as their association with emotional distress in a cohort of adult HIV-positive patients initiating Antiretroviral Therapy (ART) in Cambodia. The study aims to improve the understanding of the interaction between substance use and psychosomatic symptoms in HIV-positive patients.

Methods: This retrospective cohort study included all ART-naive adult HIV patients who initiated ART at a non-governmental hospital in Phnom Penh, Cambodia, between 1st January 2003 and 31st December 2013. We compared ART initiators with and without a history of drug use, and evaluated the association between substance use and emotional distress using the Hospital Anxiety and Depression Scale (HADS).

Results: Totally there were 218 cases enrolled. Among them, 94% were males and their mean age was 35.89 years. There were 93.12% subjects being under antiretroviral therapy, and 23.39% (51 patients) using reactional drugs currently. The frequent encountered drugs were amphetamine (62.74%), 3,4-methylenedioxy-methamphetamine (52.94%), ketamine (33.33%) and mixed drugs (56.86%). Compared to 167 subjects who were nonusers, drug users had similar levels in anxiety and depression scale. There were 17.65% and 19.60% of drug users, and 16.17% and 12.57% of nonusers having mild and moderate to severe anxiety, respectively. And, there were 17.65% and 17.65% of drug users, and 20.36% and 11.37% of nonusers having mild and moderate to severe depression, respectively. Among each of 14 HADS items there is no significant difference between drug users and nonusers (p>.05). However, evaluation of symptoms showed significant differences in spacing out, loneliness, easy anger, restlessness, fear, absent minds, negative thoughts, fatigue, and no willing to talk (P<.05).

Conclusions: In conclusion, HIV-positive recreational drug users and nonusers showed similar emotional distress evaluated by HADS. But their psychosomatic symptoms and antiretroviral compliance do need further interventions by care providers.

No conflict of interest

Background: Retention to HIV care is vital of patient survival, to prevent onward HIV transmission and emergence drugs resistance. Studies on retention in care in HIV program in Asia are limited. We described trends and factor associated with retention in Cambodia.

Methods: We conducted a retrospective descriptive analysis of HIV program data in a non-governmental hospital in Phnom Penh, Cambodia. We include all ART naive adults (>18 years old) patients who enrolled in HIV program from 1st January 2003 to 31st December 2013 into the analysis.

Result: Over the ten-year period, 3805 patients were put on HAART. The median age was 35 years (IQR 29-41), 54% were female. The median CD4 count at ART initiation increased from 7 (IQR 2-47) in 2003 to 176 (IQR 35-290) in 2013. Overall follow-up time of 10 years on antiretroviral therapy, 2922(77%) patients were retention in care. For those who are attrition, 314 (35%) died, 553 (63%) were lost to follow-up, 15 (2%) transferred out and 1(0.1%) completed emergency treatment. Program retention was 3447 (91%) at one year, 3190 (81%) at three years, 3048 (80%) at five years and 2922 (77%) at ten years (P value< 0.001).

Conclusions: In conclusion, HIV-positive recreational drug users and nonusers showed similar emotional distress evaluated by HADS. But their psychosomatic symptoms and antiretroviral compliance do need further interventions by care providers.

No conflict of interest

Abstract: 66

Linkage and Retention in Care

Retention in care of adult HIV patients initiating Antiretroviral Therapy in Cambodia

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Reviews in Antiviral Therapy & Infectious Diseases 2016_3
Abstract: 67

HIV Clinical Science (ext. abstract submission)

STRIBILD Has Durable Efficacy and Differentiated Safety Compared to ATV + RTV + FTC/TDF at Week 144 in Treatment-naïve HIV-1 Infected Patients


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Background: In this randomized, double-blind, active-controlled Phase 3 trial in treatment naïve patients, elvitegravir / cobicistat / emtricitabine / tenofovir DF (STRIBILD, STB) was non-inferior to atazanavir boosted by ritonavir (ATV + RTV) + emtricitabine / tenofovir DF (FTC/TDF, TVD) at Week 48 with durable efficacy and a favorable safety profile through Week 96. We report Week 144 data.

Methods: Key eligibility criteria included HIV-1 RNA ≥ 5,000 c/mL and eGFR ≥70 mL/min. Virologic success (HIV-1 RNA <50 c/mL) was assessed per snapshot algorithm. Bone mineral density (BMD) was assessed in a substudy.

Results: 708 patients were randomized and treated. Through Week 144, high rates of virologic success were maintained (STB 78% vs ATV+RTV+TVD 75%, difference 3.1%, 95% CI -3.2% to 9.4%). Virologic success was similar in patients with HIV-1 RNA >100,000 c/mL (75% vs 72%) and those with CD4 ≥350 cells/μL (76% vs 74%). Mean (±SD) CD4 cell increases (cells/mm3) were +280 (±159.8) vs +293 (±211.5). Emergent resistance was infrequent in both groups (2% vs 1%). Drug discontinuation due to adverse events (AEs) was low and comparable (6% vs 8%). Renal discontinuation occurred in 5 (1%) vs 8 (2%) patients; of those, 2 vs 6 patients discontinued after Week 96, including 3 ATV+RTV+TVD patients with proximal renal tubulopathy (PRT). No cases of PRT occurred in STB group. Mean changes from baseline in creatinine (μmol/L [mg/dL]) at Week 144 were 10.6 vs 7.1 [0.12 vs 0.08] and were stable since Week 48. STB had smaller mean decreases (%) in BMD (hip: -2.83 vs -3.77, p=0.23 spine: -1.43 vs -3.68, P=0.018).

Conclusions: At Week 144, STB, an integrase inhibitor based single tablet regimen for HIV, demonstrated high rates of virologic suppression regardless of baseline viral load and CD4 cells, with low rates of resistance and a favorable safety profile with no new renal safety signals. These results support the durable efficacy and long-term safety of STB.


Conflict of interest: Gilead Sciences.

Abstract: 68

HIV Clinical Science (ext. abstract submission)

EVG/COBI/FTC/TDF is superior to ATV+RTV + FTC/TDF in treatment naïve women with HIV-1 infection (WAVES Study)


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Reviews in Antiviral Therapy & Infectious Diseases 2016_3
**Background:** Women are under-represented in HIV antiretroviral therapy (ART) studies. The Women AntiretroViral Efficacy and Safety study (WAVES) is the first all-women, international, randomized, double-blind, phase 3 trial designed to evaluate the safety and efficacy of elvitegravir/cobicistat/emtricitabine/tenofovir disoproxil fumarate (EVG / COBI / FTC / TDF) versus ritonavir (RTV) boosted atazanavir (ATV + RTV) plus emtricitabine/tenofovir disoproxil fumarate (FTC / TDF).

**Methods:** HIV-1 infected, ART naïve women were randomized (1:1), in a double-blind, global study (North America, Europe, Africa, Asia). Entry criteria included HIV RNA>500 copies(c) / mL and estimated GFR ≥70 mL / min. Women who become pregnant had the option to continue on study drug. The primary efficacy endpoint was the proportion of women achieving a HIV-1 RNA < 50 c / mL at Week 48. Safety was assessed throughout the study.

**Results:** 575 women were enrolled (EVG / COBI / FTC / TDF, n=289 vs ATV + RTV + FTC / TDF, n= 286). Demographic and baseline characteristics were balanced and reflect the global nature of the study. The median age was 35 years and 78% had asymptomatic HIV infection. EVG / COBI / FTC / TDF was statistically superior to ATV + RTV + FTC / TDF, with 87.2% and 80.8%, respectively, achieving HIV-1RNA < 50 c / mL at week 48 (adjusted difference 6.5%, 95% CI 0.4% to 12.6%). Mean increases in CD4 cell counts were similar (221 vs. 212 cells / μl, p=0.4). No subject experienced virologic failure with resistance in the EVG/COBI/FTC / TDF arm, compared to 3 (1%) in the AT+RTV+FTC/FTD arm (M184V/I). Both regimens were generally well tolerated, with most adverse events being mild (grade 1) in severity. Mean decreases in eGFR were small and similar at week 48 (-4.5 vs -2.3 mL/min, p=0.15) with no discontinuations due to renal adverse events (AEs) in the EVG/COBI/FTC/TDF arm. Percent changes in BMD at week 48 were similar at spine (-3.09 to -2.3) and hip (-3.02 to -2.55, p=0.37). Of the 24 pregnancies reported, 13 women elected to continue study drugs.

**Conclusions:** EVG/COBI/FTC/TDF was superior to AT+RTV+FTC/TDF at 48 week, and demonstrated its safety and efficacy for the treatment HIV-1 infection in women. Recruitment, enrollment and retention of women in large multinational trials is feasible.


**Conflict of interest:** Gilead Sciences.

**Abstract: 69**

**HIV Clinical Science (ext. abstract submission)**

**Simplification to the STRIBILD single tablet regimen from PI+RTV + FTC/TDF multi-pill regimens maintains durable HIV suppression: Week 96 results of STRATEGY-PI (Study 115)**


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**Background:** Elvitegravir/cobicistat/emtricitabine/tenofovir DF (STRIBILD, STB), can be used for antiretroviral (ARV) treatment simplification and tolerability in HIV-1 infected patients who are virologically suppressed without prior virologic failure (VF). Week (W) 96 results of STRATEGY-PI (Study 115) are reported, the first phase 3b, open-label, study examining simplification from ritonavir (RTV)-boosted protease inhibitor (PI-RTV) plus emtricitabine/tenofovir DF (FTC/TDF) regimens to an integrase inhibitor-containing single tablet regimen.

**Reviews in Antiviral Therapy & Infectious Diseases 2016_3**
Methods: HIV-1 infected, virologically suppressed subjects on PI+RTV + FTC/TDF regimens for ≥ 6 months either switched to STB or remained on their PI+RTV regimen (2:1 randomization). Eligibility included estimated creatinine (Cr) clearance ≥ 70 mL/min, ≤2 prior ARV regimens, no prior VF and no resistance to FTC/TDF. The primary endpoint was the proportion of subjects who maintained HIV-1 RNA < 50 c/mL at W48 (snapshot algorithm, 12% noninferiority margin); W96 was the final endpoint. If noninferiority was established, superiority was tested (prespecified).

Results: At randomization, subjects (n=433, 293 STB; 140 PI+RTV) were mostly male (86%), white (80%) and age < 50 yr (82%). ATV+RTV (40%) or DRV+RTV (40%) were the most common PIs. Median time since first ARV use was 3 yrs; 19% were on their 2nd ARV regimen. At W96, 86% STB vs 69% PI+RTV maintained HIV-RNA < 50 c/mL (difference 16.5%, 95% CI: +7.8% to +25.4%; p<0.001). The difference favouring STB was mainly due to non-virologic reasons. VF was lower on STB (1% STB vs 5% PI+RTV), but with no emergent resistance in either group. Grade 3-4 adverse events (AE) occurred in 6% STB vs 8% PI+RTV. AEs leading to discontinuation occurred in 3% STB vs 2% PI+RTV. Median changes in serum Cr (μmol/L) were STB, +6.2, and PI+RTV, +0.9, similar to W48. One STB subject discontinued due to a renal AE after W48 (blood Cr increased). No case of proximal renal tubulopathy (PRT) occurred in either group.

Conclusions: Switching to STB from PI+RTV+FTC/TDF regimens resulted in significantly higher virologic success by snapshot at W96. VF was lower on STB with no emergent resistance in either group. The difference favouring STB was mainly due to non-virologic reasons. STB was well-tolerated, and no case of PRT occurred. Simplification to STB from a multi-tablet, PI+RTV regimen is effective, durable and safe in HIV-1 infected, virologically suppressed patients without history of VF.


Conflict of interest: Gilead Sciences.

Abstract: 70

HIV Clinical Science (ext. abstract submission)

Longer Term Safety of Tenofovir Alafenamide in Renal Impairment


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Background: Tenofovir alafenamide (TAF) is a novel prodrug of tenofovir (TFV) that results in 91% lower plasma TFV levels compared to TDF. Switch to a once-daily single tablet regimen of elvitegravir, cobicistat, emtricitabine, and TAF (E/C/F/TAF) in HIV-1 infected patients with eGFRCG (Cockcroft-Gault) 30 to 69 mL/min was shown to be effective and safe through 48 weeks. Here, we report longer term results.

Material & Methods: Virologically suppressed adults with stable eGFRCG of 30 to 69 mL/min had their treatment switched to open-label E/C/F/TAF. The primary endpoint was the change from baseline in glomerular filtration rate estimated using various formulae at 24 weeks. Longer term efficacy and safety data are described, including tests of renal function and bone mineral density (BMD).

Results: Of 242 subjects enrolled, mean age was 58 years (range: 24 – 82), 18% Black, 39% hypertension, 14% diabetes, and 65% were taking TDF-containing regimens prior to switch. Through Week 72, minimal change in eGFRCG was observed. Five patients (2.0%) who received TDF at baseline had significant improvements in proteinuria and albuminuria to levels seen with non-TDF regimens. The prevalence of significant proteinuria (UPCR > 200 mg/g) and albuminuria (UACR ≥ 30 mg/g) decreased from 42% to 18%.


Conflict of interest: Gilead Sciences.
and 49% to 28%, respectively. Hip and spine BMD increased significantly (mean % changes from baseline +1.50 and +1.91, respectively, p<0.001). 93% maintained HIV-1 RNA <50 copies/mL based on Missing = Failure analysis.

Conclusions: Through 72 weeks, switch to E/C/F/TAF was associated with minimal change in eGFRCG. Proteinuria, albuminuria and bone mineral density significantly improved. These data support the efficacy and safety of once daily E/C/F/TAF in HIV+ patients with eGFR 30-69 mL/min without dose adjustment.

Published Journal: J Acquir Immune Defic Syndr. 2015 Nov 30. [Epub ahead of print], Pozniak A et. Al., Switching to tenofovir alafenamide, coformulated with elvitegravir, cobicistat, and emtricitabine, in HIV-infected patients with renal impairment: 48 week results from a single-arm, multi-center, open-label, Phase 3 study.

Conflict of interest: Gilead Sciences.
Regimen Elvitegravir/Cobicistat/ Emtricitabine/ Tenofovir DF Versus Single-Tablet Regimen Efavirenz/ Emtricitabine/Tenofovir DF for Initial Treatment of HIV-1 Infection: Analysis of Week 144 Results.)

Conflict of interest: Gilead Sciences.

Abstract: 72

HIV Clinical Science (ext. abstract submission)

Efficacy and safety of elvitegravir/cobicistat/emtricitabine/tenofovir DF in HIV-1-infected, Asian subjects: a subanalysis of phase 3 clinical trials


Background: The single tablet regimen (STR) of elvitegravir/cobicistat/emtricitabine/tenofovir DF (E/C/F/TDF) is a recommended regimen for initial antiretroviral therapy (ART) in HIV-1-infected treatment-naïve subjects. The E/C/F/TDF indication was updated to include treatment switch in virologically-suppressed subjects. Efficacy and safety of E/C/F/TDF in Asian populations are limited.

Methods: Studies 102 and 103 were randomized, double-blind, placebo-controlled 144 week trials in ART-naïve subjects, comparing E/C/F/TDF (n=701) to the efavirenz/emtricitabine/tenofovir DF STR or ritonavir-boosted atazanavir plus emtricitabine/tenofovir DF (TVD), respectively. Studies 115 and 121 were randomized, open-label, 96-week trials of ART-experienced, virologically suppressed subjects switched to E/C/F/TDF (n=584) from non-nucleoside reverse transcriptase inhibitors + TVD, or ritonavir-boosted protease inhibitors +TVD regimens, respectively. A subanalysis was conducted of E/C/F/TDF efficacy and safety data in Asian patients in these trials (ART naïve, n= 23; ART experienced, n=11).

Results: Virologic success on E/C/F/TDF in either ART-naïve (Week 144), or ART-experienced, virologically-suppressed subjects (Week 96) was 91%. One ART-naïve subject experienced a grade 3-4 drug-related adverse event (AE) (nausea, did not discontinue). One ART-naïve subject discontinued E/C/F/TDF due to AE (lymphoma, not drug related). No subject switched to E/C/F/TDF experienced grade 3-4 drug-related AEs or discontinued due to AEs. Renal AEs were uncommon: one subject switched to E/C/F/TDF experienced decreased glomerular filtration rate (grade 1, drug related) but did not discontinue. No subject developed proximal renal tubulopathy. Mean changes from baseline in eGFR on E/C/F/TDF were -11.5 mL/min (Studies 102/103 and Study 121), and -4.8 mL/min (Study 115), consistent with cobicistat's known blockage of tubular creatinine secretion. Small changes in fasting lipid parameters on E/C/F/TDF resulted in minimal changes in mean total cholesterol:HDL ratios (range 0 to -0.2).

Conclusions: E/C/F/TDF demonstrates durable efficacy, is safe and well-tolerated based on available data in either ART-naïve or ART-experienced, Asian patients.

Data was presented: Choi JY et al. 2015 Interscience Conference on Infection and Chemotherapy (ICIC), Nov 5-7, 2015, Seoul, South Korea

Conflict of interest: Gilead Sciences.

