

all patients recovered without requiring immunoglobulin and/or blood transfusions.

Conclusion: In the HAART era, the presence of chronic anaemia in HIV-infected patients should alert the physician to the possibility of B19V infection especially during epidemics. There were no apparent relationships between the infecting genotype and the clinical course and this is the first report of genotype 3b in Rio de Janeiro.

P3.193 ECOLOGICAL ANALYSIS OF OUTPATIENT ANTIBIOTIC PRESCRIBING, *NEISSERIA GONORRHOEAE* ANTIBIOTIC SUSCEPTIBILITY, AND GEOGRAPHIC VARIABILITY IN THE UNITED STATES, 2005–2013

¹Robert D Kirkcaldy, ¹Monina Bartoces, ²Olusegun O Soge, ³Grace Kubin, ⁴Carlos Del Rio, ⁵Edward W Hook, ⁶Stefan Riedel, ¹John R Papp, ¹Lauri A Hicks. ¹Centres for Disease Control and Prevention, Atlanta, Georgia, USA; ²University of Washington, Seattle, Washington, USA; ³Texas Department of State Health Services, Austin, Texas, USA; ⁴Emory University, Atlanta, Georgia, USA; ⁵University of Alabama At Birmingham, Birmingham, AL, USA; ⁶Beth Israel Deaconess Medical Centre, Boston, USA

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Introduction To what degree population-level antibiotic use contributes to *Neisseria gonorrhoeae* (NG) resistance in the US is unclear. We investigated whether outpatient prescribing is associated with NG antibiotic susceptibility.

Methods Using data from the Gonococcal Isolate Surveillance Project (GISP; a US surveillance system that samples male urethral isolates) during 2005–2013, we calculated annual geometric mean minimum inhibitory concentrations (MICs) of azithromycin, cefixime, and ceftriaxone by site. We used QuinTILES data (captures >70% of US outpatient prescriptions and projects to 100% coverage) to calculate annual cephalosporin and macrolide rates prescribing per 1000 men by each county corresponding to a GISP site. For descriptive analyses, we calculated site-specific medians of these measures. We constructed multivariable linear mixed models for each agent with annual prescribing rates as the exposure and one-year lagged geometric mean MIC as the outcome.

Results Annual geometric mean cefixime MICs increased from 0.009 µg/ml (2005) to 0.021 (2013), ceftriaxone from 0.005 (2006) to 0.01 (2007–2013), and azithromycin from 0.171 (2011) to 0.242 (2008). Western sites had the highest median cefixime MICs (0.018–0.03 by site); Southern sites had the lowest (0.016–0.019). Northeastern (0.298), Midwestern (0.258–0.314), and Western (0.136–0.295) sites had the highest median azithromycin MICs; Southern site had the lowest (0.1–0.234). Ceftriaxone MICs demonstrated little geographic variation. Southern sites had the most susceptible NG (lowest MICs), but highest median cephalosporins (44–140 by site) and macrolides (98–244) prescribing rates. Western sites had the lowest cephalosporin (39–75) and macrolide (61–125) prescribing rates. Multivariable models did not demonstrate associations between prescribing and NG susceptibility.

Conclusion Using these data, we found no association between US antibiotic prescribing rates and NG susceptibility. Elucidation of factors contributing to resistance, including further investigation of antibiotic use, is warranted.

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P3.194 INVESTIGATING HIV/AIDS MORTALITY IN THE STATE OF SAO PAULO (BRAZIL): A STRATEGY FOR INTERVENTION

SQ Rocha, SR Silva, DL Estevam, MV Tancredi, RA Souza, MCGG Ribeiro. *STD/AIDS Reference and Training Centre, São Paulo – SP, Brazil*

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Introduction The response to the AIDS epidemic in the State of São Paulo contributes significantly for the positive results of the Brazilian National Program. There was a decrease of 71.6% in the State's mortality rates between the years of 1995 and 2014, when the rate reached 6.5 per 1 00 000 inhabitants/year.

Methods Since 2014 Sao Paulo State's STI/AIDS Programme has compiled investigative data on deaths of HIV-infected individuals, tracing profiles and evaluating causes of death and associated vulnerabilities.

