Abstract Book
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Abstracts
Oral Presentations
Abstract: 01

Contraception, pregnancy, breast feeding, and PMTCT

Total and Unbound Pharmacokinetics of Once-Daily Darunavir/ritonavir in HIV-1–Infected Pregnant Women

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Introduction: Antiretroviral therapy during pregnancy reduces risk of mother-to-child transmission (MTCT). Physiologic changes during pregnancy can affect pharmacokinetics. A previous analysis of darunavir/ritonavir 600/100mg twice-daily showed lower total but not unbound darunavir exposure in HIV-1-infected pregnant women, and no MTCT. This study was extended to HIV-1-infected pregnant women receiving once-daily darunavir/ritonavir.

Material/Methods: Phase IIIb study, HIV-1–infected pregnant women ≥18 years old, in 2nd trimester of pregnancy, receiving darunavir/ritonavir 800/100mg once-daily with other antiretrovirals. Fifty-nine percent (10/17 patients) had viral suppression (<50 copies/mL) at study entry. Darunavir (total and unbound) and ritonavir (total) plasma concentrations were evaluated predose, 1, 2, 3, 4, 6, 9, 12 and 24 hours postdose (3, 6, 12h timepoints only analyzed for total concentrations), during the 2nd and 3rd trimesters, and postpartum. Total darunavir and ritonavir plasma concentrations were determined using a validated HPLC-MS/MS assay. Darunavir unbound fraction was determined by separation through ultrafiltration of ¹⁴C-darunavir-fortified plasma samples and liquid scintillation counting. Pharmacokinetic parameters were derived using non-compartmental analysis. Safety and efficacy were evaluated at each visit.

Results: 17 women (5 Black, 2 Hispanic, 7 White, 3 Other) enrolled; 16 had evaluable pharmacokinetic data. Total darunavir AUC24h, Cmin, and Cmax were lower by 34% (LSMeans ratio, 90% CI: 0.66, 0.60-0.74), 32% (0.68, 0.56-0.83) and 34% (0.66, 0.59-0.75) during the 2nd trimester and by 35% (0.65, 0.57-0.74), 50% (0.50, 0.35-0.73) and 31% (0.69, 0.63-0.77) during the 3rd trimester, versus postpartum. This decrease in total darunavir during pregnancy is possibly related to pregnancy-related albumin and/or α₁-acid glycoprotein (AAG) dilution and/or decreased ritonavir concentrations. Albumin and AAG concentrations were 20-27% and 46% lower, respectively, during pregnancy versus postpartum (median % decrease). Ritonavir pharmacokinetic parameters decreased by approximately 45-50% during the 2nd and 3rd trimesters, versus postpartum. The decrease in unbound darunavir during pregnancy was less pronounced: unbound darunavir AUC24h, Cmin, and Cmax were lower by 24% (0.76, 0.67-0.85), 13% (0.87, 0.69-1.10) and 25% (0.75, 0.65-0.87) during the 2nd trimester, and by 20% (0.80, 0.71-0.89), 38% (0.62, 0.43-0.90) and 16% (0.84, 0.74-0.96) during the 3rd trimester, versus postpartum. Unbound darunavir was >10-fold above the unbound EC50 for wild-type HIV (2.75 ng/mL) in all subjects at all times. Viral suppression was maintained in >88% of subjects at all times during gestation. CD4+ counts increased in the 2nd and 3rd trimesters and 6-12 weeks postpartum, with lower values observed in-between (2-5 weeks postpartum). Six serious adverse events were reported in the treatment phase, all considered pregnancy-related; only 1 (gestational diabetes) was considered possibly related to darunavir/ritonavir. Three of 16 infants were born prior to 37 weeks (33, 36 and 36 weeks), there were no birth defects, and all infants were HIV-1–negative (standard PCR testing).

Conclusions: Despite lower darunavir exposure during the 2nd and 3rd trimester of pregnancy compared to postpartum in this small study of HIV-1-infected women without darunavir resistance-associated mutations, darunavir/ritonavir 800/100mg once-daily provided adequate exposure to achieve viral suppression
and was safe and well tolerated. There was no MTCT.