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HIV Clinical Science (ext. abstract submission)

Switch to STRIBILD from NNRTI plus FTC/TDF regimens maintains HIV suppression and is well-tolerated: Week 96 results of STRATEGY-NNRTI (Study 121)

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Background: The single tablet regimen (STR) elvitegravir/cobicistat/emtricitabine/tenofovir DF (STRIBILD, STB) can be used for regimen simplification, convenience and tolerability in virologically suppressed, HIV-1 infected patients with no history of virologic failure (VF). Week (W) 96 results of STRATEGY-NNRTI (Study 121) are reported, a prospective, randomized, open-label, Phase 3b trial of a switch to STB from non-nucleoside reverse transcriptase inhibitor (NNRTI) + emtricitabine/tenofovir DF (FTC/TDF) regimens in suppressed HIV-1 subjects.

Methods: Subjects suppressed <50 c/mL on NNRTI + FTC/TDF regimens for ≥ 6 months either switched to STB or remained on their NNRTI regimen (2:1 randomization). Entry criteria included estimated creatinine (Cr) clearance ≥ 70 mL/min, ≤2 prior ARV regimens, and no prior VF or resistance to FTC/TDF. The primary endpoint was the proportion of subjects who maintained HIV-1 RNA < 50 c/mL at W48 (snapshot algorithm, 12% noninferiority margin); Week 96 was the final endpoint.

Results: At randomization, subjects (n=434, 291 STB; 143 NNRTI) were predominantly male (93%), white (78%) and age < 50 years (78%); 78% were on efavirenz (ATRIPLA in 74%). Median time since first ARV use was 3 yr; 31% enrolled due to concern with current/long-term ARV side effects. At W96, STB was noninferior to staying on NNRTI regimens; 82% and 77%, respectively, maintained HIV-1 RNA < 50 c/mL (difference 5.5%, 95% CI: -2.5%, +14.1%). VF on STB or NNRTI was similar (4% and 2%, respectively); no subject on STB developed resistance; 1 NNRTI subject developed primary NNRTI-resistance (K101E, Y181C). Grade 3-4 adverse events (AEs) occurred in 9% STB and 8% NNRTI. AEs leading to discontinuation occurred in 3% STB vs 2% NNRTI. Median changes in Cr (μmol/L) at W96 on STB and NNRTI were +11.5 and 0.0, respectively, similar to W48. One subject discontinued STB by W48 due to proximal renal tubulopathy (PRT); no new cases of PRT occurred after W48 in either group. From W48 to W96, 1 subject discontinued STB due to a renal AE (proteinuria).

Conclusions: Switching to STB single tablet regimen from NNRTI + FTC/TDF regimens was non-inferior in maintenance of virologic suppression at W96, with no resistance development on STB. STB had favourable tolerability and renal safety, with no new case of PRT after W48. STB provides a durable, safe and well tolerated STR option for patients wanting to switch from an NNRTI-based regimen.


Conflict of interest: Gilead Sciences

Abstract: 74

HIV Clinical Science (ext. abstract submission)

Ramadan fasting decreased high-sensitive c-reactive protein in HIV patients receiving antiretroviral therapy

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Introduction: Chronic inflammation and immune activation are associated with increased risk of cardiovascular diseases in human immunodeficiency virus (HIV)-infected patients. Study showed that high-sensitivity C-reactive protein (hs-CRP) is significantly elevated in HIV infection. Its level is even higher in antiretroviral-treated compared to antiretroviral-naive patients. Ramadan fasting is a unique model of intermittent fasting that includes abstinence from food and water from dawn to dusk as well as reduction of meal frequency. Ramadan fasting decrease hs-CRP level in some studies but none of them conducted in HIV-infected patients receiving antiretroviral therapy (ART). This study aimed to know whether Ramadan fasting could decrease hs-CRP level in HIV-infected patients receiving ART.

Material & Methods: A prospective cohort study comparing 29 HIV-infected patients on stable ART doing Ramadan fasting versus 29 non-fasting patients. Inclusion criteria were male, 20-40 years old, receiving first line ART for at least six months with good adherence, and not on any active opportunistic infection condition. Patients who consumed steroid or other immunosuppressant were excluded. Level of hs-CRP was obtained before and during Ramadan after at least 14 days fasting. Statistical analysis was carried out using Mann-Whitney test. Linear regression was used to analyze the effect of body weight, caloric intake, physical activity, cigarette smoking, and sleep quality differences during fasting to hs-CRP decline.

Results: The median age was 35 (IQR 33-37.25) years old and median CD4 cell count was 398 (IQR 307-512.5) cells/mm³. Baseline age, CD4 cell count, HIV-RNA, ART combination, hepatitis B and hepatitis C status, and hs-CRP level were similar for both fasting and control groups. After 2 weeks, a significant hs-CRP decrease was found in fasting group compared to non-fasting one (p=0.004). Median difference of hs-CRP in fasting group was -0.41 (IQR -1 and 0.1) mg/L, while in control group the median difference was 0.2 (IQR -0.3 and 1.5) mg/L. Body weight, amount of cigarette smoking, and total sleep hours per day were decreased significantly during Ramadan fasting (p<0.001). After adjusting with changes in body weight, caloric intake, physical activity, cigarette smoking, and sleep quality, Ramadan fasting still had significant association with declined hs-CRP (p=0.005, RR 2.917, 95%CI 1.152-6.201).

Conclusions: Ramadan fasting as a unique model of changes in timing and frequency of meal decreased hs-CRP in HIV-infected patients receiving ART.

No conflict of interest

Factors associated with one year after delivery retention in care in patients undergoing Prevention of Mother to Child Transmission (PMTCT) in Integrated HIV Clinic RSCM

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Background: Prevention of Mother to Child Transmission (PMTCT) has been proven to prevent maternal to child HIV transmission effectively, increase maternal health quality and decrease maternal mortality. Continuity in implementing PMTCT, in this case antiretroviral treatment, is important to improve maternal health. Retention in care is proven to be important for the successfullness of HIV treatment.

The aim of this research was to analyze factors that associated with one year after delivery retention in care in patient undergoing PMTCT in integrated HIV Clinic Cipto Mangunkusumo Hospital (RSCM).

Methods: This study was a retrospective cohort study among 253 post partum HIV patients who were given ARV for PMTCT in integrated HIV Clinic Cipto Mangunkusumo Hospital during January 2004 until May 2014. Evaluation of one
Introduction: Knowing prevalent patterns of infections among HIV infected children is expected to provide useful information to a paediatrician 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 paediatric immunology clinic with diagnosis of HIV were enrolled, investigated, managed following national guideline for management of paediatric 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 oitis media (7), Pyoderma (6), Verruca vulgaris (5), and muco-cutaneous 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 satge 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.

No conflict of interest

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Coinfections and progression of disease

A simple culturing method for identification and quantification of Talaromyces marneffei in patients' blood

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Background: Talaromyces marneffei infection is an important AIDS-defining illness in Southeast Asia. The lack of a laboratory marker to monitor antifungal therapy hinders disease management.

Methods: We developed a quantitative fungal culturing method (QFCM) to detect and quantify T. marneffei in patients' blood. Whole blood samples were collected from HIV-infected patients with culture-confirmed penicilliosis (defined as an illness in which T. marneffei was isolated from blood, skin scrapings, bone marrow, lymph node, and/or other body fluids) who were admitted to the Hospital for Tropical Diseases in Ho Chi Minh City between December 2010 and May 2015. Two 100µl aliquots from each serially diluted samples (to 10-3) were spotted each on one half of a Sabouraud Dextrose Agar plate containing chloramphenicol. Plates were then incubated at 37°C until visible growth was observed up to 14 days, and the colonies forming units were counted. Isolates were identified by demonstration of temperature-dependent dimorphism growth. Detection rates were compared to the standard Bactec 9240 blood culture system performed on the same patients. We explored the correlation between baseline fungal load, time to Bactec culture positivity, and presence of skin lesions in patients.

Results: Data from 184 patients with culture-confirmed penicilliosis were evaluated. The sensitivities for detection of penicilliosis against the conventional culture method were 146 (79.3%) and 116 (63.6%) (p = 0.008, Chi-square test) using the QFCM and the Bactec system, respectively. Bacterial coinfection was present in 13 patients and inhibited fungal growth in the Bactec system, potentially explaining the lower sensitivity observed. The concordance rate for positive culture between the QFCM and the Bactec system was 91.5%. Higher fungal loads were correlated with shorter detection time in the Bactec system, rs = 0.6 (p<0.0001, R2 = 0.35, Spearman's). The differences in fungal loads in patients with and without skin lesions were not statistically significant (p= 0.141, Wilcoxon Rank test).

Conclusions: We report a simple culturing method that accurately detects T. marneffei and quantifies the fungal burden in patients' blood. This method can easily be employed in routine diagnostic laboratories to monitor antifungal treatment response and should be evaluated as a prognostic marker in penicilliosis.

No conflict of interest

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Diagnostic monitoring Hepatitis viruses

Rare genetic variation in Hepatitis Delta Virus (HDV) that influence genotype determination

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Epidemiology and surveillance of co-infections

A 20-year retrospective cohort study of TB infection among the Hill tribe HIV/AIDS populations, Thailand

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Background: A retrospective cohort study was conducted to determine the situation, trend, and possible risk factors of TB infection, and factors related to the health status among the HIV/AIDS Hill tribe in Northern Thailand.

Methods: A systematic data-reviewing approach was used to identify the information from the rosters of ARV clinics, OPD cards, and laboratory reports from 16 hospitals in Chiang Rai Province, Thailand. The data were collected from the first reported HIV/AIDS case of the Hill tribe to the end of 2010. A chi-square test and logistic regression models were used to identify associations at the significance level of alpha = 0.05.

Results: A total of 3,130 cases were included in the study. The majority of patients were Akha (46.0%) followed by Lahu (19.7%), 54.6% were males, 44.6% were 26-35 years old. The major risk factor of HIV infection was sexual intercourse (91.7%); 33.3% were still alive at the date of data collection, 30.7% were diagnosed with pulmonary TB. The Akha hill tribe HIV/AIDS individuals had a greater risk of TB infection than did Yao individuals (OR_{adj} = 1.50, 95%CI=1.04-2.16). Females had a greater risk of TB infection than males (OR_{adj} = 1.32, 95%CI=1.13-1.54); being classified as HIV group had a greater risk of TB infection than those asymptomatic group with OR_{adj} = 2.43 (95%CI = 1.47-4.02); and not having received the ARV was the risk factor with OR_{adj} = 2.81 (95% CI=2.23-3.39). The patients who had been diagnosed with HIV infection during 2001-2005 and 2006-2010 had a greater risk of TB infection than those who were diagnosed from 1990-1995, with OR_{adj} = 21.39 (6.59-69.42) and 13.70 (4.19-44.73), respectively. Regarding survival status; females had a better surviving than being males with OR_{adj} = 1.41, 95%
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Epidemiology and surveillance of co-infections

Is HIV screening rational in Tuberculous patients - Sri Lankan experience

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Background: TB and HIV co-infection is considered to occur worldwide. Immunosuppression by HIV makes patients vulnerable to be infected with TB and they are more prone to get severe disease. Prevalence of TB and HIV in Sri Lanka is 4.2% and < 0.1% respectively. Relationship between HIV and TB is not yet clearly defined in Sri Lanka. The objective of this preliminary study is to describe the epidemiology of HIV – TB co-infection in Sri Lanka.

Methods: 54 sexually active patients with histopathologically or microbiologically proven Tuberculosis were screened for HIV with ELISA antibody test. Positive ELISA was confirmed by western blot test.

Results: Patients were 17 to 54 years of age. Male: Female = 33:21. 38 and 16 patients had pulmonary and extrapulmonary TB respectively. Only 02 male patients had positive ELISA test for HIV but both were negative for western blot test.

Conclusion: HIV – TB co-infection is not a significant occurrence in Sri Lanka yet. There for HIV should not be considered as an important predisposing factor for TB in Sri Lanka and it is not rational to screen all TB patients for HIV as it is not cost effective for a resource poor country.

No conflict of interest

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Epidemiology and surveillance of co-infections

A correlative study of IL12 cytokine and cortisol in HIV patients with depression

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Introduction: Globally 36.9 million people are living with HIV –AIDS and 2 million people getting newly infected with the HIV till 2014 end, 1.2 million people died due to AIDS related illness (UN AIDS fact sheet) . Affective disorders have been reported as the most common mental health problem in persons with HIV infection. Depression has a significant impact on the quality of life of persons living with HIV and AIDS and is associated with HIV disease progression and mortality. (Starace F,1999). The interaction of psychological sequel with the human immune system is a serious topic discussed in recent psychological stress field (lancet, 2004), this study aims at the correlative relation of depression with Cortisol and cytokine (IL12) in HIV patients.

Methodology: It's a randomized single cross sectional study, after taking the consent from seropositive individual Becks depression scale is administered and irrespective of depression status 5ML blood is drawn and by
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Spectrophotometric Elisa method Cortisol and Human IL12 level is quantified and correlated with the depression.

Results: 59 patients enrolled in the study. Mean age group is 38.69, Min is 24 and Max is 58, 44.06% of female and 55.93% of male present in the study. According to becks classification 18.64% of population is normal, 13.55% are with mild mood disturbance. 18.64% of population in borderline clinical depression, 28.81% are under moderate depression, 20.33% of population severe depression. Overall 67.79% population are depressed, among this population 70% are having increased cortisol level and among increased cortisol level cases 85.71% have less than 6.25pg/ml IL12 expression. Whereas in normal and mild mood disturbance 57.89% have expressed more than 12.5pg/ml. Linear regression analysis from EPI info of Depression and cortisol shown \( r^2 = 0.33 \) and p value = 0.00002, Depression and human IL12 shown \( r^2 = 0.19 \) and p value = 0.000633, where as Human IL12 and cortisol is \( r^2 = 0.38 \), p value = 0.0000. were as other factors like, age ,sex ,cd4 ,marital status shown negative or no correlation.

Discussion and conclusion: Our study mainly aims at correlation of three variables Depression, Cortisol and IL12. Statistical analysis as shown positive relation with depression and cortisol, Cortisol and Human IL12. In vitro studies with animal as indicated that a stress-inducing situation causes reduction in plasma IL-12 levels (L. Shaashua, 2012). A study conducted in south Africa as shown IL12 P70 is significantly associated with lower viral load (Lind Roberts 2010) in depressed patients it as been found that IL 12 levels were significantly higher after treatment contributing to the hypothesis that activation of the inflammatory response system and in particular of Th-1-like cells, is involved in the pathophysiology of major depression (Kim YK. 2002). However our study as contributed to learn there is a relation of depression and cortisol in the decreased production of IL12 in HIV patients however only correlation doesn’t prove the cause and effect of variables so further studies are needed to prove the cause and effect of this variable.

No conflict of interest

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Epidemiology and surveillance of co-infections

The Study of Hepatitis B Virus and HIV Co-infection in South Korea


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Introduction: Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV) have a common route of infection like sexually transmitted infections (STIs), perinatal infection, blood transfusion, etc. so it is necessary to be confirmed the relationship of the both in South Korea.

Materials & Methods: We investigated the prevalence of HBsAg of HBV and that of anti-HBc of HBV, according to HIV positive group (n=430) and HIV negative group (n=434) individually, about sera(n=864), tested HIV from 2014 to 2015. the data was analyzed about the relationships between HBV and HIV using the crosstabs of SPSS program.

Results: It was a very difference significantly, that the prevalence (36.0%) of anti-HBc of HBV among HIV positive group was more higher than that (24.7%) among HIV negative group.(p=0.000) However, it was not a difference significantly about the prevalence of HBsAg according to HIV positive group and HIV negative group individually.

Conclusions: We confirmed the more higher prevalence of anti-HBc of HBV among HIV positive group than that among HIV negative group. it was confirmed to be associated with the both in South Korea.

No conflict of interest
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Epidemiology and surveillance of co-infections

Characteristics of HCV and HIV co-infected patients in southern Myanmar

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Introduction: Hepatitis C virus coinfection influences the morbidity and mortality of HIV patients as well as HIV accelerates the progression of HCV. Those with co-infection progress to significant liver disease and cirrhosis much more quickly and more often than those only infected with HCV alone. In Myanmar HIV prevalence among general population is 0.7%, and data concerning HCV coinfection reported 5% in a observational cohort study. Since 2004, MSF-Switzerland (MSFCH) has been operating an HIV project in Tanintharyi Division, southern Myanmar, currently providing HIV care to 3200 patients.

Materials and Methods: Using routinely collected medical data, we conducted a retrospective cohort analysis to establish clinical and demographic characteristics for the HCV antibody positive patients.

Results: A total of 327 patients were positive for HCV at Mitayek Clinic, 268 (81.96%) of them male. The median current age was 41 years (IQR 38.5, 45.5). According to provenance, the majority of the patients were coming from Dawei District: 249 (76.1%), among them 101 from Dawei Township. Occupation reported at baseline was described mainly as: 164 (50.1%) fisherman and 92 (28.1%) were registered as Migrant workers.

