

**Conclusion** The study suggests the association of hMR in sexual transmission of HIV. Presence of hMR in lower number of vaginal epithelial cells of Serodiscordant females prevented binding and HIV entry into these cells.

#### P5.12 KNOWLEDGE AND AWARENESS AMONG CERVICAL CANCER PREVENTING VACCINE AMONG WOMEN IN SUBURBAN AREAS IN SRI LANKA

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**Introduction** Cervical cancer is the 2nd most common cancer in the world whilst the incidence of cervical cancer continue to rise in Sri Lanka. It's important to assess the knowledge and the awareness on the cancer and the HPV vaccine. The Objective of this research was to assess the knowledge and awareness about the cervical cancers and HPV vaccine.

**Methods** A descriptive cross sectional study was done on 326 Sri Lankan urban and sub-urban females using convenient sampling who were in the age between 14–39 years using a self-administered questionnaire.

**Results** (62.9%) of the participants, were from the age group 21–29. (50.8%) had an advance level education, 30.4% had an undergraduate level education. (55%) haven't heard about a vaccine which could prevent cervical cancer, 51.2% knows that cervical cancers are common in Sri Lanka. 193 (59.2%) did not know that HPV is the most common cause for cervical cancers. When considering occupational level ( $p < 0.001$ ) and education level ( $p = 0.001$ ) it played a key role in determining the awareness of HPV vaccine on women. Respondents from the government sector with a good education had more awareness on the HPV vaccine. 28% obtained information on HPV vaccine through health care professionals or the Internet. Only 4% have been vaccinated and reason for not getting a vaccine is due to lack of knowledge. Only 11.3% knew about the correct does for the vaccine.

**Conclusion** It's evident that the knowledge and awareness is very low in terms of the vaccine.

#### P5.13 WILLINGNESS TO USE PRE-EXPOSURE PROPHYLAXIS AMONG FEMALE SEX WORKERS IN THE MEXICO-UNITED STATES BORDER REGION

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**Introduction** We assessed willingness to use pre-exposure prophylaxis (PrEP) to prevent HIV among female sex workers (FSWs) in Tijuana and Ciudad Juarez, two northern Mexico cities bordering the United States (US).

**Methods** To date (7/2016-12/2016), 279 HIV-negative FSWs in a behavioural HIV prevention intervention trial have tested for sexually transmitted infections (STIs) and completed surveys to assess (1) preferences between and willingness to use 12 hypothetical PrEP products with varying attributes with respect to formulation (pill, gel, douche, or ring), frequency

of use, cost, effectiveness, side effects, and access point and (2) perceived motivators and barriers to PrEP use. Fisher's exact tests were used to examine differences in willingness to use preferred PrEP products by STI diagnosis and sociodemographic, behavioural, and sex work characteristics.

**Results** 94% (263/279) of FSWs were willing to use their preferred PrEP product. Willingness to use preferred PrEP products was lower among FSWs diagnosed with an STI (83% vs. 97%;  $p = 0.001$ ), living in Tijuana (88% vs. 99%  $p < 0.0001$ ), primarily practicing sex work on the street (89% vs. 97%;  $p = 0.01$ ), reporting methamphetamine use (past month) (86% vs. 97%;  $p = 0.001$ ), and reporting hazardous alcohol consumption (past year) (91% vs. 97%;  $p = 0.04$ ). Of the 16 FSWs unwilling to use PrEP, "PrEP does not provide full protection against HIV" was the most common perceived barrier to PrEP use (88%) followed by "I would have trouble using PrEP consistently because of my alcohol use" (63%) and "I am worried I will lose clients if I use PrEP because they will assume I am HIV-positive" (63%). All FSWs unwilling to use PrEP reported that additional protection against other STIs would motivate them to use PrEP.

**Conclusion** PrEP interest was high among FSWs along the Mexico-US border. Our findings suggest that the development of multi-purpose PrEP products and site-specific interventions that provide PrEP education and address substance use and clients' perceptions as barriers to PrEP use may support FSWs' future PrEP uptake.

#### P5.14 AUTOIMMUNE DISEASES IN HIV-INFECTED PATIENTS

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**Introduction** Autoimmune and systemic diseases (ADs) were described in HIV infected patients and a classification by immune status was proposed.

**Methods** HIV-infected patients that presented an AD in the infectious diseases department of La Rabta University hospital in Tunis (Tunisia) were retrospectively included.