Conflict of interest: Employees of Janssen

Abstract: 02

Contraception, pregnancy, breast feeding, and PMTCT

Pharmacokinetics (PK) of Etravirine (ETR) in HIV-1–Infected Pregnant Women

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Introduction: Antiretroviral (ARV) therapy during pregnancy has dramatically reduced the risk of mother-to-child transmission. Physiologic changes during pregnancy can affect the PK of ARVs.

Material/Methods: Phase IIIb study evaluating HIV-1–infected pregnant women (age ≥18 years), in the 2nd trimester of pregnancy, receiving ETR 200mg bid with other ARVs. ETR plasma concentrations were assessed predose and 1, 2, 3, 4, 6, 9 and 12 hours postdose during the 2nd and 3rd trimesters and (6-12 weeks) postpartum. ETR PK parameters were derived using non-compartmental analysis. Safety and efficacy were investigated at each visit and summarized using descriptive statistics.

Results: Fifteen women (11 black, 2 Hispanic, 2 white) were enrolled; 13 had evaluable PK. ETR AUC24h, Cmin and Cmax were higher by 46% (LS Means ratio, 90% CI: 1.46, 1.12-1.90), 131% (2.31, 1.26-4.22) and 39% (1.39, 1.15-1.67) during the 2nd trimester and by 28% (1.28, 0.98-1.69), 93% (1.93, 1.03-3.61) and 31% (1.31, 1.08-1.59) during the 3rd trimester, versus postpartum. ETR post-partum PK was comparable to historic controls in HIV-1 infected subjects (DUET). Though mean ETR exposures during pregnancy were higher compared to postpartum, the observed exposures were still in range with those previously observed in HIV-1 infected subjects treated with ETR 200 mg bid. Unbound ETR PK will be explored. Median baseline (BL) viral load (VL) was 49 copies/mL; for one woman, BL VL was 54,000 copies/mL and remained detectable throughout the study. All other women had VL<400 copies/mL during pregnancy (>90% had VL<50 copies/mL). The median increases in CD4 from baseline were 29 and 45 cells/mm3 for the 2nd and 3rd trimester respectively, and were >100 cells/mm3 postpartum. Four subjects had serious adverse events (SAEs), none of which were at least possibly related to ETR (premature rupture of membranes; hypertension; headache; and one subject had 3 SAEs: pregnancy induced hypertension [twice] and premature labor). One subject had a treatment emergent adverse event (atopic dermatitis) that was at least possibly related to study drug. All infants were HIV-negative.

Conclusions: ETR exposure increased during pregnancy; this was not associated with an increased occurrence of SAEs. The regimen was well tolerated. Virologic response was maintained throughout the study and there was no mother-to-child transmission. These data indicate ETR 200 mg bid could be a treatment option for HIV-1 infected pregnant women.

Conflict of interest: Employees of Janssen
Abstract: 03

Contraception, pregnancy, breast feeding, and PMTCT

Low prolactin and high 20alpha-HSD may contribute to cART-induced progesterone deficits in pregnancy

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Introduction: Combination antiretroviral therapy (cART) has been linked to small birth weight, preterm delivery and other pregnancy complications. Our earlier results demonstrated that cART exposure was associated with decreased levels of progesterone (P4) mid-pregnancy in HIV-positive (HIV+) cART exposed women, which correlated with birth weight percentiles. In mice, progesterone supplementation improved fetal weight deficits induced by cART. In this study we investigated the molecular mechanisms leading to cART-associated P4 level alterations.

Methods: Expression levels of key enzymes of P4 synthesis and metabolism were assessed by qPCR on placenta tissue from HIV+ cART-exposed (Study group, N=33) and HIV-negative women (Control group N=15). Plasma P4 and human prolactin (hPL) levels were quantified at gestational week 33-37 by EIA. Human choriocarcinoma (BeWo) cells were treated with increasing doses of hPL for 24h, 20αHSD expression and P4 levels were measured by qPCR and EIA respectively. P4 levels in cART-exposed BeWo cells were assessed with or without 20αHSD inhibition.

