syphilis, HIV, and HCV screening increased by 4.4%, 4.3%, and 8.3%, respectively. The overall syphilis diagnosis rate was 15.4/100,000 and decreased over the study period. For HIV, the overall new diagnosis rate and prevalence was 5.1 and 45.9/100,000 respectively; for HCV the corresponding values were 82.8 and 551.5/100,000. The new diagnosis rates for HIV and HCV decreased over the study period while there were no significant changes in prevalence.

Conclusion In BC, prenatal screening for syphilis and HIV is high and improving annually with declining diagnosis rates. Previous research in BC suggests HCV prevalence in pregnant women in BC is underestimated based on risk-based screening. The low HCV screening rates and high prevalence observed in our study corroborates the need to consider broader prenatal HCV screening.

P3.198 SEVERITY OF MATERNAL HIV-1 DISEASE IS ASSOCIATED WITH ADVERSE BIRTH OUTCOMES IN MALAWIAN WOMEN

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Background HIV-infected women have increased risk of adverse birth outcomes, including low birth weight (LBW) and preterm delivery (PTD). We assessed whether severity of maternal HIV-1 disease - characterised by HIV-1 viral load in peripheral blood, HIV-1 viral load in placental blood, and maternal CD4+ T-cell count - was associated with LBW or PTD.

Methods We performed secondary analyses of The Malaria and HIV in Pregnancy prospective cohort, which enrolled HIV-positive, pregnant Malawian women from 2000–2004. Included participants (n = 809) were antiretroviral treatment-naïve, normotensive women who delivered a live, singleton infant. Binomial regression models were used to assess unadjusted and adjusted prevalence ratios (PRs) and 95% confidence intervals (CI) of the effect of HIV-1 severity on prevalence of LBW and PTD.

Results The relationships between HIV-1 severity and LBW or PTD differed by malaria status. Among malaria-positive women (n = 198), after adjustment for residence, education, primigravidity, and maternal anaemia, we observed no association between severity of HIV-1 disease and LBW or PTD. However among malaria-negative women (n = 611), increasing peripheral viral load was significantly associated with LBW (adjusted PR: 1.41 per one-$\log_{10}$ increase, 95% CI: 1.10, 1.82); results were similar for increasing placental viral load and LBW (adjusted PR: 1.23 per one-$\log_{10}$ increase, 95% CI: 1.02, 1.49), and decreasing CD4+ T-cell count and LBW (adjusted PR per 100-cell/μL decrease: 1.12 per 95% CI: 1.04, 1.21). We observed a similar association between placental viral load and PTD (adjusted PR: 1.29 per one-$\log_{10}$ increase, 95% CI: 1.02, 1.64) and CD4+ T-cell count and PTD (adjusted PR per 100-cell/μL decrease: 1.16 per 95% CI: 1.05, 1.28).

Conclusion Although our malaria-positive sample size was small, HIV-1 severity in this group appeared not to be associated with adverse birth outcomes. However in malaria-negative women, maternal HIV-1 disease severity was significantly associated with increased prevalence of LBW and PTD.

P3.199 FACTORS AFFECTING HIV PREVALENCE AMONG CLIENTS OF FEMALE SEX WORKERS IN 16 DISTRICTS OF SOUTHERN INDIA

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Background Clients of female sex workers (FSWs) are considered an important bridging population for HIV. This study aims to assess the impact of Avahan (India AIDS Initiative of Bill & Melinda Gates Foundation), through comparison of HIV prevalence between two surveys (2006–07 and 2009–10) among clients of FSWs across 16 districts in south India (n~7,000 per-round).

Methods Multilevel logistic regression analysis was performed using HIV as outcome, with individual variables at level 1 and district-level programme variables (from the Avahan computerised monitoring system) at level 2. Mean value of the programme indicators for the years 2007 & 2008 were used as district level variables.