**Results** Four patients were included. The ADs were spondyloarthropathy, Behçet disease and psoriasis. Two patients presented Behçet disease. In two patients, the AD preceded HIV infection and in the two others, HIV infection was diagnosed at the same time as the AD. In all cases, ADs occurred in patients with a CD4 T lymphocyte count of more than 200/mm<sup>3</sup>. No co-infection with hepatitis B or C viruses was diagnosed. Three patients received anti-inflammatory drugs and one patient received immunosuppressant treatment with good tolerance.

**Conclusion** AD and autoantibodies are present in HIV infection. AD may develop during acute viral infection (Stage I), with normal to low CD4 counts (Stage II). However, past a threshold where the CD4 count is profoundly low, AD cannot develop (Stage III). Following HAART, immune restoration (normal CD4 count) with possible altered immune regulation may lead to the emergence of AD (Stage IV). More studies are necessary to identify the subgroups of HIV-infected patients that may be prone to develop AD. Co-infection with hepatitis B or C viruses should be screened.

**P5.15 PREPARING FOR PREP: ESTIMATING THE NEED FOR HIV PRE-EXPOSURE PROPHYLAXIS AMONG MEN WHO HAVE SEX WITH MEN USING SEXUAL HEALTH SURVEILLANCE DATA IN ENGLAND**

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**Introduction** To inform public health planning for a large-scale PrEP trial in England, we estimated the need for HIV pre-exposure prophylaxis (PrEP) among men who have sex with men (MSM) attending sexual health clinics.

**Methods** National STI surveillance data from the genitourinary medicine clinic activity dataset (GUMCADv2) were used to estimate the annual number of HIV-negative MSM who had a HIV test in the past year (which will be a criterion for accessing PrEP in England), for 2010–2015. To estimate the number and proportion of all MSM needing PrEP, we used bacterial STI diagnosis in the past year as a proxy for high-risk behaviour, and estimated HIV incidence (per 100 person-years) in both groups. We used these data to understand the likely geographical distribution of MSM who might need PrEP within the 152 English counties.

**Results** The number of HIV-negative MSM attending sexual health clinics increased by 68% from 69 392 in 2010 to 1 16 546 in 2015, and the number of HIV-negative MSM with a prior HIV test nearly doubled from 14 643 to 29 023 in the same period. Among HIV-negative MSM with a prior HIV test, the number with a recorded bacterial STI (past year) increased from 4365 (30%) in 2010 to 10,276 (35%) in 2015 (33% on average). HIV incidence among MSM with a prior HIV test was 1.9 (95% CI 1.6–2.2) per 100py compared to 3.3 (2.7–4.0) per 100py in MSM with a prior HIV test and history of bacterial STI. The number of MSM in need of PrEP (according to bacterial STI history) was 200 men in 4% (6/152) of counties.

**Conclusion** We estimated that the need for PrEP among MSM in England in 2015 might be around 10 000 individuals with an annual HIV incidence of 3%. Need for PrEP was highly concentrated; in most English counties, the number of MSM with a prior HIV test was small, and only 33% of these men might be clinically assessed as eligible for PrEP. These data illustrate how the population need for PrEP might be estimated in advance of a national trial, and will inform future evaluations at a population level.

**P5.16 COMBINATION OF INHIBITORS OF CHAPERONE ACTIVITY AND CHAPERONE EXPRESSION FOR PREVENTION OF HIV-1 REACTIVATION FROM LATENCY**

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**Introduction** *In vivo*, the state of latency allows HIV-1 to persist in cellular reservoirs and avoid eradication. Intracellular heat shock protein 90 (Hsp90) was shown to contribute to HIV-1 reactivation from latency, so that cell-permeable inhibitors of the Hsp90 chaperone activity can prevent this reactivation and be considered as potential anti-AIDS agents. However, the Hsp90 activity inhibitors provoke up-regulation of inducible Hsp90, Hsp70, Hsp27 and we suggested that such accumulation of chaperones in cellular reservoirs assists

the virus and impairs the beneficial effects of Hsp90-inhibiting treatment. Here we examined whether the suppressive action of Hsp90 inhibitors on the HIV-1 reactivation is enhanced by targeting the Hsp induction and/or the chaperone function of Hsp70.

**Methods** The HIV-1 reactivation was studied in cultured J-Lat cells. 17AAG and AUY922 were used as the Hsp90 activity inhibitors. The Hsp accumulation in the Hsp90 inhibitor-treated cells was blocked by co-treatments with quercetin or KNK437. The Hsp70 chaperone function was inhibited by 2-phenylethynesulfonamide (PES).