Mean time on ART was 5.23 years, being 43 patients (13.1%) with more than 10 years on ART. The main ART current scheme was composed by: Tenofovir/Efavirenz/Lamivudine: 225 patients (68.8%)

Mean value for last CD4 count available for all the patients: 417 cells/µL, reflecting the predominance of more stable patients in the long term treatment cohort. HIV viral load was available for 300 patients (91.7%) and reported as undetectable for 281 patients (93.6%), below one million copies in 15 (5%) and equal or more than one million copies in 4 (1.3%). Concerning HCV genotyping, for 205 patients (62.6%) the results were classified as genotype 1: 89 (43.4%), 3: 109 (53.2%), and 6: 7 (3.4%). The HCV Viral Load was collected for 259 patients (79.2%), being undetectable for 39 (15.1%) and below 1 million IU/mL for 27 (10.4%). APRI score was available for 299 subjects (91.4% < 1, 226 (75.6%); Between 1 and 2, 40 (13.3%); > 2: 33 (11%) Considering the outcomes: eight (2.4%) patients are reported as Lost to follow up and seven as death (2.1%), and 312 (95.5%) remain active in care.

Conclusions: We describe the demographic, clinical, and for the first time, virological characteristics of HCV/HIV co-infected patients in Myanmar. Our cohort shows a predominance of male, fishermen, median age of 41 years, and about five years on ART with proper immunological and virological response. Most frequent HCV genotypes are 3 and 1. We show that it is feasible to diagnose and follow up co-infected patients in this context


No conflict of interest
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Epidemiology and surveillance of co-infections

Detection of HPV 16 and 18 From Anal Scraping Of Male Sex Male By PCR Method in Bali

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Background: Human Papilloma Virus (HPV) is the common agent of wart at different part of body including hand, neck, cervix and the area between anus and genital. More than 100 type of HPV has been isolated and some of them are grouped into High Risk HPV (HPV-HR) which is potentially to develop cancer. HPV HR especially HPV 16 and 18, is the commonest type cause cervical and anal cancer. Male sex male (MSM) is the group at a increasing rate to develop anal cancer that caused by HPV HR.

Material and Methods: Anal scrapings were collected from the patient who comes to clinic to do routine screening. Anal scraping was collected by sterile Dacron swab by the physician, and the specimen than placed to the micro tubes which is added with 1 ml of phosphate buffer saline (PBS) and send to the Biology Molecular Laboratory Udayana University for further analysis. DNA extracted by Promega® Extraction Kit and PCR using MY 09/11 primers pair and HPV 16 & 18 specific primers pair.

Result: During 3 months of specimens collection, 34 samples was collected. Among them 26 (76,5%) were positive infected by HPV and 8 (24,5%) were negative. From the total positive samples, HPV 16 was detected in 11 (42,3%), HPV 18 was detected in 10 (38,5 %), dual infection was detected in 5 samples (19,2%).

Conclusion: Increasing detection of HPV among MSM patient needed more attention for routine anal pap screening and treatment should be integrated into anal cancer prevention and care program for MSM.

No conflict of interest

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Epidemiology and surveillance of co-infections

Prevalence and concordance of ano-genital and oral human papillomavirus types in men who have sex with men and women with and without HIV in Thailand

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Background: HIV-positive people are still at increased risk for human papillomavirus (HPV)-related cervical, anal and oropharyngeal cancers in the antiretroviral therapy (ART) era. We studied HPV prevalence and type concordance in the ano-genital and oral sites of men who have sex with men (MSM) and women with and without HIV.

Methods: One hundred MSM (50 HIV-positive, 50 HIV-negative) and 100 women (50 HIV-positive, 50 HIV-negative) were enrolled from the Thai Red Cross Anonymous Clinic during November 2010-February 2014. Cervical/anal swabs and oral gargles were collected. Genotyping was performed by Roche Linear Array assay. Chi-square, Fisher’s Exact and Mann-Whitney test were used to analyze differences in HPV prevalence and type concordance between groups.
Results: HIV-positive MSM were older (mean±SD age 40.2±8.8 vs. 33.5±8.4 years, p<0.001) and had less partners in the past 3-6 months (Ž1 partner 64% vs. 84%, p=0.03) than HIV-negative MSM. 70% were on ART, median (IQR) CD4 count was 523 (384-687) cells/mm³, and 77.3% had undetectable viral load. Receptive anal (66% vs. 75%, p=0.35) and oral (61% vs. 48%, p=0.20) sex practices in the past 3-6 months were not different between HIV-positive and HIV-negative MSM. Inconsistent condom use for receptive anal (31% vs. 39%, p=0.75) and receptive oral sex (96% vs. 100%, p=0.86) were similar. HIV-positive MSM had higher prevalence of any HPV in anal (74% vs. 54%, p=0.04) and oral samples (20% vs. 4%, p=0.01) and HR-HPV in oral cavity (12% vs. 0%, p=0.01). HPV genotype concordance in anal and oral sites was less common in HIV-positive MSM (22% vs. 44%, p=0.02). HIV-positive women were older (mean±SD age 40.5±5.1 vs. 23.9±3.9 years, p<0.001) and less likely to have partners in the past 3-6 months (66% vs. 86%, p=0.05) than HIV-negative women. 90% were on ART, median (IQR) CD4 count was 574 (486-731) cells/mm³, and 97.8% had undetectable viral load. In the past 3 months, HIV-positive women practiced less receptive vaginal (66% vs. 88%, p=0.01) and oral (31% vs. 69%, p<0.001) sex, but this was not significant for anal sex (2% vs. 12%, p=0.10). They were also less likely to use condom inconsistently for vaginal (27% vs. 81%, p<0.001) and oral (36% vs. 97%, p<0.001) sex. Prevalence of any HPV (56% vs. 52%, p=0.69) and HR-HPV (40% vs. 32%, p=0.40) in the anus, and cervical HPV (42% vs. 56%, p=0.16) were not different between HIV-positive and HIV-negative women. Oral HPV was only found in HIV-positive women (any HPV 4%, HR-HPV 4%). Cervical HR-HPV was more common in HIV-negative women (24% vs. 44%, p=0.03). HPV genotype concordance between anal and cervical sites was less common in HIV-positive women (48% vs. 74%, p=0.01).

Conclusions: Despite lower sexual exposure, anal and oral HPV infection were more common in HIV-positive MSM than HIV-negative MSM. HIV-positive women, however, had lower sexual exposure and safer sex and had similar or lower prevalence of ano-genital and oral HPV infection compared to those without HIV. HIV-positive MSM and women were less likely to have HPV type concordance between different anatomical sites.

No conflict of interest
abstract

recommend urgent action to address this catastrophe in the making.

No conflict of interest

abstract: 87

novel tbc therapeutics and treatment strategies

in vitro evaluation of inhalable thioridazine-rifapentine particles for rapid tuberculosis therapy

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introduction: tuberculosis (tb) is predominantly a pulmonary disease caused by mycobacterium tuberculosis. multi-drug resistant (mdr) and extensively drug-resistant (xdr) tb are becoming increasingly prevalent in many parts of the world, suggesting the need for a novel therapeutic agent. recently, the use of an old antipsychotic drug, thioridazine in combination with other anti-tb drugs has shown potential for treatment of mdr and xdr-tb cases. unfortunately, adverse cardiac effects have been reported when thioridazine was administered to tb patients at the efficacious oral dose of 200 mg/day. therefore, pulmonary delivery of thioridazine in combination with another anti-tb drug would be a rational approach to reduce the side effects associated with the high dose. direct delivery to the lung will also allow a high drug concentration at the primary site of infection. in addition, the localised delivery targets alveolar macrophages that harboring m. tuberculosis cells and bypasses the first-pass metabolism. the present study aimed to produce an inhalable dry powder consisted of thioridazine and rifapentine for rapid treatment of tb. rifapentine is a first-line anti-tb drug which has a similar mechanism of action to rifampicin, but has a longer pulmonary half-life and stronger antimycobacterial activity.

materials and methods: the combination dry powder was produced by spray drying a solution containing thioridazine and rifapentine at a ratio of 1:3 (based on oral dose) with 20 % leucine as a dispersion enhancer. in vitro aerosol performance of the powder was evaluated using a multi-stage liquid impinger (msli) and an osmohaler® device. the minimum inhibitory concentration (mic90) of the powder on m. tuberculosis h37ra and m. tuberculosis h37rv was determined via resazurin assay. intracellular killing efficacy of the powder was tested using human monocyte cells (thp-1) infected with m. tuberculosis h37ra. thp-1 and human lung epithelial (a549) cell lines were used to examine the in vitro cytotoxicity of the powder.

results: the spray dried thioridazine-rifapentine dry powder was found suitable for inhalation. the total fine particle fraction (fpftotal wt. % < 5 µm) of thioridazine and rifapentine was 76.4 ± 2.1 % and 76.3 ± 2.01, respectively. the mic90 of thioridazine alone was 12.5 µg/ml and 500 µg/ml on m. tuberculosis h37ra and m. tuberculosis h37rv, respectively. however, the combination powder had an mic90 of 0.00625 µg/ml and 0.005 µg/ml against m. tuberculosis h37ra and m. tuberculosis h37rv, respectively, which are similar to rifapentine alone - indicating no detectable synergistic anti-tb activity. nonetheless, the combination showed an enhanced intracellular killing of m. tuberculosis h37ra within macrophages compared to the individual drug treatment. all the powders were shown an acceptable half maximal inhibitory concentration (ic50) of 31.25 µg/ml on both thp-1 and a549 cell lines.

conclusions: we have demonstrated a novel inhalable thioridazine-rifapentine dry powder with a good aerosol performance that shows potent in vitro anti-tb activity. this preliminary data warrants further in vivo studies.

no conflict of interest

reviews in antiviral therapy & infectious diseases 2016_3
Abstract: 88

HCV, HBV, TB and co-infections (ext. abstract submission)

The prevalence and risk factors for diabetes among adult people living with HIV in Cambodia

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Introduction: Cambodia is facing challenges associated with people living with HIV who experience comorbidities further exacerbating HIV’s negative health effects. More research is needed surrounding these comorbidities, particularly NCDs. Diabetes, a NCD tied to high blood glucose levels, is of particular significance due to its growing presence worldwide. Risk factors associated with diabetes were analyzed in this study to provide insight for future research and intervention.

Material & Methods: A cross-sectional study was conducted among 510 adult PLHIV living across 5 provinces in Cambodia. During data collection in June 2015, interviewers acquired information measuring presence of NCDs and known associated risk factors. The study then identified those who are at risk for hypercholesterol (n=87: 30 male vs. 57 female) using the following criteria: 1) raised glucose level >117 mg/dL 2) diagnosed with diabetes 3) on treatment for insulin injection/ oral medication treatment. STATA was used to run logistic regression assessing possible associations between hyper cholesterol and associated risk factors.

Results: The presence of diabetes among adult PLHIV in Cambodia is 17.1%. Of those who have diabetes, 83.9% have lower education (completed primary school or less), 62.1% are ≥45 years old, 41.4% are not married or cohabiting, 18.4% miss their ART half of the time or more, 9.2% currently smoke tobacco, 42.5% have consumed alcohol in the past 12 months, 35.6% are not active at work, 50.6% are not active in their leisure time, 1.2% do not eat 5 servings of fruits and vegetables every day. In a logistic regression model, the odds of having diabetes among at-risk adult PLHIV is higher among those who have lower education (AOR= 0.42; 95% CI = .23-.77) and ≥45 years old (AOR=1.66; 95% CI = 1.15-2.99).

Conclusions: Because of the unique combination of diseases, this population has specific needs that must be met to promote health. By better understanding the risk factors associated with diabetes future interventions will be better informed. The significant associations of age and education with diabetes should be used in tailoring specific interventions to PLHIV in Cambodia.

No conflict of interest

Abstract: 89

HCV, HBV, TB and co-infections (ext. abstract submission)

Viral responses to chronic hepatitis C treatment with Peg-IFN 2b plus ribavirin in HIV co-infected persons

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Background: Mortality due to AIDS is decreased with use ARV but complications associated with HCV infection have emerged. Prevalence HCV in HIV patients is approximately 33% in Viet Nam. We designed this study to evaluate the results of viral responses with the standard treatment in HCV/HIV co-infection patients by combination of pegylated interferon plus ribavirin in outpatient clinic of HIV- National hospital for tropical diseases.
**Material and Methods:** Retrospective cohort of HCV/HIV co-infected patients treated with PEG-IFN 1.5 mcg/kg/week plus ribavirin-based patients’ weight in 48 weeks from 2014 to 2015. Exposure variables included age, sex, CD4 + Cell count, HCV genotype, HCV viral load, fibroscan; ALT/AST. The main outcome measurements were viral responses.

**Results:** 50 HCV chronic patients who were eligible criteria Fibroscan grade were above F2; and child- Pugh score were A; CD4+ more than 200 cell/mm³; there is contraindication of Peg-IFN and ribavirin in this analysis. Median age was 39.2 years and 94% were male. HCV genotypes 1, 6, 2, 3 were contributed 64%, 32%; 2%; 2% respectively. At baseline HCV viral load greater than 600,000 IU/ml was 40%; 100% had CD4 + than 220 cell/mm³ and under ARV for more than 4 years. Only one patient had to be withdrawn treatment at 26 weeks due to severe effects RVR, EVR, ETR and SVR were observed in 24%; 74%; 68%; 63% and 25.9%. The median CD4 cell count fell from entry to week 48 by 110 cell per cubic millimeter (p=0.0017). However, the percentage of CD4 cells actually is increased.

**Conclusion:** Treatment with Peg-IFN and ribavirin is relatively well tolerated in HIV/HCV co-infected person, overall, therapy provides cure to one quarter of patients, a rate significantly than HCV mono-infected individuals.

No conflict of interest

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**Abstract:**

HCV, HBV, TB and co-infections (ext. abstract submission)

**Alteration of NK subsets contributes to HBeAg seroconversion in Chronic Hepatitis B Patients after Treatment with Peg-interferon Alpha-2a**

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**Background:** It remains unclear what the role of NK cells is in the process of HBeAg seroconversion and whether their phenotype is related to treatment outcome in chronic hepatitis B patients.

**Methods:** 26 HBeAg-positive chronic hepatitis B (CHB) patients were treated with peg-interferon alpha-2a for 48 weeks. By flow cytometry staining, we precisely characterized the frequency, phenotype and function of novel NK subsets distinguished by CD27 and CD11b in 9 responders (sustained virological response at 72 weeks post treatment was defined as HBeAg seroconversion and HBV DNA < 2000 IU/mL), 15 non-responders and 15 healthy controls (HC).

**Results:** At baseline, the proportion of circulating CD11b⁺CD27⁻ (DN) NK cells was significantly decreased in responders vs nonresponders. During treatment, CD11b⁺CD27⁺ (DP) NK subsets preferentially accumulated in responders at week 12, week 24 and week 48 compared to nonresponders. No difference in DN NK subsets was found between responders and nonresponders during treatment. By detecting phenotype and function, DN NK subsets displayed an inactive and immature phenotype as well as exerted poor degranulation and IFN-γ production, while with a more active and mature phenotype, DP NK subsets exhibited stronger degranulation and IFN-γ production.

**Conclusions:** Peg-interferon alpha-2a therapy significantly influences NK cell phenotype and function. Pretreatment DN NK subsets determination and on treatment DP NK populations determination are useful for predicting response to PEG-IFN therapy.

No conflict of interest
Abstract: 91

HCV, HBV, TB and co-infections (ext. abstract submission)

Evaluation of pooled specimen collection for Chlamydia trachomatis and Neisseria gonorrhoeae detection in Thai men who have sex with men

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Background: Chlamydia trachomatis (CT) and Neisseria gonorrhoeae (NG) are common causes of sexually transmitted infections (STIs) worldwide. The co-infection of STIs and HIV has increased in men who have sex with men (MSM). Nucleic acid amplification test (NAAT) is used increasingly as an alternative method with faster turnaround time and higher sensitivity compared to conventional cultures. The high-cost of testing service is still a problem in many places. To solve this problem, we aimed to assess the performance of pooled specimen for detection of CT and NG in Thai MSM.

Material & Methods: Fifty-three MSM, with and without STI symptoms, attended the Thai Red Cross Anonymous Clinic (TRCAC) for health checkup during July to September 2014. Three methods were used to obtain samples from the same participants for CT and NG NAAT: Gold standard, method A and method B. For the Gold standard, rectal swab and oropharyngeal swab were put in two different collection tubes and each tube was used for NAAT. In method A, rectal swab and oropharyngeal swab were put in the same collection tube and the sample from that tube was used for NAAT. In method B, rectal swab and oropharyngeal swab were put in two different collection tubes, samples from these two tubes were subsequently pooled into additional collection tube and used for NAAT.

Results: Two hundred sixty-five samples were obtained for CT and NG NAAT using two machines; Abbott m2000 and COBAS 480. Of these, 13 samples had discordant test results between the two machines; 8 samples showed invalid results by COBAS 480 and negative results by Abbott m2000. CT was detected in 1.1% of oropharyngeal samples, 16.3% of rectal samples and 2.1% of urine. NG was found in 7.6% of oropharyngeal samples, 8.2% of rectal samples and 2.1% of urine. Using Abbott m2000, method A showed 100% sensitivity and 100% specificity for CT and NG detection, whereas method B demonstrated the same performance except for reduced sensitivity (71.4%) for NG detection. By COBAS 480, 100% sensitivity and 100% specificity were found for NG detection by method B while method A showed the same performance except for the slight decrease in specificity (95.1%) for CT detection. Almost perfect agreement was seen between methods A and B and between the two machines (all Cohen's k = 0.900-1.000, all p values <0.001).