Results HIV prevalence declined significantly from round 1 to round 2 (5.5% to 3.4%; p = 0.001). Clients' characteristics such as increased age (25–34 yrs-AOR = 2.22, 95% CI: 1.74.2.85, ≥ 35 yrs-AOR = 2.32, 95% CI: 1.75.3.07), being literate (AOR = 0.69, 95% CI: 0.58, 0.82), being separated/divorced/widowed compared to never married (AOR = 1.52, 95% CI: 1.02.2.26), had sex with 3 FSWs within past 6 months (AOR = 0.61, 95% CI: 0.43.0.87), anal sex with man/hijra in last 6 months (AOR = 1.48, 95% CI: 1.14, 1.91), being circumcised (AOR = 0.73, 95% CI: 0.57, 0.92) and had at least one STI symptom (AOR = 1.21, 95% CI: 1.00.1.46) were associated with being HIV positive. Among the programme variables, greater programme coverage was significantly associated with lower prevalence (AOR = 0.992, 95% CI: 0.985, 0.999).

Conclusions These results demonstrate that there was a decline in HIV prevalence among clients of FSWs over the course of the intervention and the districts with increased Avahan programme coverage had lower HIV prevalence. Further explorative analysis is required to understand the role of programme coverage on the reduction in HIV prevalence among clients in light of similar surveys among FSWs that showed a clearer association of increase in programme coverage between survey rounds and decrease in HIV.

P3.200 EFFECT OF PREGNANCY ON HIV-1 DISEASE PROGRESSION AMONG ANTIRETROVIRAL-NAIVE HIV-1 INFECTED WOMEN

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Background Among HIV-1 infected women who have not initiated full regimen antiretroviral therapy (ART), CD4 counts decline during pregnancy, possibly due to hemodilution. It is unclear if this drop is sustained beyond pregnancy, and if pregnancy results in accelerated HIV-1 disease progression.

Methods In a prospective study among 2269 HIV-1 infected ART-naïve women from 7 countries in East and southern Africa, we examined the effect of pregnancy on HIV-1 disease progression. We used random effects models to compare CD4 and plasma viral load changes between pregnant, postpartum and non-pregnant periods (prenatal periods from women who became pregnant and all periods from women who did not become pregnant). Among women who became pregnant, we compared CD4 counts during prenatal, pregnant, and postpartum periods.
Results Women contributed 3471 person-years and 475 women became pregnant (7.2% of time was pregnant and 6.8% was postpartum). After accounting for baseline levels, CD4 counts were 67.7 cells/mm^3 lower (95% CI 55.5–79.9) during pregnant compared to non-pregnant periods and 81.2 cells/mm^3 lower (95% CI 65.3–97.2) during pregnant compared to postpartum periods. After adjustment for baseline viral load, there were small increases in plasma viral load: a 0.05 $\log_{10}$ increase in pregnant vs. non-pregnant periods (95% CI 0.01–0.10) and a 0.08 $\log_{10}$ increase in pregnant vs. postpartum periods (95% CI 0.01–0.14). Postpartum CD4 and plasma viral loads were not different from non-pregnant periods ($p = 0.1$ and $p = 0.5$). Among women who experienced pregnancy, CD4 counts were 59.6 cells/mm^3 lower (95% CI 35.2–84.0) during pregnant versus prenatal periods and 71.6 cells/mm^3 lower (95% CI 48.0–95.1) during pregnant versus postpartum periods. Prenatal and postpartum CD4 counts were similar ($p = 0.4$).
Conclusion CD4 count and plasma viral load changes among HIV-1 infected women during pregnancy are not permanent and are likely to return to prenatal levels. Pregnancy was not associated with subsequent disease progression.