**Results** Inhibition of the Hsp90 chaperone activity with 17AAG or AUY922 does suppress the HIV-1 reactivation in the drug-treated cells but this is also accompanied by the up-regulation of Hsp90, Hsp70 and Hsp27. In the case of inhibitory co-treatments (17AAG or AUY922 + quercetin or KNK437 + PES), no increase in the cellular Hsp levels occurred despite of the dysfunction of Hsp90, Hsp70-dependent chaperone machine. Such a combination of the inhibitors simultaneously targeting the chaperone activities of Hsp90 and Hsp70 and the Hsp induction much stronger suppressed the chaperone-dependent HIV-1 reactivation, as compared with the action of Hsp90 inhibitors alone.

**Conclusion** Intracellular Hsp70 appears to contribute to the HIV-1 reactivation from latency. The suppressive effects of Hsp90-inhibiting drugs on the HIV-1 reactivation from latency can be enhanced by parallel inhibiting both the Hsp induction and the Hsp70 chaperone activity.

**P5.17 ATTITUDES OF CHURCH LEADERS ON HIV PREVENTION AMONG THE PRESBYTERIAN CHURCH LEADERS OF AIZAWL, MIZORAM, INDIA**

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**Introduction** Knowledge about Church leader's attitudes towards HIV prevention is essential to understand the factors that enable them to take on leadership role in facilitating HIV prevention efforts. Church leaders can have a significant contribution in a Christian dominated state like Mizoram. The study aims to explore attitudes of church leaders on HIV prevention among the Presbyterian Church leaders in Aizawl City, Mizoram.

**Methods** A Cross sectional study using in-depth interviews and focus group discussions were used. From 15 Presbyterian churches randomly selected all over Aizawl city, 293 Church leaders representing the four groups of leadership (Pastor/Elder, Women, Youth and Men) completed a self administered questionnaire along with 12 in-depth interviews and 3 focus group discussions. Bivariate analysis was done to identify associated factors.

**Results** The proportion of Church leaders willing to advocate condom use for HIV prevention was 34.0 percent. Around 97.3 percent agreed that Church leaders should be concerned and intervene in HIV prevention. Nearly 90.4 percent felt it should be discussed in Church services. About 70 percent of the Church leaders, Biblical disobedience leads to HIV infection and almost 80 percent felt homosexuals deserve HIV infection. Abstinence (77.1%), marital fidelity (22.2%) and condom use (0.3%) were the preferred choice for HIV prevention. Although 66.9 percent agreed with the Church

statement that condoms encourage pre-marital sex, more than 80 percent agreed that condom prevents spread of HIV infection. Personal contact with PLHIV does not seem to have positive influence with willingness to advocate condom use.

**Conclusion** Church leaders agreed that they have responsibilities towards HIV prevention but were restricted by the Church doctrine. Disobedience to Biblical teachings was believed to result in HIV infection which is seen as something sinful. Misconceptions around HIV persist irrespective of awareness programs within the Church. Sex education from early childhood, using Church media and educating Church leaders were recommended for effective HIV prevention.

**P5.18 A GLOBAL ESTIMATE OF THE ACCEPTABILITY OF PRE-EXPOSURE PROPHYLAXIS FOR HIV AMONG MEN WHO HAVE SEX WITH MEN: A SYSTEMATIC REVIEW AND META-ANALYSIS**

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**Introduction** Pre-exposure prophylaxis (PrEP) is a new biomedical intervention for HIV prevention. This study systematically reviews the acceptability of PrEP among men who have sex with men (MSM) worldwide.

**Methods** We searched PubMed database to identify English-language articles published between July 2007 and July 2016, which reported the acceptability of PrEP and associated population characteristics. Meta-analysis was conducted to estimate a pooled rate of acceptability, and meta-regression and subgroup analysis were used to analyse heterogeneities.

**Results** Sixty-eight articles were included. The estimated acceptance of PrEP was 58.7% (95% confidence interval (CI): 53.4%–63.8%) among MSM worldwide and showed no significant difference between developed and developing countries. MSM who were younger (4/5 studies, range of adjusted odds ratio (aOR)=1.49–3.47), better educated (7/7 studies, aOR=1.49–7.70), wealthier (3/3 studies, aOR=1.31–13.03), previously aware of PrEP (4/4 studies, aOR=1.33–3.30) and had greater self-perceived risk of HIV infection (4/5 studies, aOR=1.20–4.67) showed significantly higher acceptance of PrEP. Male sex workers (84.0% [26.3–98.7%]) were more likely to accept PrEP than general MSM. Self-perceived low efficacy and concern about side effects, adherence, affordability, and stigma from health providers and society were main barriers for accepting PrEP.