Conclusions: CT and NG detection of pooled samples can be reliably performed using NAAT. Using pooled samples collected from different anatomical sites for CT and NG NAAT could be an alternative way to save cost and enhance access to STI services among key populations in resource-limited settings.

No conflict of interest

Abstract: 92

HCV, HBV, TB and co-infections (ext. abstract submission)

A retrospective analysis of tuberculosis-associated immune reconstitution inflammatory syndrome in 305 AIDS patients co-infected with tuberculosis

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**Abstract: 77**

**Introduction:** Tuberculosis (TB) is the most common opportunistic infection among human immunodeficiency virus (HIV) infected patients and TB-associated immune reconstitution inflammatory syndrome (TB-IRIS) is a clinical phenomenon during the treatment of AIDS patients co-infected with TB, which may result in interruption of anti-tuberculosis therapy and antiretroviral therapy (ART). In this retrospective study, we aimed to better understand TB-IRIS by analyzing its incidence, risk factors, clinical features and prognostic factors.

**Material & Methods:** We collected clinical data of 305 HIV/TB co-infected persons and made a retrospective analysis comprehensively. The data included sex, age, symptoms at admission, peripheral white blood cell count and hemoglobin at admission, CD4+ cell count and HIV RNA at admission and follow-ups.

**Results:** We found the incidence of TB-IRIS in this group was 13.1 percent, and patients with TB-IRIS had higher CD4+ cell count and aged younger compared with those without TB-IRIS at admission. The increase of CD4+ cell count in patients with TB-IRIS seemed higher than those without TB-IRIS during six months after ART. However, the increase in CD4+ cell count was similar in patients with and without TB-IRISS at 1 year after ART. All 40 cases of TB-IRIS patients had fever and among them, 85.0 percent had body temperature higher than 39 Celsius degrees. 38 patients (95.0 percent) recovered from TB-IRIS but two patients (5.0 percent) died from new opportunistic infections.

**Conclusions:** TB-IRIS mostly occurred in the first month after ART and high fever seemed to be the most noticeable signal for it. Pre-ART lower CD4+ cell count and younger age were risk factors of TB-IRIS. TB-IRIS had a relatively optimistic prognosis if treated properly with non-steroidal anti-inflammatory drugs (NSAIDs) or corticosteroids.

*No conflict of interest*

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**Abstract: 93**

**HCV, HBV, TB and co-infections (ext. abstract submission)**

**Self limiting TB IRIS**

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**Introduction:** In a resourse limited set up, relying only on AFB (acid fast bacilli) smear positivity might lead to over treatment of suspected lymph node tuberculosis (LNTB) IRIS (immune reconstitution inflammatory syndrome).

**Method:** Out of 647 registered HIV positive cases, 554 patients were eligible for ART with a base line CD4 ranging from 25/μL to 388/μL. After ART initiation, 52 patients developed LN enlargement (LNE) with size of 1.5×1.5 cm or more, solitary or multiple. LNE within 6 months of starting ART with an adherence ≥ 95% were selected as IRIS cases. Out of 52 LNE cases, 29 were abdominal LNE (multiple pre-aortic, para-aortic, peri-pancreatic LNE with or without splenis abscess or Ascitis) as abdominal Ultra sound finding. They clinically deteriorated with newly developed fever, weight loss, raised ESR despite ≥ 95% ART adherence. Due to operational cost, CT guided FNAC (fine needle aspiration cytology) of the abdominal LNE and 1 hilar LNE could not be done. They were empirically treated with ATT (anti TB therapy) and kept out of the study group. Remaining 22 cases of external LNE comprising of 19 cervical, 2 axillary and cervical plus axillary LNE were designated as the stydy group. They underwent FNAC. Of these 22 FNAC samples 16 came out to be AFB smear positive and were considered as TB IRIS cases requiring ATT. Their sputum AFB screening was negative. 13 out of 16 smear positive were initiated on ATT.

**Result:** Out of remaining 3 AFB smear positive cases, 1 patient had completed MDR (multiple drug resistant) TB treatment of 20 weeks duration a month before ART initiation. Suspecting him to a case of XDR (extensively drug resistant) TB, cervical LN aspirate was sent for culture / sensitivity (CS) of AFB. After 6 weeks of incubation, there was no growth in the culture. The LN also kept reducing in size.
Abstract

3 out of 16 AFB smear positive LN TB IRIS cases did not require ATT. Though only 1 could be proved by culture, the other 2 also resolved without ATT. Thus AFB smear positivity alone in suspected LNTB IRIS, does not call for ATT. Clinical monitoring and further investigations are needed before providing ATT to avoid over treatment.

No conflict of interest

Abstract: 94

Integration of HIV services with other programmes

The use of occupational lifestyle redesign program to promote life functioning in people living with HIV/AIDS in Hong Kong

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Background: Internalized stigma is the perception of self-negative evaluation of self, related or secondary to HIV positive status. Internalized stigma often link up with poor self-acceptance, fear of HIV disclosure, family isolation and social exclusion and manifested as low life functioning. These resulted in gross deterioration of social and mental wellbeing, in spite of good physical health. The aim of this study is to evaluate the effectiveness of the occupational lifestyle redesign program (OLSR), which is a form of self-efficacy based chronic disease management program, to promote life functioning.

Material & Methods: PLHA with maladaptive functioning were recruited into OLSR program. It was an intensive 10-weekly group coaching program with an occupational therapist and a HIV nurse counselor as facilitators. In the program, PLHAs were coached to plan and implement weekly action plans in the leisure and social life in each of the session. Therapist further coached the client to align their thinking and desire, set up target and goals, identify ways to achieve the goals and channelize positive energy to sustain the chain of actions. Successful implementation of the action plans generate positive emotion, enhance self-efficacy and thus energize greater plans and actions. This benign cycle promote reestablishment of new roles which are compatible with clients’ residual symptoms, functional capacity, personal aspirations, and environmental resources, in their leisure and social life, and in some case, family and work life.

Primary outcome measure of the program was life functioning which was assessed by the Life Functioning Assessment Inventory (L-FAI). L-FAI is a criteria reference instrument to rate functioning in 4 important domains of life with 10-point scales. Secondary outcomes were biomedical markers including CD4 cell counts and HIV RNA levels (viral load). Paired T-test was used for statistical analysis.

Results: A total of 36 patients in 6 groups were recruited. Results demonstrated significant improvement in L-FAI scores in all the 4 life domains with p < 0.05. Increase of means scores in leisure life is from 3.45 to 4.48; social life from 3.73 to 4.97; home-maker life from 3.61 to 4.88; and work life from 4.48 to 4.79. The unemployment rate was significantly decreased from 64% to 27%. Another 6% engaged in volunteer work and 3% resumed housewife role. Excluding those started antiretroviral therapy within 24 weeks, intent to treat analysis showed significant improvement in viral suppression. Proportion of patients with viral load < 50
Abstract

Copies/ml increased from 50% to 70% (p = 0.019) and 78% (p = 0.005), at 12 weeks and 48 weeks after joining the program respectively. The mean CD4 cell counts increased from 417 to 436 (p = 0.26) and 468 (p = 0.062), at 12 weeks and 48 weeks, respectively.

Conclusions: OLSR program has helped PHLAs to reconstruct their life functioning and improved treatment compliance as indicated by the surrogate biomedical markers. Impact of self-stigmatization could be reduced and life function can be enhanced through exploring, experimenting, habituating, internalizing old and/or new occupations in all aspects of life.

No conflict of interest

Abstract: 95

Integration of HIV services with other programmes

Harm Reduction Program for HIV-positive Patients with Recreational Drug Use

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Objective: About 30% of HIV-positive patients use recreational drugs (Ketamine, Amphetamine, MDMA) which cause unfavorable body and mind effects. By setting up a harm reduction group therapy program based on the harm reduction theory and by the cooperative group force of drug addicts with the same experiences and drugs, the motivation and capability of detoxication is enforced, and the mutual help potentials are induced and a close and positive support system is also established.

Method: A ‘Harm Reduction Group for Recreational Drugs Use Cases’ was established on April 1st, 2014, and 12 sessions were held every other week within one year. During counselling and discussion within the harm reduction group, the concept of harm reduction was introduced into the group, and the group topics include: the Johari Window Technique and discussion, the driftwood theory, firewall construction, target of drug addiction therapy, and connection of sex jeopardies. Such actions were implemented to reduce harm and restore health. Outcomes were measured by filling out questionnaires at the end of the last participation, and the special items in the questionnaire were evaluated individually.

Result: 12 sessions of harm reduction therapy were held in 2014 and in 2015 respectively, and 216 attendance were recorded. Among the 16 participants, 8.3% were females and 91.7% males; ages ranging from 18-37 with an average age of 28.5; the majority of sex orientation is homosexual; the first usage age is 19 and the past usage years amounts to 59 years and 10months; the drugs were used in mix. Only 2 persons have fixed sex partners, and others have experiences of multiple sex partners. About 10% use condoms during anal sex or vaginal sex, but never for oral sex. The recurrence rate was 50% in 2014 and 10% in 2015. The recurrent and non-recurrent participants of harm reduction group therapy after univariate analysis were found to have higher percentage of consistently reducing material abuse, positively paying attention to physical health, maintaining care towards others, and being able to promote self by utilizing talents and capabilities. There is a difference in statistics. (P<0.05)

Conclusion: The group therapy questionnaire showed that participating in the harm reduction group therapy provided strong motivation such as positively paying attention to self-physical health, and those cases who sought others’ help on drug issues has better chance of success in harm reduction. Participating in harm reduction therapy also promoted self-capabilities such as consistently reducing material abuse, improving work performance and promoting professional abilities. The recurrence rate of those who had strong motivations (e.g. paying attention to physical health and seeking help from others) and of those who promoted capabilities after participation in the group (e.g. reducing drug abuse and improving professional performance) have meaningfully decreased. As a result, reinforcing the motivation of detoxication and promoting the capabilities after detoxication is the only way of directing the correct concept of harm reduction to practice the determination of detoxication.

No conflict of interest
Abstract: 96

Integration of HIV services with other programmes

Improving prevention and care for HIV and sexually transmitted infections among men who have sex with men in Cambodia: The SAHACOM

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Background: Cambodia has recently been internationally lauded for its successes in slowing down the HIV epidemic. However, the prevalence of HIV and sexually transmitted infections (STIs) among key populations continues to rise. To address these issues, KHANA implemented the Sustainable Action against HIV and AIDS in Communities (SAHACOM) Project in which one of the core components was focused prevention programs for key populations including men who have sex with men (MSM). This study evaluated the impacts of the SAHACOM in providing prevention, care, and support services for HIV and its related comorbidities to MSM in Cambodia.

Material & Methods: We compared several outcome indicators measured through midterm (n= 352) and end-line (n= 394) surveys conducted in 2012 and 2014, respectively in Battambang and Siem Reap. A two-stage cluster sampling method was used to select the study sample for structured questionnaire interviews. Chi-square test or Fisher’s exact test was used for categorical variables and paired Student’s t-test for continuous variables to compare socio-economic characteristics of respondents and key outcome indicators to detect changes from midterm to end line.

Results: Mean number of sexual partners in the past three months decreased significantly from 6.2 at midterm to 4.0 at end line (p= 0.03). The proportion of MSM who reported having paid sex with men in the past three months also decreased significantly from 19.0% at midterm to 9.7% at end line (OR= 2.0, 95% CI= 1.3-3.0). No significant change was found in condom and lubricant use rates in all types of relationships. Regarding STIs, 28.1% of MSM at midterm reported having at least one STI symptom in the past three months compared to 6.1% at end line (OR= 4.6, 95% CI= 2.9-7.4); out of them, 14.1% of MSM at midterm sought treatment compared to 20.7% at end line (OR= 2.6, 95% CI= 1.1-6.9). The proportion of MSM who reported using illicit drugs in the past three months also decreased significantly from 12.2% at midterm to 5.1% at end line (OR= 2.4, 95% CI= 1.4-4.2). However, the proportion of MSM who reported having been tested for HIV in the past six months decreased significantly from 94.1% at midterm to 77.1% at end line (OR= 2.9, 95% CI= 1.8-3.6).

Conclusions: The SAHACOM was successful in improving several sexual behaviors and related outcomes among MSM under the project. However, the programs failed to appreciably increase condom use and HIV testing rates. Future studies should explore barriers preventing condom use and HIV testing, and intervention programs should be tailored to address these issues among MSM in Cambodia.

No conflict of interest

Abstract: 97

Stigma

Fighting stigma/discrimination against PLHIV in resource-poor-nations

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Background: stigma/discrimination against PLHIV in resource-poor-nations is one major factor for poor HIV-Treatment-Adherence. We need to devise a model to overcome this hurdle. This model’s Interventions must include methods to devise better access to ARV’s, low-cost-ARV supply chain, reduce stigma, improve QOL of PLHIV & psychosocial-support. This model trains locally-working-traditional-faith-healers who are backbone of tribal/rural healthcare in developing-nations.
Methodology: This unique initiative is Phase-I trial-project. Project components included physician, medical nurse, counselor & traditional-faith-healers [TFH]. We work in 21 villages with 143 patients enrolled in medical-clinics for participation in this study. TFH advocated awareness raising/spiritual health/community support. Social and community efforts reduces stigmatization/discrimination.

Results: total 16 workshops conducted, shows positive outcome in >78% subjects. Negative attitude of PLHIV towards health-care providers analyzed. Among 40 who underwent full ARV course, 70% reported positive outcome/mind-frame. Incidences of forced sex is 40%; physical abuse is 57%; verbal abuse 84%; & threat to job 36% communicated to appropriate higher authorities for action. Conclusion: Stigma/discrimination changes attitudes of PLHIV towards ARV-therapy & reduces compliance. Involvement of local/respected faith-based leaders for AIDS control and creation of environment where faith plays important role.

Conclusion/Recommendations: AIDSCare-providers play a vital role for sensitization of general-population / health-care-workers towards sex workers / PLHIV. Study results demonstrated that multi-sectoral and multi-disciplinary approach by NGO’s with community participation will improve ARV-treatment outcome & overall QOL of HIV-affected. Our model seeks to explore power faith approach in promoting love, compassion and support to HIV positive community, conferences should be platform to show needs / concerns of PLHIV about ARV treatment adherence from our resource-poor-nations. We need a strong platforms to interact/exchange ideas with HIV researchers to work on common guidelines to overcome stigma associated with HIV.

No conflict of interest

Abstract: 98

Stigma

Introducing Dr. Rainbow Scheme for an Inclusive and Gay-friendly Medical Environment in Hong Kong

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Background: Stigma associated with the gay identity has long been regarded as a major barrier to effective HIV prevention and treatment as an unfriendly social environment deters the gay patients from seeking medical assistance. Due to the social stigma and lack of legal protection for sexual minorities in Hong Kong, many gay and bisexual men choose to hide their sexual orientation when they seek medical assistance, which creates serious barriers to the accurate diagnosis and treatment of some illnesses, like STDs and mental disorders. Even more sadly, some of them might even choose not to seek medical assistance in fear of stigmatization and let their health conditions deteriorate.

According to AIDS Concern’s research in 2015, 12.5% of homosexual men would not seek medical services related to sexual health for fear of disclosing their sexual orientation. 40% of the homosexual men would hide their sexual orientation and avoid talking about their homosexual practices when they seek medical assistance.

Material & Methods: To encourage doctors to learn more about gay culture and healthcare concerns, AIDS Concern launched the Dr. Rainbow Scheme in October 2015. We provided ‘Gay-friendly Healthcare Training Workshop’ or ‘Gay-friendly Healthcare Webinar’ to doctors, which is composed of a wide range of topics from gay men’s culture, healthcare concerns and common gay slang, to discrimination cases sharing and practical tips on sensitive consultation. It is hoped that the training could reduce their stigma against gay patients, and also facilitate a more effective communication between the doctors and gay patients.
The scheme was also promoted to the gay community. By promoting the scheme, we hope to increase the gay men’s motivation of getting access to healthcare services by eliminating their fear of discrimination. Promotion was conducted through online platforms and gay venues to educate the gay community about the scheme and the complaint mechanism to the Medical Council of Hong Kong when they face discrimination or unfair treatment by medical professionals.

By promoting gay-friendly healthcare practices, and increasing gay men’s motivation to seek medical services, we hope to create a more gay-friendly medical environment that supports an effective response to HIV prevention and treatment.

**Results:** 14 doctors from different specialties joined the scheme and 30 medical students joined our training workshop. More than 80% of the doctors and 95% of the medical students think that they have benefited from this programme, having learnt that they should respect people of different sexual orientations and that they have the rights to enjoy equal opportunities. 86% of the gay respondents reflect that the scheme can increase their motivation to seek healthcare services.

**Conclusions:** We firmly believe further efforts are continuously needed in ingraining the value of a gay-friendly healthcare environment in the medical field. Amid the legal complexity and the general ignorance of the concept ‘gay-friendly healthcare’ in the medical field, the Dr. Rainbow Scheme is an important pilot project in ensuring that people of different sexualities can enjoy equal opportunities in receiving medical services. It is also hoped that the pioneering scheme can draw public attention and inspire future projects of the same kind.