Results From 1586 deaths investigated between 2013 and 2016, a significant ratio (66%) is under 50 years old and a considerable number (32%) of individuals survived until two years after the diagnosis. Late-diagnosis, late implementation of TARV and poor adhesion are notable among the deaths, as well as a significant ratio (29%) of substance-abusing individuals. AIDS-defining illnesses (particularly tuberculosis) rank as the highest causes of death (55%) followed by non-AIDS-defining bacterial infections (18%), which are both predominant among the deaths of those patients with therapeutic disruption and/or advanced HIV infection. Causes unrelated to HIV and bacterial infections are predominant among patients with suppression of HIV-replication and recent CD4 count above 500 cells/mm³.

Conclusion Even in light of a positive context due to the decrease of MR, the oversight of deaths of HIV-infected individuals remains a fundamental practice for identifying vulnerabilities and works as a guiding principle for interventions that may contribute to a decrease in the number of avoidable-deaths. The results indicate the relevance of actions towards early-diagnosing, monitoring of patient-enrollment and adhesion to services, timely start of antiretroviral therapy, continued oversight of patient-adhesion to medications and diagnosis as well as towards the treatment of potentially-avoidable conditions such as latent infection of tuberculosis and vaccination for *pneumococo*. Some groups - such as drug and alcohol-abusing individuals - require a case-by-case approach.

P3.195 PREVALENCE OF SYPHILIS AND HIV INFECTION DURING PREGNANCY IN INCARCERATED WOMEN AND THE INCIDENCE OF CONGENITAL SYPHILIS IN BIRTHS IN PRISON IN BRAZIL

¹Rosa Maria Soares Madeira Domingues, ²Maria Do Carmo Leal, ²Ana Paula Esteves-Pereira, ²Barbara Ayres, ³Alexandra Sanchez, ⁴Bernard Larouze. ¹Instituto Nacional de Infectologia Evandro Chagas, Rio de Janeiro – RJ, Brazil; ²Departamento de Epidemiologia e Métodos Quantitativos em Saúde, Escola Nacional de Saúde Pública SÉR, Rio de Janeiro – RJ, Brazil; ³Centro de Referência Professor Hélio Fraga, Escola Nacional de Saúde Pública (ENSP), Fundação Oswaldo, Rio de Janeiro – RJ, Brazil; ⁴Sorbonne Universités, UPMC UNIV Paris 06/INSERM, IPLEPS, Equipe D'Epidémiologie Sociale, Paris, Fran, Paris, France

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Introduction This study aimed to estimate the prevalence of syphilis and HIV infection during pregnancy, the mother to child transmission (MTCT) of syphilis and the incidence of congenital syphilis in incarcerated women in Brazil; to

compare these rates to those observed in pregnant women outside of jail; and to verify the maternal factors associated with syphilis infection during pregnancy in free and incarcerated women.

Methods We used data from two nationwide studies conducted during the period 2011–2014. The “Birth in Brazil” study included 23 894 free women cared for in 266 hospitals. The “Maternal and Infant Health in Prisons” study included 495 incarcerated pregnant women or mothers living with their children, according to a census conducted in 33 female prisons. The same case definitions and data collection methods were used in both studies. We used the Chi square test to compare the characteristics of incarcerated and free women with a significance of 0.05.

Results For incarcerated women, the estimated prevalence of syphilis during pregnancy was 8.7% (IC 95% 5.7–13.1) and for HIV infection 3.3% (IC 95% 1.7–6.6), rates almost 7 times greater than that found in free women. The estimated MTCT of syphilis was 66.7% (IC 95% 44.7–83.2) and the incidence of congenital syphilis at birth was 58.1 per 1000 living newborns (IC 95% 40.4–82.8), rates two and 12.6 times higher than in free women, respectively. Incarcerated women showed greater social vulnerability and worse results in all the evaluated antenatal indicators. Syphilis infection was associated with social vulnerability in free women, but not in incarcerated women.

Conclusion Incarcerated women had a higher prevalence of syphilis and HIV infection during pregnancy, lower quality of antenatal care and higher levels of social vulnerability. Health initiatives in the prison system are necessary to reduce health-care inequalities and should include adequate antenatal and birth care with opportune diagnosis and treatment of infected pregnant women as recommended in national and international guidelines.