**Conclusion** This review identifies a moderate acceptability of PrEP in MSM both developed and developing country settings. Efficacy, individuals' perception of HIV risk and level of experienced stigma determine its acceptance.

**P5.19 HEALTH NEEDS OF WOMEN WHO HAVE SEX WITH WOMEN AND ACCESS TO HEALTH SERVICES**

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**Introduction** Access and host are essential in order to satisfactorily intervene in the population health and the Brazilian

literature has few studies approaching the access to services and sexual and reproductive care among women who have sex with women (WSW). The aim of this study was to analyse the access to health services and sexual and reproductive health care of WSW in public health policies.

**Methods** Cross-sectional, descriptive and analytical study. The data were obtained by interview, gynaecological and blood laboratory examination for sexually transmitted infections (STI) diagnosis, from January 2015 to December 2016. The descriptive statistics and the quantitative method of Bardin were used to analyse the access to health services. Sexual and reproductive health care was analysed by linear and multiple regression models.

**Results** The intentional sample was 149 WSW and the median age was 27 years-old (18–62). There was a predominance of white women (74.5%), non-union (73.2%), who had paid activity (73.2%) and eight years or more of completed study (96.0%). The majority (84.0%) used the public health service, 22.6% sought preventive actions. The difficulties encountered in the health services care were reported by 77 women, resulted in 118 responses with 28.8% associated with difficulty by long waiting time and 7.6% by lack of preparation of the professional/service for MSM. Regarding sexual and reproductive care, 71.8% had sexual intercourse after consumption of alcohol and/or illicit drugs, 12.1% did not use a condom and 51.7% had at least one STI. Age was a factor associated with the care score ( $p=0.001$ ,  $\beta=1.36$  CI=0.57–2.15) and no differences were observed in the MSM health care score with a history of sexual intercourse with men compared to those who only had women.

**Conclusion** Beside the difficulties of access to health services already experienced by women in general, there is a high programmatic in addition to individual and social vulnerability. This study indicates the need for effective strategies for the proposed policies for WSW.

**P5.20 HPV VACCINATION INTENTION AMONG FEMALE SEX WORKERS IN AMSTERDAM, THE NETHERLANDS**

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**Introduction** Female sex workers (FSW) are at risk for HPV-induced diseases but are currently not targeted by the HPV vaccination program in the Netherlands. We explored the determinants of their intention to get vaccinated against HPV in case vaccination would be offered to them in the near future.

**Methods** In 2016, FSW aged >18 years having an STI consultation with the Prostitution and Health Centre (P and G292) in Amsterdam, either at the clinic or at their working location, were invited to complete a questionnaire assessing the socio-psychological determinants of their HPV vaccination intention (scale ranging from –3 to +3). Determinants of HPV vaccination intention were assessed with uni- and multi-variable linear regression. Additionally, we explored the effect of out-of-pocket payment on intention.

**Results** Between May and September 2016, 293 FSW participated; 98 (34%) worked in clubs/private houses/massage salons, 111 (38%) worked at 'prostitution windows', and 81 (28%) worked as escorts or from home. The median age was



29 years (IQR 25–37). HPV vaccination intention was relatively high (mean 2.0; 95% CI:1.8–2.2). In multivariable analysis attitude ( $\beta=0.6$ ; 95% CI:0.5–0.7), descriptive norm ( $\beta=0.3$ ; 95% CI:0.2–0.4), self-efficacy ( $\beta=0.2$ ; 95% CI:0.1–0.3), beliefs ( $\beta=0.1$ ; 95% CI:0.0–0.2) and anticipated regret ( $\beta=0.1$ ; 95% CI:0.0–0.2) were the strongest predictors of HPV vaccination intention. Demographic variables did not improve the multivariable regression model. The explained variance in the model ( $R^2$ ) was 0.54. HPV vaccination intention decreased significantly when vaccination would require out-of-pocket payment (€ 50 mean: 1.2 (95%CI: 0.8–1.7); € 100 mean: 1.6 (95%CI: 1.1–2.0); € 200 mean: 1.0 (95% CI: 0.5–1.5); € 350 mean: 0.2 (95%CI: –0.2–0.7).

**Conclusion** HPV vaccination intention among FSW in Amsterdam appears to be very high. The included socio-psychological factors explained most of the variance in HPV vaccination intention among FSW. Out-of-pocket payment had a significant negative effect on HPV vaccination intention.