*No conflict of interest*

**Abstract: 99**

**Stigma**

**Association of Intimate Partner Violence (IPV) with Quality Of Life, Depression and Adherence to Anti Retro Viral Therapy among women with HIV AIDS.**

**Background:** Intimate partner violence (IPV) is a severe form of abuse prevalent in urban and rural areas of India. Women with retro viral diseases (AIDS) suffer abuse at the hands of their partners which leads to a poor quality of life. This also makes them more prone to depression and non-adherence to their Anti retro viral therapy (ART). IPV and HIV is a deadly combination which warrants sincere attention from doctors and counsellors all over India and should be given the appropriate modicum of care, to prevent a further deterioration of the present situation.

**Materials:** The objective of our study was to discover the correlation between IPV among HIV positive women attending ART centers and the factors affecting it such as their socio-economic status, addiction status of their partner and the severity and form of abuse (including psychological, physical and sexual abuse) that they are exposed to. Our main objective was to estimate the prevalence of Intimate Partner Violence (IPV) among HIV positive women. analyze the effects of IPV on their quality of life, adherence to ART therapy and depression, to discuss the factors that lead to Intimate Partner Violence.

**Results:** In our cross sectional study, by non random sampling in 99 HIV positive women, we found that mental abuse was the most common (14.1%) followed 4 % who reported being physically abused and 1% said they were sexually abused by their partners and the overall IPV prevalence was 19.2% and that the vulnerability to IPV is also significantly associated with the socio-economic status of the HIV infected person.

**Conclusion:** We could conclude that IPV has taken a toll on a significant number of subjects and it has effect on the CD4 count and is related to the socio-economic status of the women and also that there is a significant association between low CD4 count and IPV exposure.

*No conflict of interest*
Abstract: 100

Stigma

Stigma watch—the first study about the stigma experienced by people living with HIV (PLHIV) in Hong Kong

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Background: Stigma towards people living with HIV (PLHIV) is highly pronounced worldwide, including Hong Kong. Stigmatization not only worsen PLHIV’s life satisfaction and quality of life but also result in lower medication adherence, faster progression of HIV to AIDS, and a greater level of psychological distress. This study was sprung forth from the stigma index report by UNAIDS and served as an initial step in monitoring discrimination and human rights of PLHIV in Hong Kong. Apart from the areas covered in the UNAIDS’s PLHIV Stigma Index questionnaire (e.g. disclosure of HIV status, access to work and healthcare services, etc), different nuances of stigma were investigated in this study, including experienced/enacted stigma, anticipated/felt stigma, internalized/self-stigma, disclosure concern, etc. Risk and protective factors related to stigma as well as their impact on well-being were also investigated.

This study aimed to (1) develop a local HIV Stigma Index and investigate the different experiences of stigma among the PLHIV in Hong Kong and (2) examine coping strategies and resources as well as psychological outcomes such as social well-being and mental health of PLHIV in Hong Kong.

Research Method: Data collection of the study was conducted through an anonymous self-report questionnaire from December 2012 to September 2013. The study sample consists of 291 PLHIV. They were recruited through the Kowloon Bay Integrated Treatment Centre (KBITC) and AIDS Concern. The participants were recruited either by nurses at the clinic or by the social workers from AIDS Concern.

Result: Among various kinds of stigma experienced by PLHIV in Hong Kong, the Internalized stigma was strongly and negatively related to mental well-being. Slightly over half of the participants’ WHO5 Well-being Index score was below the WHO's recommended cut-off point of 13, indicating poor well-being. (Full score=25, M=12.68, SD=4.64) Among participants who had internalized stigma (n=143), a majority (74.1%) of them had a WHO5 score that was below the cut-off. Their well-being was worse than those who did not have internalized stigma. Furthermore, avoidance and discrimination from general healthcare workers, anticipated stigma, perceived affiliate stigma, disclosure concerns and negative coping were positively correlated with internalized stigma, and were negatively correlated with well-being. In addition, social support, love attitude, relationship quality, mindfulness, self-compassion and valued living were negatively correlated with internalized stigma, and were positively correlated with well-being.

Conclusions: Internalized stigma is strongly and negatively related to mental well-being. PLHIV have to recognize the possibility of stigma internalization and seek for timely psychological support. In addition stigma and discrimination are not uncommon in non-HIV/AIDS health care settings.

No conflict of interest

Abstract: 101

Stigma

Association of AIDS Stigma and Discrimination with Mental Disorders among People Living with HIV in Cambodia

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Background: AIDS stigma and mental disorders have great negative impacts on the health and quality of life of people living with HIV (PLHIV). This cross-sectional study examines the association between these two common conditions among PLHIV in Cambodia.
Methods: This study included 1,005 PLHIV randomly selected from six provinces. The PLHIV Stigma Index was used to measure stigma and discrimination, and a short version of general health questionnaire (GHQ-12) was used to measure mental disorders. Multivariate logistic regression analysis was conducted.

Results: The reported experiences of stigma and discrimination in the past 12 months ranged from 0.8% for reports of being denied for health services to 42.3% for being aware of being gossiped about. Internal stigma was also common, ranging from 2.8% for avoiding going to a local health facility to 59.6% for deciding not to have children. The proportions of PLHIV who reported fear of stigma and discrimination ranged from 13.9% for fear of being physically assaulted to 34.5% for fear of being gossiped about. After adjustment, higher levels of mental disorders (GHQ-12≥ 4) remained significantly associated with higher levels of experiences of stigma and discrimination (AOR= 1.9, 95% CI= 1.4-2.6), higher levels of internal stigma (AOR= 1.7, 95% CI= 1.2-2.3), and higher levels of fear of stigma and discrimination (AOR= 1.5, 95% CI= 1.1-2.2).

Conclusions: AIDS stigma and discrimination in Cambodia remain common and may have potential impacts on mental health conditions of PLHIV. These findings indicate a need for community-based interventions to reduce the stigma and discrimination.

No conflict of interest

Abstract: 102

HIV Implementation Science (ext. abstract submission)

Are livelihood programs effective in improving mental health conditions of people living with HIV in Cambodia?

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Background: Although much progress has been made in HIV prevention and care, psychological and social problems remain major concerns for people living with HIV (PLHIV) on antiretroviral therapy. To respond to the needs, livelihood programs have been implemented extensively to improve the living conditions of PLHIV in Cambodia; however, no studies have assessed the psychological impacts of these programs on PLHIV. Therefore, we examined the effect of KHANA’s livelihoods programs on and factors associated with depressive symptoms among PLHIV in Cambodia.

Materials & Methods: A quasi-experimental nonequivalent comparison group study was conducted in six provinces of Cambodia in 2014. Data were collected from an intervention group comprising 357 PLHIV who had participated in the livelihoods programs, and a comparison group comprising 328 PLHIV who had not participated in the livelihoods programs. Multiple logistic regression analysis was carried out to examine the association between livelihood program participation and depressive symptoms as measured by the depression subscale of the 25-item Cambodian version of the Hopkins Symptom Checklist. A propensity score analysis was used to examine the effect of the livelihood program on depressive symptoms while controlling for selection bias.

Results: Overall, 56.0% of intervention group participants and 62.7% of comparison group participants met the Hopkins Symptom Checklist threshold for depressive symptoms. Multiple logistic regression analysis revealed that participants in the intervention group (adjusted odds ratio [AOR]: 0.68, 95% confidence interval [CI]: 0.52-0.88), those who had higher monthly household income per capita (AOR: 0.98, 95% CI: 0.97-0.99) and those who had higher self-esteem (AOR: 0.40, 95% CI: 0.26-0.62) had significantly lower odds of having depressive symptoms. On the other hand, women (AOR: 2.80, 95% CI: 1.92-4.07), those who had high internalized HIV-related stigma (AOR: 4.00, 95% CI: 2.77-5.76), and those who were food insecure (AOR: 3.44, 95% CI: 2.00-5.93) had significantly greater odds of having depressive symptoms. In addition, the propensity score analysis indicated that the livelihood programs helped mitigate depressive symptoms among the program participants (T = -1.99).
Conclusions: This study highlighted how KHANA’s livelihoods programs may mitigate the burden of mental disorders among PLHIV in Cambodia. As such, these programs could be scaled up and modified to emphasize improving participants' psychological well-being. Although the livelihoods programs might have helped to alleviate depressive symptoms in the intervention group, these programs, along with health care programs, might be adapted to better address the mental health care needs of PLHIV in Cambodia. In addition, interventions specifically targeting women and those with lower household income should be implemented along with greater efforts to reduce stigma against PLHIV.

No conflict of interest

Abstract: 103

HIV Implementation Science (ext. abstract submission)

‘Let Food Be Your Medicine’: An interactive knowledge exchange program on dietary management for short-term and long-term HIV care in Thailand

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Background: Metabolic syndrome, a group of interrelated risk factors for cardiovascular diseases and type 2 diabetes, has been increasingly reported among people living with HIV (PLHIV). In Thailand, approximately 25% of HIV-positive individuals on antiretroviral therapy (ART) had metabolic syndrome defined as having three or more of the following five components: abdominal obesity, hypertriglyceridemia, low HDL-cholesterol, high blood pressure and high fasting plasma glucose. We evaluated the ‘Let Food Be Your Medicine’ project which was an interactive knowledge exchange project for health care providers (HCP) and HIV peer educators around the supportive role of dietary management in short-term and long-term HIV care and its actual application in a clinical context of Thailand.

Methods: The project duration was 20 months (June 2008 – February 2010). Activities included study visits by HCP and HIV peer educators from four selected provincial hospitals of Thailand to the HIV Nutrition Clinic of the Thai Red Cross AIDS Research Centre (TRCARC). Later the HCP and HIV peer educator leaders from each hospital were encouraged and coached by TRCARC staff to carry out camps and cooking classes to pass on the information to PLHIV in and around the catchment area of their hospitals. The HCP were assisted to set up similar clinical nutrition services for HIV in their hospitals in line with the TRCARC model.

Results: All four provincial hospitals successfully implemented nutrition camps and set up HIV nutrition services for PLHIV in their hospitals. There were a total of 960 PLHIV who attended activities in this project. Satisfaction scores were high for all activities and ranged from 90-100%. Pre- and post-intervention evaluations showed significant increase in the proportions of PLHIV with improved knowledge around dietary management; 9.7% for healthy eating (p<0.001), 12.3% for symptom management using food (p<0.001), and 28.8% for food safety (p<0.001). Positive correlation was found between the increase in knowledge scores and greater number of different activities conducted at each nutrition camp (p=0.036). Training modules were developed based on this successful model. Among 488 PLHIV (30% male, 70% female) who underwent nutritional assessment by HCP in this project, high body fat was detected in 28.1% and 28.7%, high visceral fat in 21.8% and 20.0%, and overweight by body mass index in 33.6% and 18.1% among male and female PLHIV, respectively. Repertoires of common nutritional problems among Thai PLHIV were also gathered and educational materials were produced on how dietary management could help to address them.
Conclusions: Dietary management could be well integrated into HIV care programs through the set of activities carried out by HCP and HIV peer educators in provincial hospitals in Thailand. PLHIV were satisfied and gained knowledge from these activities. This interactive knowledge exchange model has potential to be replicated through the use of training modules in Thailand and other countries with similar socio-economic and cultural backgrounds.

Abstract: 104

HIV Implementation Science (ext. abstract submission)

Assessment of ViveST™ Sample Storage and Transportation Device

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Introduction: Distribution of proficiency samples for infectious diseases testing often requires transport of samples over long distances in harsh climatic conditions. To preclude deterioration in sample integrity, samples intended for External Quality Assessment Schemes [EQAS] for nucleic acid amplification tests are shipped frozen by NRL to participants. Transportation of frozen samples is expensive and this cost can prevent participation in NRL EQAS. ViveST™ is a biological sample transport system offering preservation of sample integrity during ambient transport and storage. We summarise the outcomes of the manufacturer’s, others’ and our assessment of the ViveST™ device as a sample format option when HIV RNA is the analyte such as in EQAS for HIV viral load and genotypic drug resistance testing.

Method: The difference between HIV viral load in the liquid sample and post elution from the corresponding ViveST™ device was quantified. HIV RNA stability was compared in the frozen liquid sample and the ViveST™ device at relevant viral loads, time periods and temperatures: 4.7 and 5.7 log_{10} copies/mL; 2, 6, 10 and 21 days, and 6 months; -70°C, ambient and 46°C, respectively.

Results: Compared with the frozen liquid sample, a decrease of approximately 1 log_{10} in HIV RNA in samples eluted from the ViveST™ device stored at -70°C for up to 6 months was observed. Similarly there was a 1.4 log_{10} decrease when stored ambient for 21 days and a 1.9 log_{10} decrease at 46°C when stored for up to 10 days.

The manufacturer of the ViveST™ device has reported a decline in HIV RNA in plasma stored on the device at 4°C, ambient and 40°C/75% relative humidity over 2 months by 0.84, 0.91 and 1.69 log_{10} copies/mL, respectively. When samples were kept on the ViveST™ device in conditions that mimicked the pre-test handling and shipping conditions of NRL EQAS samples [-70°C / 2 weeks; RT / 2 weeks; refreezing at -70°C] the viral load declined by 1.3 log_{10}. The viral load declined a further 0.2 log_{10} when samples were held at 46°C for 2 days prior to refreezing, which may occur during a shipping delay.

NRL EQAS for genotypic drug resistance testing requires nucleic acid sequence amplification and detection of mutations associated with drug resistance (DRMs). In comparison with the frozen liquid sample format, sequence was amplified from 97% of samples eluted from ViveST™ and >98% of the DRMs assessed as part of the EQAS were detected. Kantor et al. reported 98% sequence concordance between plasma and ViveST™ frozen plasmas [n=34].

Conclusion: The ViveST™ sample format could be a viable option for shipping HIV RNA EQAS samples at ambient temperature thereby improving access for laboratories in remote and resource limited settings. The likely decrease in viral load must be taken into account when preparing the EQAS samples and the inclusion of a temperature monitoring device should be considered because of the deleterious effect of high temperature on viral load. The outcome of introducing the ViveST™ device sample format will be evaluated in future NRL EQAS.

No conflict of interest
Abstract: 105

Epidemiology and surveillance

The increasing synthetic drug abuse and high syphilis prevalence among female drug users in Beijing, China

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Introduction: HIV epidemic pattern changed from drug injecting transmission to sexual transmission during the past decade in China. At the same time, synthetic drugs were overflowing. Few was done about the relationship between synthetic drugs and HIV. In this study, information was collected among female drug users (FDUs) to demonstrate the changing of characteristics of FDUs and the relationship between the behaviors and STI infections.

Material & Methods: Serial cross-sectional surveys were conducted during 2010 to 2014 among female drug users at detoxification centers and communities in Beijing to collected characteristic of addiction drug usage, sexual behaviors and STI prevalence.

Results: A total of 3859 FDUs were surveyed during 2010 to 2014, with the median age of 32.6±8.94 years old. The proportion of synthetic drug user among FDUs increased from 43.7% in 2010 to 70.7% in 2014. Comparing to traditional drug users, female synthetic drug users were younger ($\chi^2=621.956, P=0.000$), lack of education ($\chi^2=13.195, P=0.000$), higher proportion to be single ($\chi^2=525.540, P=0.000$) and non-local residents ($\chi^2=319.087, P=0.000$). No significant difference was found on condom uses during sexual behaviors between traditional and synthetic drug FDUs but the engagement of commercial sexual activities ($\chi^2=53.197, P=0.000$) and syphilis prevalence ($\chi^2=26.718, P=0.000$) among synthetic drugs FDUs were found to be higher significantly than traditional drug FDUs.

Conclusions: Synthetic drug abuse appears to be correlated with commercial sex behavior and higher syphilis prevalence among FDUs. Tailored strategies on heart education to curb the prevalence of synthetic drug abuse are urgently needed in Beijing.

No conflict of interest

Abstract: 106

Epidemiology and surveillance

Socio-demographic and clinical correlates of depression among human immunodeficiency virus-positive patients in Surat City of Western India

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Introduction: Surat has the highest incidence of human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) in Gujarat, the main reason being its large migrant population. Mental health in HIV/AIDS has most often been a topic of neglect all over the world. This study attempts to assess the magnitude of depression and the socio-demographic and clinical variables associated with it in HIV-positive patients.

Methods: A cross-sectional study was conducted in 270 HIV-positive patients using Beck Depression Inventory (BDI; translated and validated in Gujarati and Hindi) along with a questionnaire for eliciting information on socio-demographic and clinical variables.

Results: The prevalence of depression among HIV-positive patients was 30% with 12.22% having mild depression; 14.07% with moderate depression and 3.7% with severe depression. Bivariate analysis showed that physical pain, physical illness, CD4<300 cells/mm3, HIV
positive spouse, discrimination at hospital, discrimination in society, government setup as the first place of HIV test and broken relationship with spouse after HIV disclosure were significantly associated with depression among the patients. On multiple logistic regression, discrimination at hospital, physical pain and CD4 <300 cells/mm3 were found to be the significant predictors of depression among the patients.