P3.196 SEXUAL NETWORK DRIVERS OF HIV AND HERPES SIMPLEX VIRUS TYPE 2 (HSV-2) TRANSMISSION: A COMPARATIVE MATHEMATICAL MODELLING ANALYSIS

¹Ryosuke Omori, ²Laith J Abu-Raddad. ¹Hokkaido University, Sapporo – Japan; ²Weill Cornell Medicine, Qatar, Cornell University, Doha, Qatar

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Introduction HIV and herpes simplex virus type 2 (HSV-2) infections are sexually transmitted and propagate in sexual networks. Our study’s objectives were to quantify effects of key network statistics on infection transmission, and extent to which HSV-2 prevalence is predictive of HIV prevalence.

Methods An individual-based Monte Carlo simulation model was constructed to describe sex partnering and infections transmission. The model was parametrized with current and representative natural history, transmission, and sexual behaviour data. Correlations were assessed on model outcomes and multiple linear regressions were conducted to estimate adjusted associations and effect sizes.

Results HIV prevalence was most often lower than a third of HSV-2 prevalence. HIV and HSV-2 prevalences were associated with a Spearman’s rank correlation coefficient of 0.64 (95% CI: 0.58–0.69). Collinearities among network statistics were detected, most notably between concurrency versus mean

and variance of number of partners. Controlling for confounding, unmarried mean number of partners (or alternatively concurrency) were the strongest predictors of HIV prevalence. Meanwhile, unmarried and married mean and variance of number of partners (or alternatively concurrency), and clustering coefficient were the strongest predictors of HSV-2 prevalence. HSV-2 prevalence was a strong predictor of HIV prevalence by proxying effects of network statistics.

Conclusion Network statistics drive similar and differential effects on HIV and HSV-2 transmission. HIV prevalence reflected primarily mean and variance of number of partners, but HSV-2 prevalence was affected by a range of network statistics. HSV-2 prevalence can be used to predict a population’s HIV epidemic potential, thereby informing HIV prevention interventions.

P3.197 QUALITY OF LIFE OF PATIENTS LIVING WITH HUMAN IMMUNODEFICIENCY VIRUS INFECTION: EVIDENCE FROM SOUTH INDIA

Sabin Siddique. Yenepoya University, Mangalore, 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.

Methods The study was done among 100 PLWH attending a tertiary care hospital, and three Non-Governmental Organisations at Calicut, Kerala, India, from June 2011 to May 2014. QOL was assessed using HIV specific World Health Organisation 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.

P3.198 PREVALENCE AND CORRELATES OF DEPRESSION AMONG HIV-POSITIVE PATIENTS IN BIHAR, INDIA: A CROSS-SECTIONAL STUDY

¹Salman Hussain, ²Nagita Devi, ²Ashok Kumar Gupta, ²Md Azharuddin. ¹Jamia Hamdard, Hamdard University, New Delhi, India; ²National Institute of Pharmaceutical Education and Research (NIPER), Hajipur, India

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Introduction Depression is accounted as one of the major contributors towards the neuropsychiatric complication among person living with HIV. Depression leads to the non-compliance and accounted for the worst outcomes. So, this study was aimed to assess the prevalence and correlates of depression.

Methods This was a cross-sectional study conducted at the Anti-retroviral therapy (ART) centre, RMRIMS, Patna, India. The study protocol was approved by the institutional ethics committee of Rajendra Memorial Research Institute of Medical Sciences (RMRIMS), Patna (04/RMRI/EC/2016). Patients were interviewed with the Patient Health Questionnaire (PHQ-9) to assess the prevalence of depression. Association of depression with respect to demographic and disease-related factors were also assessed. Data were coded and analysed using SPSS v22.

Results A total of 144 patients suffering from HIV were participated in this study. Among this selected participants, 47% were female. The mean age of participants was 38.8 years (SD=11.4). Depression was prevalent in 57% (95% CI: 48.91 to 65.09) of patient participated in the study and was highly prevalent in female (66%). Prevalence of depression was higher in patient belongs to upper lower and lower socioeconomic class. More than a quarter 28% (95% CI: 21.56 to 36.44) of respondents had mild depression, while 29% (95% CI: 21.99 to 36.41) of participants were suffering from moderate to severe depression. Prevalence of depression was found to be significantly associated with lower socioeconomic class (OR 2.458, 95% CI 1.081–5.592; $p < 0.05$).