P3.201 RECENT SYPHILIS PREDICTS HEPATITIS C VIRUS (HCV) SEROCONVERSION AMONG HIV-POSITIVE MEN WHO HAVE SEX WITH MEN (MSM)

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Background There is evidence of sexual HCV transmission among HIV-positive MSM from the UK and Europe. We estimated HCV seroincidence and its risk factors in a North American population of HIV-positive MSM with no known history of injection drug use.
Methods We analysed data from the OHTN Cohort Study, an ongoing cohort of persons in HIV care in Ontario, Canada. Data were obtained from medical charts, interviews, and record linkage with the provincial public health laboratories. We restricted the analysis to 1,534 MSM who: (1) did not report injection drug use; (2) were under follow-up in 2000–2010; and (3) had 2+ HCV antibody tests, of which the first was negative. Person-time commenced at the later of the HCV-negative result or HIV diagnosis and ended at the first HCV+ or last date of follow-up (median 6.1 person-years (PY) of follow-up; sum 9,987PY).
Results We observed 51 HCV seroconversions, for an overall incidence of 0.51 per 100PY (CI: 0.39–0.67). Annual incidence varied from 0.16 to 0.89 per 100 PY, with no statistical evidence of a temporal trend. Seroconversion was statistically-significantly associated with acute syphilis infection in the previous 6 months (adjusted hazard ratio = 4.9, CI 1.2–21) and there was a marginally statistically-significant association for men who had not yet initiated antiretroviral treatment (adjusted hazard ratio = 1.9, CI 0.91–4.0). There were no statistically significant effects of age, ethnicity, region, CD4+ cell count or viral load.
Conclusion Sexual behaviour was unmeasured and we cannot exclude the possibility of HCV acquisition via unreported injection drug use. Nevertheless, the strong association with recent syphilis suggests that at least some cases were due to sexual transmission. Future research is needed to establish whether syphilis is a marker for high-risk behaviour or may potentiate sexual HCV transmission among persons with HIV.

P3.202 ESTIMATION OF HIV INCIDENCE IN BRAZIL, 2004–2011

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Background The HIV incidence is the most valuable indicator of epidemiological surveillance as it establishes the degree to which HIV transmission is occurring and which groups are most at risk for HIV infection. However, the HIV incidence is a difficult indicator to estimate. This paper addresses a method to estimate the HIV incidence in Brazil in recent years.
Methods The information source is SISCEL, which is the national laboratory-based surveillance system created to monitor CD4+/CD8+ T lymphocytes and HIV viral load. The proposed method is based on the first CD4 count after HIV diagnosis among all treatment-naïve cases registered in SISCEL in the time period 2004–2011. A regression model that relates progress of CD4 to time of seroconversion was used to estimate time of HIV infection at the date of first CD4 count. The analysis was performed by sex and age group.
Results For all years, the proportion of HIV cases registered in SISCEL in the same year of infection was 31%, and approximately 6% for each year of the 5 subsequent years after infection, so that almost 40% cases are registered in SISCEL only 7 years or more after infection. The HIV incidence was stable in the period 2005–2011. After adjusting for HIV cases tested in private laboratory and undiagnosed cases not registered in SISCEL, the mean estimate was 41600 cases, corresponding to an HIV incidence rate of 0.27 per 1000 population. Analysis by sex and age showed a rising trend among males, particularly for young men, and a decreasing trend among females.
Conclusion In terms of late HIV diagnosis, the results indicate that coverage of HIV testing in the general population should be largely expanded. As to most at risk populations, the findings suggest that interventions should be focused on young adult men to reverse the increasing trend.

P3.203 MORTALITY RATES IN HIV-1/2 DUAL- AND MONO-INFECTED INDIVIDUALS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background Although HIV-1 and HIV-2 share the same transmission routes, HIV-2 is less transmissible, it has a longer median time from infection to AIDS, and the associated mortality risk is lower. It has been suggested that HIV-2 infection inhibits HIV-1 disease progression in dually infected (HIV-D) individuals, but whether the mortality rate of HIV-D infected individuals differs from that of HIV-1 mono-infected individuals is still not clear. We conducted a systematic review and meta-analysis on HIV mortality.
Methods Medline and Embase databases were searched. The inclusion criteria for studies were an antiretroviral therapy-naïve population during follow-up, reporting mortality data and