**Conclusions:** HIV-positive patients can be screened by counselors using easy-to-administer scales like BDI, which can be translated and validated into any regional language. A trained psychiatrist should be appointed at the Anti-Retroviral Therapy (ART) center to take care of the mental health issues of the patients.

*No conflict of interest*

**Abstract: 107**

**Epidemiology and surveillance**

**Quality of Life of patients living with Human Immunodeficiency Virus Infection – Evidence from South India**

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**Introduction:** With anti-retroviral therapy (ART) for human immunodeficiency virus infection (HIV) coming into picture, quality of life (QOL) has gained importance. Knowledge on the factors affecting QOL would be helpful in making important policy decisions and health care interventions. 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.

*No conflict of interest*

**Abstract: 108**

**Epidemiology and surveillance**

**Estimating the HIV incidence in Japan**

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**Background:** Time-dependent variations in reporting interval and reporting system have made it technically difficult to estimate HIV prevalence in Japan. The present study aimed to overcome these difficulties by using a flexible mathematical model.
Abstract: A continuous multi-state model with piecewise constant incidence function was employed. Analytical solution of the model was derived, enabling us to construct a likelihood that can correspond to a revision of reporting interval from 2 to 3 months and cessation of duplicate reporting of AIDS cases arising from previously diagnosed HIV infection. Maximum likelihood method was used for inferring HIV incidence and diagnosis rate of HIV both of which were assumed to depend on time.

Results: Although the yearly incidence was in an upward trend up to an interval from 2006 to 2011 with 1460 (95% confidence interval (CI): 1373, 1547) infections per year, the maximum likelihood estimate of incidence was 1416 infections from 2011 to 2014 with a broad confidence interval (95% CI: 1040, 1792). A significant downward trend in the corresponding time interval was observed among men who have sex with men (MSM), but not among those acquiring infection from heterosexual intercourse. The diagnosis rate was also in an upward trend, demonstrating that the rate from 1986-1990 at 0.073 (95% CI: 0.055, 0.091) has doubled to 0.154 (95% CI: 0.148, 0.160) from 2006 to 2011. People living with HIV/AIDS were estimated at 25,176 persons in April 2014. The proportion of undiagnosed HIV infections among total HIV infections (without developing AIDS) was estimated to be 49.7% in April 2014.

Conclusions: The incidence of MSM has likely saturated, but there is a continued increasing trend of incidence among those caused by heterosexual intercourse. Diagnosis rate has improved over time, especially among MSM, but the diagnosis rate among HIV infected individuals caused by heterosexual intercourse was approximately half of the estimate among MSM. Heterosexual transmission is likely to continue to grow, indicating a need for action to diagnose their infections at an early stage.

No conflict of interest

Abstract: 109

Epidemiology and surveillance

HIV Prevention Among Youngsters

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Background: Despite efforts exerted by the Local government and non-governmental organizations (NGOs), statistics show a rapid increase in HIV/AIDS in the past five years. Unprotected sex remains the most associated cause of HIV transmission. Age range has gone younger with the increase in pre-marital sex. Promotion of HIV prevention is essential in the younger generation. The present study is trying to promote HIV prevention to youngsters of 18-25 years old by incorporating it into curricular activities.

Materials and Methods: Series of activities were designed around the semester as a subconscious reminder of safe sex. Programme launched with a game booth with information exhibition at the beginning of the academic year. The game consists of questions on attitude towards HIV/AIDS and local centre information. The second activity was a seminar on ‘Sex’. It was followed by a library exhibition on HIV/AIDS publications. Readers were invited to answer a survey question on their preference of disclosure of unsafe sex activities. The last activity was an Essay Competition on HIV/AIDS. Free choice of topics on the theme of HIV/AIDS was allowed. Throughout the promotion, messages of safe sex, information on local surveillance and HIV prevention were embedded.

Results: The initial starter game was an induction message to students, especially freshmen on the correct attitude on HIV/AIDS. More than 400 students participated in the game and over 2000 headcounts visited the booth and read the exhibition materials. The talk was the high light of the activity. There were 406 students attended the talk, 233 answered the questionnaires. The mean score of correct answers were 48% in the pre-test and 53% the post test. Hence, students got improvement after attending the talk.
Students got improvements in scoring the right answers in the four categories of questions after the talk: Scores showed that they had correct attitude in HIV/AIDS but know little of community supports and local surveillance system. The lost score was on the diagnostics of HIV/AIDS.

There were 261 participants replied on unsafe sex disclosure. Only 43% of them were willing to share their sexual incidences with others. Out of this, 40% of them were with friend, 18% and 17% with parents or siblings. The percentages were under 10 for others such as church workers, counsellors, social workers or community organizations. Essay topics showed that youngsters were more interested in prevention and transmission of HIV, local services and the current HIV/AIDS situation of Hong Kong.

Conclusion: Youngsters need recognition. Initial acceptance of their sexual behaviour opened up communications. Encouragement and recognition of pre-marital sex are more positive approaches in promoting safe sex to them. Communication was built on trust. Open-minded discussion was achieved. Studies showed that youngsters were not aware of community supports on HIV/AIDS. They were not ready to disclose their unsafe sexual activities to family members. Hence, parent’s acceptance of children’s pre-marital sex may be helpful in better prevention of their risk of acquiring HIV infections. The study brought to the attention of youngsters on prevention and HIV support in local communities.

No conflict of interest

Abstract: 110

Epidemiology and surveillance

The residual risk of HIV seroconversion in methadone users in Hong Kong

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Background: In Hong Kong, a methadone treatment programme (MTP) has been in operation since the 1970s, some years before HIV was first reported in the world. The HIV prevalence among drug users has always remained low at below 0.5%. To assess the effectiveness of MTP, we aimed to measure the HIV seroconversion rate in methadone users in Hong Kong and investigate the participation pattern of seroconverted users.

Material & Methods: In Hong Kong, voluntary HIV tests were regularly performed on all drug users attending the territory’s methadone clinics. Anonymous clinical data of methadone users who attended these clinics between 2008 and 2013 were retrospectively collected following institutional approval. Data fields included demographics, HIV tests results, admission history, daily dosages and attendance records. Participation intensity (PI) was calculated by dividing the number of visits by number of days in the programme. Sensitivity analysis was performed by varying the number of days before and after diagnosis. Statistical analysis was performed using R version 3.2.0, with statistical significance defined by a p value <0.05.

Results: Of 11446 users who attended MTP for more than a year and had at least one negative HIV test result, 13 became seroconverted. The incidence density rate was 0.01 (95% confidence interval (CI): 0.007-0.013) cases per 100 person-years. The median interval between first admission and subsequent seroconversion was 3 years (interquartile range (IQR): 2-4 years). Among seroconverters, the median age when first admitted to MTP was 39 years (IQR: 32-45 years), which was similar to all users in the programme. Their median duration of maintenance was 7 years (8 years in all users). During 2008 to 2013, interruption of methadone treatment (defined as a break of over 28 days) occurred at a median of 5 times (IQR: 3-7 times) among seroconverters, higher than that of the whole community (median: 2 times, IQR: 1-4 times). The PI among seroconverters was generally lower (median: 36%, IQR: 23-45% v. median: 63%, IQR: 35-89%). Out of 10 seroconverted patients who were diagnosed with HIV before 2014, only two had dropped out from the programme. The PI of seroconverted methadone users increased by 43% (95% CI: 14-71%) within 2 months after diagnosis, compared to that within 1 month before diagnosis (p=0.01).
Conclusions: The incidence density rate of HIV seroconversion in methadone users in Hong Kong (0.01 per 100 person-years) was considerably lower than that in Mainland China (0.20) and other countries, including Canada (0.39), US (0.88) and Puerto Rico (3.37). This phenomenon can be explained by a low background HIV prevalence, which may have reduced the risk of HIV exposure in the drug users' community. Our study results suggested that seroconverted methadone users had a lower PI compared to other contemporary users. The increased PI shortly after HIV diagnosis may be due to the user's own awareness or encouragement by MTP clinic staff. Such change could reduce the risk of virus transmission in the community.

No conflict of interest

Abstract: 111

Epidemiology and surveillance

Knowledge, attitudes and practices regarding HIV/AIDS among Information Technology workers in Gurgaon, Haryana, India.

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Introduction: The prevalence of HIV infection in the well-educated adult population in India was reported to be low compared to that of poorly educated population of India. However, there is no room for complacency. Inadequate knowledge, negative attitudes and risky practices are major hindrances to preventing the spread of HIV. This study aimed to assess HIV-related knowledge, attitudes and practices of Information Technology in Gurgaon, Haryana, India.

Methods: A cross-sectional study on Information Technology workers aged between 25 and 45 years old was undertaken to evaluate their KAPs. 400 eligible samples were selected through random sampling from IT companies of Gurgaon. SPSS version 21 was used for statistical analysis and chi square test was used to compare the variables.

Results: The majority of the population was aware that HIV can be transmitted by sexual intercourse (99.7%), from mother to child (97.3%) and through sharing needles or syringes (96.0%). Misconceptions about transmission of HIV were observed among 82% to 87% of respondents. Positive attitudes towards HIV/AIDS were observed among 82% of respondents.

Conclusions: Despite adequate knowledge about HIV/AIDS, misconceptions about routes of transmission were found. Negative attitudes to HIV/AIDS and risky practices were also present. Educational programmes with specific interventions are recommended to increase awareness and to prevent new HIV infections among this population.

No conflict of interest

Abstract: 112

Epidemiology and surveillance

Knowledge, attitudes and practices of HIV/AIDS among Malayali tribes, Tamil Nadu, India.

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Introduction: Despite remarkable world-wide progress in the field of diagnostic, curative and preventive medicine, still there are large populations of people living in isolation in natural and unpolluted surroundings far away from civilisation, maintaining their traditional values, customs, beliefs and myths. They are commonly known as tribes and are considered to be the indigenous people of the land. The
Imperial Gazetteer of India, 1911, defines a tribe as a "collection of families bearing a common name, speaking a common dialect, occupying or professing to occupy a common territory and is not usually endogamous though originally it might have been so". India has the second largest tribal population of the world next to the African countries. About half of the world's autochthonous people live in India, thus making India home to many tribes which have an interesting and varied history of origins, customs and social practices. The primitive tribal communities (comprising 635 tribal communities) have been identified by the Government of India on the basis of their pre-agricultural level of technology, extremely low level of literacy and small, stagnant or diminishing population. In spite of the tremendous advancement in the field of preventive and curative medicine, the health care delivery system in these primitive tribal people are still poor and need to be strengthened in order to achieve the goal of Health for all in the country. Inadequate knowledge, negative attitudes and risky practices are major hindrances to preventing the spread of HIV. This study aimed to assess HIV-related knowledge, attitudes and practices among Malayali tribes, Yelagiri Hills, Tamil Nadu, India.

Methods: A cross-sectional study on Malayali tribes aged between 20 and 30 years old was undertaken to evaluate their KAPs. We selected 200 eligible samples through systematic random sampling from different villages of Yelagiri Hills.

Results: The majority of the population was unaware of HIV (49%). Of the population who were aware 59% knew that it can be transmitted by sexual intercourse and 88% from mother to child. Misconceptions about transmission of HIV were observed among 39.3% to 44.3% of respondents. More 75% mentioned village health workers as major sources of information on HIV/AIDS.

Conclusions: Despite adequate knowledge about HIV/AIDS, misconceptions about routes of transmission were found. Negative attitudes to HIV/AIDS and risky practices were also present. Educational programmes with specific interventions are recommended to increase KAPs and to prevent new HIV infections among this population.

No conflict of interest

Abstract: 113

Epidemiology and surveillance

Sex with sweethearts: Exploring factors associated with inconsistent condom use among unmarried female entertainment workers in Cambodia

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Background: Female entertainment workers (FEWs) in Cambodia are at increased risk of both HIV and sexually transmitted infections (STIs) and poor sexual and reproductive health outcomes because of their high likelihood of involvement in direct or indirect transactional sex. Despite the success in promoting condom use in commercial relationships, condom use with regular, noncommercial partners remains low among these vulnerable women. This study explores factors associated inconsistent condom use with sweethearts among unmarried sexually active FEWs.

Material & Methods: This cross-sectional study was conducted in 2014 as part of an impact evaluation the Sustainable Action against HIV and AIDS in Communities (SAHACOM) Project. The probability proportional to size sampling method was used to randomly select 667 FEWs from entertainment venues in Phnom Penh and Siem Reap for face-to-face interviews using a structured questionnaire. Multivariate logistic regression analysis was conducted to identify independent determinants of inconsistent condom use.

Results: This analysis included 204 FEWs who reported having had sexual intercourse with sweethearts in the past three months, with a mean age of 25.7 years (SD= 5.4). Of total, 31.4% of the respondents reported always using condoms with sweethearts in the past three months. After adjustment for other
Conclusions: The rate of consistent condom use in romantic relationships among unmarried FEWs in this study is considerably low. The importance of consistent condom use with regular, non-commercial partners should be emphasized in the education sessions and materials, particularly for FEWs who use non-barrier contraceptive methods.

No conflict of interest

Abstract: 114

Epidemiology and surveillance

Towards integrating mental health, harm reduction and HIV services for drug users in Cambodia

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Background: Poor mental health is a source of significant public health burden globally, and drug users are at increased risk of poor mental health compared to the general population. Moreover, HIV is often overlaid within this complex situation: Poor mental health, particularly depression, is often linked with an increased uptake of high-risk behaviors and ultimately, to HIV infection among drug users.

This study was conducted to explore patterns of mental health among drug users in Cambodia and the ways in which mental health interventions can be integrated with harm reduction programs.

Material & Methods: This cross-sectional study was conducted in April 2014, and a two-stage cluster sampling method was used to randomly select drug users from hotspots in Phnom Penh. Psychological distress was measured using General Health Questionnaire (GHQ-12). Bivariate and multivariable analyses were conducted to identify factors associated with levels of psychological distress among this population.

Results: A total of 169 drug users participated in the study with a mean age of 31.1 (SD= 6.3); of whom 76.9% were male; 42.6% were married or cohabiting; 32.5% were self-employed and 79.8% had been tested for HIV in the six months preceding the study. The results show high prevalence of attempted suicide (15.3%), drug related arrests (46.2%), incarceration (31.4%), prior history of physical violence (61.7%) and childhood psychological abuse (66.5%). Of the total participants, 42.0% were found to have high levels of psychological distress, indicating poor mental health. After adjustment, high level of psychological distress was independently associated with suicide ideation (p< 0.001), sharing of needles or syringes (p= 0.002) and having been sent to a rehabilitation center (p= 0.007). In addition, drug users who perceived their overall health as being poor or very poor were more likely to have high levels of psychological distress (p= 0.001).

Conclusions: Poor mental health is common among drug users in Cambodia. To respond to this situation, a combination of health system strengthening interventions including screening, referral and training of health providers, with interventions addressing social determinants of mental health through mental health promotion, social protection, livelihood support, employment support, and mitigation of frequent arrests and incarceration, is needed. This will be achieved through better integration of mental health, HIV and needle and syringe exchange programs. To this end, developing and implementing supportive local policies and guidelines will be critical.

No conflict of interest

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Epidemiology and surveillance

Determinants of inconsistent condom use among HIV serodiscordant couples in Cambodia


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Background: Globally, heterosexual transmission within serodiscordant relationships is a significant source of new HIV infections. In 2012, there were an estimated 1,350 incident cases of HIV in Cambodia, of which 37% were between married couples and 30% among sex workers. Used in combination with antiretroviral therapy (ART), consistent condom use can significantly reduce HIV transmission risk among serodiscordant couples. This study explored determinants of inconsistent condom use among serodiscordant couples in Cambodia.

Material & Methods: A cross-sectional study was conducted in Battambang, Pursat and Takeo provinces in September 2013. A structured questionnaire was used to collect data on condom use and other HIV related risk behaviors from HIV-positive partners of 262 serodiscordant couples. A two-stage cluster sampling method was used to randomly select the participants from a list of serodiscordant couples residing in the selected sites who were receiving care and support services from community-based organizations. Multivariate logistic regression analysis was conducted to identify factors associated with inconsistent condom use.

Results: In total, 239 respondents were included in the analysis with a mean age of 41.6 years [standard deviation (SD) = 6.7 years], of whom 60.2% were male, and 80.3% were consistent condom users. The mean duration of living in the serodiscordant relationship was 13.4 years (SD= 7.8 years). After controlling for other covariates, inconsistent condom users were significantly more likely to be female (OR 2.8; 95% CI 1.261, 6.462), to have been living in a longer serodiscordant relationship (OR 1.05; 95%CI 1.001, 1.107), and to be frequent alcohol users (OR 2.9; 95% CI 1.323, 6.483). In addition, inconsistent condom users were significantly more likely to agree that ART prevents transmission of HIV (OR 2.7; 95% CI 1.344, 5.443).

Conclusions: These findings suggest that gender transformative interventions to promote consistent condom use, and interventions to mitigate alcohol-associated risky sexual behavior, especially unprotected sex, should form part of combination HIV prevention interventions for serodiscordant couples, in addition to early ART.