#### P5.21 FISHERMEN AS A SUITABLE POPULATION FOR HIV INTERVENTION TRIALS

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**Introduction** Suitable populations to sustain continued evaluation of HIV and sexually transmitted infection (STI) prevention interventions are required. We sought to determine whether fishermen are a suitable population for HIV intervention trials.

**Methods** In a cross-sectional descriptive survey, we selected 250 fishermen from proportional to size sampled boats. We collected socioeconomic and behavioural information, and specimens for HIV, herpes simplex virus (HSV-2), syphilis, gonorrhoea, chlamydia and human papillomavirus (HPV) tests from consenting participants.

**Results** One third of the fishermen had concurrent sexual partnerships and two thirds were involved in transactional sex. About 70% were involved in extramarital sex with only one quarter using condoms in their three most recent sexual encounters. HIV prevalence was 26% and HSV-2 and HPV was 57%. Over 98% were willing to participate in a future HIV prevention clinical trial.

**Conclusion** Fishermen are a high-risk group for HIV/STI infections that may be suitable for HIV prevention trials. A cohort study would be useful to measure the incidence of HIV/STIs to ultimately determine the feasibility of enrolling this population in an HIV/STI prevention clinical trial.

#### P5.22 THE IMPORTANCE OF HAVING AN ADOLESCENT HIV UNIT CASE REPORT AT JOS UNIVERSITY TEACHING HOSPITAL (JUTH), JOS PLATEAU STATE, NIGERIA

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**Issue** JUTH has one of the largest HIV treatment centres in North central Nigeria currently has 529 children enrolled into the program,498 on treatment. Since inception in 2004,92

children had virologic failure of their treatment and 45 transferred to the Adult ART program.I present the case of one of our children that have grown into Adulthood who defaulted her treatment,failed treatment regimen, got pregnant from HIV negative sex partner and had her baby is free of HIV. Body: The child was enrolled into the program at age of 10 and she lost mother to HIV when she was 9 years old. Her 1 st line drug regimen was Zidovudine, Niverapine and lamivudine which she was not adherent to.At age 17,she admitted that she had a sexual partner who was later invited counselled and tested, his HIV antibody test was negative.She was later transferred to the adult clinic at the age of 18 years with viral load of 52 568 copies/ml while CD4 count of 345 cells/mm. She got pregnant also immediately from another partner but failed to access Prevention of child transmission of HIV (PMTCT)for fear of being scoured by the health workers. She had a vaginal delivery at 39 weeks.

**Intervention** Baby was enrolled at the paediatric unit,had Nevirapine prophylaxis for 6 weeks and was breastfeed baby exclusively for 6 months.Condoms use was inconsistent and she was also on daily contraceptive. Her baby recorded HIV negative results for DNA PCR (Deoxyribonucleic acid polymerase chain reaction) results at week 6,12,and 24 and Post breast feeding DNA PCR test.Baby is still incare for followup. Sex patner was counselled,tested for HIV, antibody testing result was HIV negative, and he was subsequently enrolled for the prevention program(PrEP).

**Lessons learnt** There is need to establish an Adolescent ART clinic where reproductive health can be discussed freely and healthworkers should encourage instead of being judgmental and also we need to educate them on HIV infection and reinfection,drug adherence and also encourage abstinence.

#### P5.23 HOW MUCH CAN HIV TRANSMISSION BE REDUCED IN HIGH-RISK MSM BY TARGETING TESTING TO DETECT AND TREAT PRIMARY HIV INFECTION (PHI)? ANALYSIS OF A COHORT STUDY USING AN INDIVIDUAL-BASED MODEL

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**Introduction** HIV incidence remains high in UK MSM, and cost-effective combination prevention is needed. We estimated numbers of infections averted by targeting testing for highly-infectious primary HIV infection (PHI) in high-risk MSM.

**Methods** A cohort study of 98 MSM (participation rate 94%; zero loss to follow-up) recently infected with HIV recorded sexual behaviour in the 3 months pre- and post-HIV diagnosis. A stochastic individual-based model calculated numbers of HIV-transmission events expected to occur with and without the effects of (i) immediate ART in those who chose to receive it and (ii) behaviour changes reported post-diagnosis by those who did and did not receive ART. The model incorporates different types of sex-act, condom use, and distinguishes between regular and casual partners.

**Results** If PHI lasts for 3 months, testing is monthly, and viral load is suppressed by ART after 3 months with an initial rapid decline in the first 2 weeks, then from the 73 patients who took ART the reduction in transmission would be ~75%, from 22–33 to 5–8 events, and in the remaining 25 patients