Conclusion Depression is highly prevalent among HIV-positive patients in Bihar region. Higher odds of prevalent depression were observed in lower socioeconomic class. Nearly 30% HIV positive patients were suffering from moderate to severe depression.

P3.199 IMMUNE RESPONSE TO HEPATITIS B VACCINE IN A GROUP OF HEALTH CARE WORKERS AT THE NATIONAL INSTITUTE OF HYGIEN – RABAT, MOROCCO

¹Sanae Lemrabet, ¹Imane Belbacha, ¹Jihane Zerrouk, ¹Rajae Mengad, ¹Ouafae Bennani, ¹Mustapha Berrada, ²Imad Cherkaoui, ³Leila Medraoui, ¹Hicham Oumzil. ¹National Institute of Hygien, Rabat, Morocco; ²Direction of Epidemiology and Fight Against Diseases, Rabat, Morocco; ³University of Med V, Rabat, Morocco

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Introduction Healthcare workers are one of the most at risk population of infection with hepatitis B virus (HBV). Our study aims to evaluate the practices and knowledge on the risk of HBV infection and to determine the immune status against HBV among the staff of the National Institute of Hygien (NIH).

Methods This is a descriptive cross-sectional study that involved 47 participants belonging to different categories of the NIH staff. After providing a written consent for

participation, recruits answered a questionnaire developed from the WHO guidelines.

The assessment of the immune status focused on the screening and quantification of serological markers: HBs Ag, HBs Ab, Hbc Ab by an automated technology using chemiluminescence on the system Cobas E411 (Roche Diagnostics, USA).

Results The average age of participants was 45 ± 8 years. All respondents ($n=47$) confirmed their knowledge of modes of transmission of parenteral hepatitis. Moreover, 72% ($n=34$) recognised the liver cirrhosis as a consequence of HVB infection. The association of hepatic carcinoma with HBV infection has been acknowledged by 44% ($n=21$) of participants. Similarly 90.7% recognised the existence of a vaccine against hepatitis B. Biosecurity measures were available in all services. No cases of HBV chronic infection were detected. Serological markers of hepatitis B were tested for 45 participants. The results showed that 49% ($n=22$) have a profile of immunisation mediated by vaccin. Five respondents (11.1%) showed a profile for a past infection healed. No cases of chronic or acute HBV infection were detected.

Conclusion The present study demonstrated that despite good knowledge on the HBV infection, the vaccination rate of INH staff remains low. Regular awareness campaigns should be imposed at the NIH level to update the staff knowledge on the HBV infection and preventive measures including vaccination.

P3.200 UNDER THE INFLUENCE OF NEEDLE: CORRELATES OF HIV, HCV AND HIV/HCV CO-INFECTION AMONG INJECTING DRUG USERS IN THREE STATES OF INDIA

Santosh Kumar Sharma. International Institute for Population Sciences, Mumbai, India

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Introduction HCV is the most common virus affecting the world's 16 million injection drug users (IDUs). It is estimated that close to 3 million IDUs are living with HIV and some studies indicate that over 90% of IDUs infected with HIV are also infected with HCV. The main objective of the study is to determine the correlates of HIV, HCV, and HIV/HCV co-infection among injecting drug users in three states of India.

Methods Data were obtained from a bio-behavioural survey-Integrated Behavioural and Biological Assessment (2009–10) ($n=1977$) in the high prevalence of HIV states of India among injecting drug users, Manipur, Maharashtra, and Nagaland. The respondent-driven sampling method was used to collect the eligible respondent. Dependent variables for this study was HIV prevalence, HCV prevalence, and HIV/HCV co-infection. Bivariate and multivariate binary logistics regression were used for the analysis.

Results The prevalence of HIV, HCV and HIV/HCV co-infection varies from 15 percent to 45 percent among IDUs. It was reported that there was the significant association between HIV, HCV and HIV/HCV co-infection and socio-demographic and risky injecting behaviour. Further Multivariate analysis shows that these infections were more probable among IDUs, 1–5 years of schooling, widowed/separated/divorced, longer duration of drug use and drawing-up drug solution from a common container. Further, Longer duration between first drug use and first injecting drugs use (AOR=2.1, $p < 0.05$) and draw up drug solution from a common container