No conflict of interest

Abstract: 116

Epidemiology and surveillance

Mental health among men who have sex with men in Cambodia: Implications for integration of mental health with HIV services

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Background: Poor mental health contributes to poor HIV prevention, treatment, and care outcomes. However, little is known about mental health among men who have sex with men (MSM) in developing countries. This paper documents factors associated with
psychological distress among MSM in Cambodia, and discusses potential ways in which routine mental health screening and management could be integrated into HIV services.

**Material & Methods:** A two-stage cluster sampling method was used to recruit participants from Battambang and Siem Reap between April and May 2014. A structured questionnaire assessing psychological distress using General Health Questionnaire (GHQ-12), as well as sexual behaviors, substance use, adverse childhood experiences and family dysfunction was administered to 394 consenting MSM. Multivariable logistic regression analysis was performed to explore factors independently associated with levels of psychological distress (GHQ-12 > 3).

**Results:** Of total, 10.7% of the respondents reported having suicidal thoughts and 6.6% reported having attempted to commit suicide in the past three months, while 38.8% had a higher level of psychological distress (GHQ-12 > 3), which indicates poor mental health. Higher levels of psychological distress were independently associated with older age (AOR = 1.09, 95% CI 1.03 to 1.14), alcohol use (AOR = 3.3, 95% CI 1.36 to 7.83), illicit drug use (AOR = 3.53, 95% CI 1.12 to 11.18), poor self-reported quality of life (AOR = 7.45, 95% CI 1.79 to 3.04), and reduced condom use at last sex (AOR = 0.40, 95% CI 0.21 to 0.73). In addition, MSM with higher levels of psychological distress remained significantly more likely to report that a family member said hurtful or insulting things to them (AOR = 1.80, 95% CI 1.10 to 2.97), a parent or guardian had been physically abused (AOR = 3.51, 95% CI 1.86 to 6.62), and a family member had been depressed or mentally ill (AOR = 4.01, 95% CI 2.06 to 7.81) when they were growing up.

**Conclusions:** Mental health problems among MSM in Cambodia is common. Integration of mental health screening with HIV prevention, treatment, and care for MSM is required. Intervention programs should be designed to address several related issues such as substance use, condom use, and family violence.

*No conflict of interest*

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**Abstract: 117**

**Epidemiology and surveillance**

**HIV risk and psychological distress among female entertainment workers in Cambodia: A cross-sectional study**

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**Background:** In Cambodia, there has been an increase in entertainment work as a result of the breakdown of the traditional brothel-based sex industry, presenting new challenges to addressing the health issues and needs of people working in the industry. Studies suggest that female sex workers experience high rates of poor mental health that may lead to more health risk behaviors such as substance use or unsafe sex. This study aims to identify factors associated with psychological distress among female entertainment workers (FEWs) in Cambodia.

**Material & Methods:** A two-stage cluster sampling method was used to randomly select 667 FEWs from entertainment establishments in Phnom Penh and Siem Reap in April and May 2014 for face-to-face interviews using a structured questionnaire. Psychological distress was measured using the General Health Questionnaire (GHQ-12), and multivariable logistic regression analysis was conducted.

**Results:** Almost half of FEWs (43.2%) had a higher level of psychological distress (GHQ-12 > 3), while 19.5% reported having suicidal thoughts, and 7.3% reported having attempted to commit suicide in the past three months. Controlling for confounding factors, women with a higher level of psychological distress were significantly more likely to rate their overall health (AOR = 1.88, 95% CI 1.20 to 2.94) and...
quality of life (AOR=2.39, 95% CI 1.47 to 3.87) as poor. They were also significantly more likely to have suicidal ideation (AOR= 2.41, 95% CI 1.45 to 3.76), rate their HIV risk as higher than the general population (AOR= 0.48, 95% CI 0.31 to 0.74), have been forced to drink at work (AOR= 1.77, 95% CI 1.19 to 2.62), have had clients requesting not to use a condom (AOR= 3.48, 95% CI 1.4 to 10.62), be not able to find condoms when they needed it (AOR= 0.64, 95% CI 0.45 to 0.93), have had a family member who said hurtful things to them during childhood (AOR= 1.84, 95% CI 1.24 to 2.75), and have had a parent or guardian who had been physically abused (AOR= 1.93, 95% CI 1.34 to 2.82).

Conclusions: FEWs in this study experience high levels of psychological distress, which likely stems from both past negative experiences and current working conditions. The GHQ-12 proved to be an appropriate screening tool for psychological distress and can be used in future programming to address the mental health needs of FEWs. For women that are experiencing psychological distress, programming should specifically address substance use, condom negotiation and availability, and suicide risk.

No conflict of interest

Abstract: 118

Epidemiology and surveillance

Recent HIV Testing and Associated Factors among Female Entertainment Workers in Cambodia

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Background: In Cambodia, HIV prevalence among the general adult population was 0.23% in 2015, reflecting a significant decline from the peak of 2.4% in 1996. However, the most recent evidence suggests that this success is being threatened by changes in the sex worker landscape. Women account for half of all HIV infections, and female entertainment workers (FEWs) are considered a high-risk group. Reaching this population with prevention services such as regular HIV testing is a high priority in the country. This study aims to identify factors associated with recent HIV testing among FEWs in Cambodia to inform future prevention activities.

Material & Methods: Data were collected during April-May 2014 as part of the evaluation of the Sustainable Action against HIV and AIDS in Communities (SAHACOM) Project implemented by KHANA, the largest national non-governmental organization providing HIV prevention, care and support services in Cambodia. FEWs were randomly selected for in-person interviews from a list of entertainment venues obtained from KHANA’s partners who implemented the SAHACOM programs in the capital city of Phnom Penh and Siem Reap province. The number of FEWs in Phnom Penh and Siem Reap represents approximately 70% of the total FEWs population in the country. The sample size was proportionally allocated to the number of FEWs in the two study sites. A structured questionnaire was developed using standardized tools adapted from previous studies. A multivariate logistic regression model was constructed to identify independent determinants of recent HIV testing.

Results: Data were collected from 667 FEWs of which 81.7% reported ever having had an HIV test, and 52.8% reported having had an HIV test in the past 6 months. Of those who had ever had an HIV test, 53.0% obtained their test through community/peer-initiated testing and counseling, 22.0% at private facilities, 12.8% at public facilities, 8.6% at VCCT centers and 3.6% at other locations. Respondents who had been tested for HIV in past six months were significantly more likely to live in Phnom Penh (AOR=2.17, p<0.001), to have received HIV education in past six months (AOR=3.48, p<0.001), to report condom use in the last sex with a non-commercial partner (AOR=0.48, p=0.02), to agree that ‘Getting tested for HIV helps people feel better’ (AOR=0.31, p=0.02) and to disagree that ‘I would rather not know if I have HIV’ (AOR=2.15, p<0.001).
Conclusions: FEWs with greater knowledge and more positive attitudes towards HIV prevention got tested for HIV more frequently than those with lesser knowledge and less positive attitudes. These findings suggest that future interventions should focus on disseminating tailored behavior change messages around testing practices as well as specific topics such as condom use with non-commercial partners. In addition, efforts to reduce stigma around HIV testing and knowing one’s HIV status may improve attitudes towards HIV testing and therefore may be important areas for future programming for FEWs in Cambodia.

No conflict of interest

Abstract: 119

Feasibility and Impact of Structural Interventions

Effectiveness of community home-based care intervention to improve health-related quality of life among people living with HIV in Nepal

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Introduction: People living with HIV prolonged their life when anti-retroviral therapy (ART) reached them. Meanwhile, they experience chronic condition and often have poor health outcomes. They do not have adequate health services in many low- and middle-income countries. HIV-positive people receive psychosocial support and other basic health care services from a community home-based care program in Nepal. Evidence, however, is limited about the effects of such program in improving their health outcomes. Therefore, we examined the effects of a community home-based care program to improve their quality of life (QOL) domains in Nepal.

Materials and Method: We conducted a prospective cohort study among 682 HIV-positive people in Nepal. We assigned 344 participants for community home-based care intervention and 338 participants for control. HIV-positive people received home-based services from the program team. The program team comprised a community health worker, a HIV-positive person and a social worker. They performed monthly home-visits for six months to provide psychosocial support and peer counseling, ART adherence support and counseling, basic health care and referral for further care. We measured their sociodemographic characteristics such as age, gender, marital status, education, employment, and HIV related characteristics. We also measured six domains of QOL using WHOQOL-HIV BREF. We conducted baseline data collection in February and March, 2015 and performed follow-up six months later. We developed six models for generalized estimating equation to examine the effects of a community home-based care in improving QOL of people living with HIV. We controlled for socio-demographic characteristics, HIV-clinical staging, and presence of physical symptoms in all six models.

Results: The mean scores of QOL domains at baseline was ranged from 12.1 to 13.2 and 12.8 to 14.1 at follow-up. The community home-based care intervention had significant effects in increasing the scores for physical (β = 0.34, p = 0.048), psychological (β = 0.48, p = 0.001), level of independence (β = 0.60, p<0.001), social relation (β=0.70, p<0.001), environmental (β = 0.78, p<0.001), and spiritual (β = 0.60, p<0.001) domains of QOL among intervention participants at six-month follow-up.

Conclusions: The community home-based care program improved all six domains of QOL among its participants after six months of follow-up in Nepal. The results highlight that such program may fill the gap in health services and it should be promoted to widen its coverage in the country. Moreover, the program should be considered to apply in other resource-limited setting where public health is overburdened.

No conflict of interest
Abstract: 120

Feasibility and Impact of Structural Interventions

The impact of Stigma and Discrimination among Transgender People Who Use Drugs in Bangladesh

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Introduction: In Bangladesh there is 4.8 % HIV infection amongst IDU and 01 percent in transgender group .85% of IDU got stigma and discrimination from their family and society and 99% of transgender got stigma and discrimination from everywhere. These attitudes make them frustrated and through unhappy, unsafe sexual life as well. Gradually all kinds of social facilities go away from their side and they become more vulnerable which increases the risk of HIV.

Materials & Methods: My research was done by conducting report (anonymous) analysis and interviews with the clients of 05 Drop in Centers of Bandhu Social Welfare Society. For this purpose I got permission to talk with 30 interviewees and there were 15 TG and 15 were IDU.

Results: The report analysis and interviews revealed that the majority of clients were affected by sexually transmitted infections 65%,54% were not use condom in last sex,60% were sharing needles with other peer. In addition, many clients experienced mental health problems (20% were unable to make personal decision, when it is important) difficulty finding and maintaining employment (50%), challenges integrating with family and society (60%), negative thoughts (50%), and a tendency toward self-harm (15%).

Conclusion: Transgender people who use drugs in Bangladesh suffer many effects of dual-stigmatization connected to their gender identity and drug use. It is likely that stigma and discrimination against these groups has had a number of negative consequences for this group, many of which are connected with increased HIV risk. More research must be done urgently to find ways to reduce stigma and discrimination based on gender identity and drug use, as well as mitigate the impact of this stigma and discrimination.

No conflict of interest

Abstract: 121

Population-Specific Interventions and Prevention Strategies

An intervention study on human immunodeficiency virus (HIV)-related sexual risks among migrants and non-migrants in rural India

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Introduction: Recent studies of migrants in India indicate that those who are infected with HIV are spreading the epidemic from high risk populations in high prevalence areas to populations in low prevalence areas. Awareness, understanding and practicing safe sexual practices in place of origin is half the war won already and will help in making correct decisions.

The objective is to assess the impact of health education intervention program on human immunodeficiency virus (HIV)-related sexual risks among migrants and non-migrants in place of origin in a rural area of south India.

Methodology: The study was carried out in three phases; preintervention phase,
intervention phase, and post-intervention phase, using a single intervention group. A total of 305 participants were included. Intervention health education in the form of lectures, posters, flyers was administrated. A two-part structured questionnaire was used. Audio-video visual aids were used.

**Results:** Sixty-four percent (198/305) of the study subjects had migrated to a city for a temporary job. The proportions of migrants who had premarital sex in place of origin (62%, 122/198) and multiple sexual partners in place of origin (24%, 48/198) were significantly higher than those of non-migrants (9 and 8%, respectively). After the intervention program, 179 (59%) participants had good knowledge and among them 92.7% practiced safe sexual practices compared to 69% pretest. An overall increase in the awareness was 33% was observed in the study group after intervention.

**Conclusions:** Findings of this study document that unprotected sex in places of destination, poses a risk of transmission from high risk population groups to migrants, and in turn to their married and other sexual partners in places of origin. These findings suggest the need for controlling the spread of HIV resulting from unsafe sex in places of origin through health education intervention, which have high vulnerability due to the frequent migratory nature of populations.

*No conflict of interest*

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**Abstract: 122**

**Methodological Issues and Capacity-Building**

**Capacity building of medical officers on management of HIV positive patients on ART using health education intervention**

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**Introduction**

**Background:** HIV infection is a major disease burden. They are around 35 million people living with HIV. Tamilnadu belongs to the Group I states based on HIV prevalence. Management of HIV positive patients is difficult in terms of drug safety, adverse reactions, compliance and emergence of drug resistance, psychological counselling. Regular updates of knowledge is essential. Training using health education intervention tools needed. The aim of this research is about the training of medical officers on management of HIV positive patients on ART The objective is to train the medical officers on management of HIV positive patients on ART To assess the effectiveness of capacity building on patient care outcome.

**Methodology:** A cross sectional study was done among 30 medical officers for 6 months between March 2015 to July 2015. Medical officers selected from each block of the Kanchipuram district based on simple random sampling. In case of those not willing to participate subsequent numbers were selected. 2 day training session was done giving pre test. A semi structured was used to collect information. The topics were initiation of ART, times of referral, ART treatments, adverse reactions, follow up and palliative care, counselling the patient and family members. Health education models like audio visual aids, group discussion etc used. A post test was conducted after 3 months. Data entered analysed. Statistical tests were applied as appropriate.

**Results:** The study group comprised of 18 males and 12 females. The mean age was 38 years ± 5 years. All the medical officers had some experience working with HIV infected persons. 40% attended 2 or more training sessions/CME in the past 5 years. 15% had experience with treating HIV positive patients on a one on one basis. The pre test scores reflected maximum persons(19) with a score of 10-15, 6 persons with scores between 5-10 and 5 persons with scores between 15-20. The post test evaluation showed maximum persons with a score of 15- 20(21), followed by 8 persons with scores of 10-15. With regard to patient outcome 20% showed improved compliance with the therapy. The medical officers' efficiency in providing ART and their attitudes toward AIDS patients (p=0.0000 and 0.02, respectively) improved significantly. Indicators like adherence to therapy, time taken for one on one counselling of the patient, impact of counselling on family and the patient. treatment without default, early detection of complications,
periodic assessment of the patients complaints, were recorded and showed improvement. Additionally the medical officers went to the workplace of patients being treated, house visits and educated the personnel to remove stigma associated.

Discussion: From the pre test and post test scores it is evident that health education intervention plays an important role in improving the care provided by doctors in these setting. Methods like audiovisual aids, group discussion, role play are effecting in spreading the message across. The training was effective in imparting knowledge and skills to medical officers and in their attitudes toward HIV/AIDS patient . These models can be replicated on a larger scale and more doctors can be trained with regard to the same.

No conflict of interest

Abstract: 123

Population-Specific Interventions and Prevention Strategies

The correlation between knowledge, skill of condom use and action of condom use among sexually active youth

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Background: This study aims at understanding the relationship between knowledge, life-skills and safer sex practice of sexually active heterosexual youth who aged 14-25 years old and experienced HIV testing. The data collection period is April 2014 – March 2015. In total, there are 288 valid samples, which include 184 male and 104 female.

Methods: The majority of participants reported 'they would suggest their partner to adopt safer sex confidently' (82.3%; N=288) and 'even I feel sexual excitement, I will still ask my partner to wear condom before sexual behavior confidently', (71.5%; N=288). Also, the majority of participants have basic HIV knowledge, such as, participants answer correctly 'Coitus interrupts is not effective to prevent HIV/STI'. (90.6%; N=288)

Results: However, it did not lead to high percentage of condom using. It means only 44.2 % participants (N=197) used condom in each vaginal sex with boyfriend/girlfriend in the past 6 months. Furthermore, 66.3% participants (N=288) at least had one sexual behavior per month. Consequently, interviewed sexually active heterosexual youth should be classified in community of 'high risk infected HIV/STI via sexual behavior'.

Conclusion: According to in-depth interview, participants are more likely to simplify the difficulties of condom using. For instance, a 16-year-old female participant reported she practically cannot reject the unsafe sexual behavior invitation from her boyfriend when she already rejected 3 or 4 times already. To conclude, self-overestimate life-skills of participants harm their condom using rate. Youth-friendly life-skills training is an essential element of sexuality education, like, problem solving skills, effective communication skills.

No conflict of interest

Abstract: 124

Population-Specific Interventions and Prevention Strategies

Relationships between illness perception and post-traumatic growth among newly diagnosed HIV positive men who have sex with men in China

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Background: Newly diagnosed HIV positive men who have sex with men (NHMSM), defined as those with HIV diagnosis confirmed within the last 12 months are at high risk of mental
health problems. They may however, develop post-traumatic growth (PTG). According to the Common Sense Model, illness perception (including cognitive representations [CR] and emotional representations [ER]) affects coping and health-related outcomes. No study has investigated relationship among illness presentation and PTG among NHMSM.

**Method:** During October, 2010 to September, 2011, the anonymous cross-sectional survey interviewed 225 Chinese NHMSM in Chengdu, China. Linear regression analyses were performed. Mediation and moderation hypotheses were tested.

**Result:** Participants in general gave positive endorsements regarding items of the PTG scale. Adjusted for age and Chengdu residency ER (Beta= -.49) and five CR subscales [timeline, consequence, identity, attribution to god’s will, and attribution to chance/luck] (Beta= -.13 to -.37) were negative correlates of PTG; four CR dimensions [coherence, treatment control, personal control, and attribution to carelessness] were positive correlates (Beta= .15 to .51). The association between ER and PTG was the strongest. The moderating effects were statistically non-significant (p>.05). Associations between five CR subscales and PTG were fully-mediated via ER, in addition to two similar partial mediations found.

**Conclusion:** PTG can occur to NHMSM. Warranted interventions promoting PTG among NHMSM should alter illness perception, ER in particular. Future studies should clarify relationships between CR and ER in the Common Sense Model, and extend similar research to other health-related outcomes and HIV positive populations.

**No conflict of interest**

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**Abstract:** 125

**Population-Specific Interventions and Prevention Strategies**

**Tablet-Based HIV Risk Screening**

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**Introduction:** Cambodia aims to eliminate HIV transmission. Doing so requires tools to help identify specific behaviors and deliver behavior change messages appropriate for an individual's HIV risk. In response, the USAID HIV Flagship Project developed a Tablet-Based HIV Risk Screening tool for outreach workers' (peers) to use with their target bene-ciaries ranging from entertainment worker (direct and indirect sex workers, EWs), men who have sex with men (MSM) to transgender women (TW).

**Material & Methods:** HIV Risk Screenings an electronic tool used during outreach to determine an individual's risk (high, at risk, or low) of HIV acquisition or onward transmission. Less than 25 questions related to sexual and drug use were asked and risk results are automatically displayed on a tablet, along with behavior change message for the individual's specific risks. Community-based HIV prevention services, including SBCC, are then tailored to the individual's risk level. Those at higher risk and at-risk receive more intense services, including a monthly contact, HIV test every 6 months and STI screening every 3 months and 6 months accordingly, while those at lower risk are reached quarterly.

**Result:** This tool was piloted in Siem Reap, known to have high HIV prevalence and large numbers of key populations. From March-July 2015, 2,513 individuals (MSM, transgender persons—TG, entertainment workers—EW) were screened by 60 OWs. The majority of MSM (52%) and TG (66%) screened as high risk, while 44% of EWs were in this category. High-risk activity (since last HIV test or ever) includes having >2 sex partners in the same timeframe (59% MSM, 62% TG, 37% EW); not using condoms (67% MSM, 72% TG, 38% EW). Of note, the majority of participants had previously received an HIV test (97% MSM, 96% TG, 85% EW).

**Lessons learned:** Voice options are being explored for lower literate OWs. Individual data guide provision of relevant information and services, and aggregate data help understand population-based risks, despite purposeful sampling. Some OWs named tablet robbery their biggest concern.

**Conclusions:** The pilot demonstrates the feasibility of using an electronic tool and job aid for identifying individual risk of HIV, determining appropriate risk reduction messages, and
frequency of service delivery, and delivering more effective social and behavior change communications for HIV services. Outreach workers also reported increased confidence in implementing their work, a greater sense of professionalism, and that clients were more honest about risks that in prior conversations. This tool also built capacity of outreach workers to use the technology for improving their ability to do their routine work. This new skill will help outreach workers embracing themselves to uptake any upcoming technology project for HIV. USAID and Cambodian National Center for HIV/AIDS, Dermatology and STD extend this project to Phnom Penh city and other 4 provinces.

No conflict of interest

Abstract: 126

Population-Specific Interventions and Prevention Strategies

Prevalence and associated factors for mental health service utilization among men who have sex with men who are at risk of mental health problems in Hong Kong

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Background: Mental health problems are prevalent among men who have sex with men (MSM). Early help seeking could reduce suffering of the affected individuals. However, underutilization of mental health services is common among MSM. The aim of this study is to explore factors associated with mental health service utilization (i.e. having sought help from mental health professionals; and intention to seek mental health services in case of having mental health problems) among two subsamples of MSM who are at risk of mental health problems (Subsample 1: those who scored above the cut-off for probable depression, probable anxiety, or having suicidal ideation; Subsample 2: those who self-perceived having mental health problems in the past 12 months) in Hong Kong.

Material and Methods: A cross-sectional telephone survey was conducted among MSM using Respondent Driven Sampling. Depression was measured by the Center for Epidemiologic Studies Depression Scale (CES-D) and anxiety was measured by the Chinese version of General Anxiety Disorder Assessment (GAD). Other factors were measured using validated scales.

Results: A total of 350 MSM completed the survey, of which 175 (50%) and 143 (40.8%) were included in subsamples 1 and 2, respectively. Multivariate logistic regressions showed that factors for having sought help from mental health professionals included disclosure of MSM status to all family members and positive attitudes toward seeking professional psychological help for Subsample 1, and positive attitudes toward seeking professional psychological help, ever diagnosed for mental disorders, and enacted stigma for Subsample 2. Factors associated with intention to seek help from mental health professionals included willingness to disclose MSM status to mental health professionals for Subsample 1, and positive attitudes toward seeking professional psychological help for both subsamples.

Conclusions: Interventions to promote help seeking for mental health problems among MSM should promote positive attitudes toward seeking psychological help and reduce stigma.

No conflict of interest

Abstract: 127

Population-Specific Interventions and Prevention Strategies

A change in methodology resulted in a marked decline in HIV screening refusals in an urban Emergency Department.

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Introduction: Howard University Hospital, in Washington, DC, has had a long standing HIV screening program, in place in the Emergency Department (ED). We published data demonstrating a refusal rate of approximately 27%, when fingerstick testing was performed. In an effort to decrease this rate, we implemented a process of screening blood samples obtained for other reasons during the ED evaluation. The objective of this study was to evaluate a new methodology that would decrease the refusal rate in this patient population.

Materials & Methods: Our study population included individuals 18 years and older who did not opt-out of testing. Information collected included demographics, insurance status and risk factors among others, which were entered into an electronic database. The data was cleaned, coded and analyzed using Microsoft Excel and SPSS version 23. Chi-squared test was used to examine differences in demographic variables. Bivariate and multivariate logistic regression models were used to examine the associations between demographic variables and test refusals.

Results From January 2013 to December 2015, a total of 32,231 individuals were eligible to be screened for HIV. Of these, 25,767 (79.9%) were screened and 6,464 (20.1%) refused. The annual proportion of individuals who refused in 2013, 2014 and 2015 were 25.9 % (95% Confidence Interval (CI): 27.2-24.6), 20.3 % (95% CI: 21.5-19.2), and 13.1 % (95% CI: 12.3-14.2) respectively. The median age was 44 (range: 18-105) for those screened and 46 (range: 18-99) years for those refusing. Reasons given for refusals included the following: 1): recently tested within the past 90 days (35.8%) 2): no reason given (26.7%) and 3): previously tested but no date provided (24.8%). Gender and race in this study population was not associated with refusals. Individuals between 35-55 years of age were more likely to refuse testing, compared to those 18-35 and those > than 55 years of age.

Conclusions: We believe patient acceptance of this testing modality resulted in a lower refusal rate. Further study is required to ascertain why individuals aged 35 to 55 years of age were more likely to refuse.

No conflict of interest

Abstract: 128

Population-Specific Interventions and Prevention Strategies

HIV testing through Community-based rapid testing model

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Background: HIV prevalence among key populations (KP) is very high in Cambodia. HIV testing and counseling was provided by health providers, while NGOs played a role in active referral and follow up for KP accessing health services. NGOs collaborated with health centers and referral hospitals to increase HIV and Syphilis testing. Because the number of KP accessing testing at health facilities remained low, HIV testing shifted from health providers to community outreach workers trained to be lay counselors.

Material & Methods: Finger-prick testing started training in March 2013 and provide ongoing training March 2014. Totally, 643 lay counselors were trained to provide finger prick testing to KP. KHANA supported the roll out of finger-prick testing among KP through the trained lay counselors. Through mentoring and conduct technical monitoring visit regularly to implementing partner (IPs) to make sure IPs can perform HTC properly. Reactive cases were referred to complete confirmatory tests at health facilities, and followed-up with support for enrollment in care and treatment.

Results: Of the 643 lay counselors trained, 182 were NGO staff and 461 were peer outreach workers. In 2012, there were 9,278 KP receiving HIV testing at health facilities compared to the 20,365 KP receiving HIV testing through lay counselors in 2014. Among those, 160 were found to have reactive results and referred to confirmatory test.

Conclusion: Finger prick testing is shown to be a cost-effective approach to improving access...
to and coverage of HTC among KP. While lay counselors play an important role in linking HIV patients to health facilities, it is still a challenge for KP to access confirmatory testing, care and treatment services at health facilities.

No conflict of interest

Abstract: 129
Population-Specific Interventions and Prevention Strategies
Factors Associated with Inconsistent Condom Use among Men Who Have Sex with Men: A Cross-sectional Study in Cambodia

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Background: Men who have sex with men (MSM) in developing countries are at great risk for HIV and not well understood due to their hidden and stigmatized nature. This study explores factors associated with inconsistent condom use among sexually active MSM in Cambodia.

Methods: Data were collected in 2014 from 367 MSM, randomly selected from Battembang and Siem Reap, using a structured questionnaire. Multivariate logistic regression analysis was conducted to identify factors independently associated with inconsistent condom use.

Results: Of total, 62.3% of respondents reported that they always used condoms over the past three months. The rates varied with types of sexual partners. After adjustment, inconsistent condom use was significantly associated with age of ≥25 (AOR= 1.77, 95% CI= 1.09-2.86), self-rated quality of life as good or very good (AOR= 4.37, 95% CI= 1.79-5.67), self-perception of higher HIV risk compared to the general population (AOR= 2.37, 95% CI= 1.35-4.17), illicit drug use in the past three months (AOR= 5.76, 95% CI= 1.65-10.09), and reported consistent lubricant use when having anal sex with men in the past three months (AOR= 2.85, 95% CI= 1.07-8.12).

Conclusions: Inconsistent condom use among MSM in this study is common, especially among MSM who used illicit drugs or were older than 25. HIV education should be expanded and specifically designed for MSM to better educate on the increased risk of HIV with unprotected anal sex and illicit drug use as risk factors, and the importance of use of both condoms and lubricant during anal intercourse.

No conflict of interest

Abstract: 130
Population-Specific Interventions and Prevention Strategies
Utilization of HIV Testing and Counseling Services among Bhutanese Refugees of Eastern Nepal

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Background: The relationships between population migration and situations of risk that lead to HIV and AIDS infection are well documented. HTC services for HIV and AIDS program provides the opportunity for people who would like to recognize about their HIV status. HTC services are made available in the Bhutanese Refugee camp through health centers HIV unit in each camp. This study was carried out to determine the barriers of utilization of VCT services among Bhutanese Refugees of Eastern Nepal and derive recommendations for better utilization of the services.

Material & Methods: This cross sectional study was conducted among 323 clients attending the HTC services at the Beldangi and Sanischare refugee camps of Eastern Nepal. A pretested semi-structured questionnaire was pretested among clients attending HTC services in HTC
centers outside the Refugee camps. The respondents were the key population at risk including a primary target population (Female Sex Workers, People who inject drugs, client of sex workers & labor migrants) and a secondary target population (Spouses of primary target group) from the refugee camps.

**Results:** There were 57% males and 43% females in the study. The study found utilization of HTC services remains 29.41%. The prime source of information about the HTC sites has been health workers (52%) followed by outreach educators (45%) and peer educators (39%). Common barriers for utilization of HTC services by the refugees in this study are fear of being stigmatized, lack of knowledge and fear of rejection by their spouse.

**Conclusion:** The utilization of the HTC services are low despite the services provision is focused directly at the refugees. There is a need to analyze the gap between availability through more qualitative approaches in order to identify interventions to increase the uptake the HTC services. Culturally appropriate approaches to reduce the stigma may be needed in combination to the identified interventions for the refugee population.

No conflict of interest

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**Abstract: 131**

**Population-Specific Interventions and Prevention Strategies**

**HIV prevention strategies in Indonesian prison settings**

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**Introduction:** HIV disease is among the most devastating of illnesses, having multiple and profound effects upon all aspects of life. Increasing awareness about HIV prevention program and reducing stigma among HIV positive prisoners, can be done by providing continuous Information, Education and Communication (IEC).

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**Aim:** This study gives significant contribution to improve the best practice on HIV prevention in prison settings.

**Material & Methods:** information of IEC session given to selected 30 prisoners either HIV positive prisoner or HIV negative prisoners twice a week, two hours per days, during three months. These selection aim to reduce stigma among HIV positive prisoners. The method is lecturing and focus group. Participant then were asked to provide counselling to other prisoner. The indicator of successful programme were measured by the self-report

**Results:** the initial self-report showed that the majority of prisoners' awareness increased and prisoners' stigma toward HIV positive prisoners reduced.

**Conclusions:** providing IEC in the prison setting to increase awareness about HIV prevention program and reducing stigma toward HIV positive prisoner showed promising results. This can be achieve by strengthen networking with other stakeholder such as non-government organisation. The prisoners also felt the prison health care staff more concern to ethical issues and individual need of prisoner while delivering treatment.

No conflict of interest

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**Abstract: 132**

**Population-Specific Interventions and Prevention Strategies**

**Peer-Provided HIV Counseling and Testing for Key Populations in Cambodia: Lessons Learnt and implications for service delivery**

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KHANA, Center for Population Health Research, Phnom Penh, Cambodia; International HIV/AIDS Alliance, International HIV/AIDS Alliance, Brighton, United Kingdom;
Background: Community-based peer-provided HIV testing and counseling, known as 'finger-prick testing' can potentially increase the demand and uptake of HIV testing and counseling (HTC), reduce behaviors that put people at higher risk of HIV, strengthen enrolment for those who need it into health services and minimize loss-to-follow-up among members of key populations. However, this approach has not been implemented widely in Cambodia. In April 2013, KHANA, a local Cambodian organization, began the implementation of peer-provided finger-prick testing for key populations including female entertainment workers (FEWs), men who have sex with men (MSM), transgender people (TG), and people who use or inject drugs (PWUD/PWID). This qualitative documentation study was conducted to identify the gaps and challenges, as well as lessons learned, from the initial 18 months of implementation of the finger-prick testing approach in Cambodia.

Material & Methods: Data were collected from representatives of key population beneficiaries, lay counselors, and implementing partner (IP) organizations through individual in-depth interviews (IDI) and focus group discussions (FGD). In order to obtain general ideas and opinions about the approach, a structured open-ended questionnaire was used for IDI, and topic-guides with 8-10 broader topics were used in FGD. A total of 48 beneficiaries participated in the study, of which 27 were part of four FGD. Verbal consent was obtained from each participant in the study.

Results: By June 2014, peer-provided testing had been expanded to 18 municipality and provinces, and 391 trained peer outreach workers had conducted 15,000 HIV tests among entertainment workers (EW), men who have sex with men (MSM), transgender people (TG), and people who use or inject drugs (PWUD/PWID) of which 75 were positive. Qualitative findings suggested that key population beneficiaries found the experience of being counseled and tested by a lay counselor acceptable and in some cases preferable to professional counselors at VCT center. Peer counselors found the training and capacity building that occurred as part of the project beneficial. No incidents of undue pressure to test were reported.

Conclusions: Confidential peer-provided testing is acceptable among key populations in our study setting, and may contribute to both capacity building and early identification of HIV infection and linkage to care. However, given that only 75 new HIV cases, that is 0.005%, were found out of the nearly 15,000 tests conducted between March 2013 and March 2014 a better understanding of the HIV prevalence and geographic dynamics and subsequent redesign of strategies for reaching key populations, is required.

No conflict of interest
Pondok Bambu Prison, Jakarta. All new coming inmates were screened for HIV, hepatitis B and C viruses and syphilis infections. Subjects were included if they gave written consent for HIV testing. Bivariate and multivariate analyses were performed to identify risk factors of HIV infection.

**Results:** A total of 294 inmates gave their consents for HIV testing and were enrolled. HIV infection was positive in 11 (3.7%) inmates. Bivariate analysis showed that a history of commercial sex workers (odds ratio [OR] = 17.9), having multiple partners (OR = 12.9), oral substance use (OR = 8.0) and injecting drug use (IDU) (OR = 4.6) were significantly associated with HIV infection. Prediction model of HIV infection included a history of CSWs (adjusted OR [ORadj] = 5.3; 95% confidence interval (CI) = 1.1-24.9); having multiple partners (ORadj = 5.6; 95% CI = 1.2-27.2), oral substance use (ORadj = 2.6; 95% CI = 0.3-23.3); and IDU (ORadj = 4.7; 95% CI = 0.4-53.6).

**Conclusion:** Having multiple partners and commercial sex workers are strongly associated with HIV infection among female prisoners. Prevention efforts of HIV infection should address issues related.

*No conflict of interest*
1st Asia Pacific AIDS & Co-infections Conference

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