Results: Similarly to our findings at mid-gestation, P4 levels were significantly lower in the study group compared to the control group (median [IQR]: 131.0 [93.3-158.9] vs. 171.1 [139.6-198.8] ng/mL respectively, p=0.014). Placental expression of most P4 metabolism enzymes was similar between groups. Only the P4-eliminating enzyme 20αHSD was significantly higher in the study group (median [IQR]: HIV+ 2.81 [0.89-26.05] vs. control 1.09 [0.623-1.56] arbitrary units, p=0.0084). hPL, the main regulatory hormone for 20αHSD, was significantly lower in the study group compared to controls (median [IQR]: 0.50 [0.38-0.72] vs. 0.77 [0.48-0.89] ng/mL, respectively, p=0.043). 20αHSD expression significantly correlated with hPL levels in women's plasma at GW 33-37 (Spearman' r=-0.822, p<0.0001). In BeWo cells hPL down-regulated 20αHSD expression and P4 production in a dose-dependent manner (p <0.0001). cART exposed BeWo cells produced significantly less P4 compared to controls (median [IQR] 2.8 [2.5-3.1] vs. 3.6 [3.5-3.7] ng/mL, p=0.028). P4 levels were restored by inhibiting 20αHSD activity (3.6 [3.4-4.0] ng/mL).

Conclusions: Our data suggest that low P4 levels observed in cART-exposed HIV+ pregnant women could be the result of higher levels of 20αHSD induced by low hPL levels. We describe a new mechanism by which cART maybe influencing maternal hormone balance during pregnancy, and identify potential new therapeutic targets that may improve birth outcomes for HIV+ women on cART.

No conflict of interest
Abstract: 04

Contraception, pregnancy, breast feeding, and PMTCT

Pregnancy rates among HIV-positive women using various forms of antiretroviral therapy and contraceptives in Kenya

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Introduction: Given the concerns raised by recent analyses regarding efavirenz (EFV) reducing the efficacy of subdermal contraceptive implants, we sought to determine if pregnancy rates differ among HIV-positive women using various family planning (FP) methods and antiretroviral therapy (ART) regimens.

Methods: We conducted a retrospective analysis of a longitudinal cohort of HIV-positive women from 18 to 45 years of age enrolled in HIV care facilities in western Kenya from January 2011 to December 2013. The primary outcome was incident pregnancy diagnosed clinically. FP method and ART regimen were documented at each clinic visit. Repeated observations were created when women changed FP method or ART regimen categories. We used multivariate Cox proportional hazards models, adjusting for demographic, behavioral, clinical factors, and repeated measures, to compare pregnancy rates among women on different FP/ART combinations.

Results: 9,990 women contributed 30,125 observations with 823 incident pregnancies. Among women using implants, incident pregnancy rates for EFV- and nevirapine (NVP)-based ART users were similar at 4.1 (95% CI 1.5-11.0) and 5.0 (95% CI 1.9-13.4) per 100 women-years (w-y), respectively. Among women using depomedroxyprogesterone acetate (DMPA), a hormonal contraceptive injected subcutaneously every three months, incident pregnancy rates for EFV- and NVP-based ART users were 12 (95% CI 8.0-17.3) and 17 (95% CI 11.7-25.1) per 100 w-y, respectively. In the multivariate Cox proportional hazards models, which included complete data on all variables from 4,105 women, we did not find a statistically different hazard of incident pregnancy among NVP-based compared to EFV-based ART users (aHR 1.0, 95% CI 0.79-1.3). However, DMPA compared to implant use was associated with a greater hazard of incident pregnancy (aHR 3.6, 95% CI 1.9-6.9).

Conclusions: Implant use among women receiving NVP- and EFV-based ART resulted in similar incident pregnancy rates, and implant users had a significantly lower incident pregnancy rate compared to DMPA users. Our findings are reassuring that EFV-based ART does not appear to decrease the clinical effectiveness of hormonal contraceptives, including implants, though the efficacy of implants versus DMPA combined with ART merits further investigation.

No conflict of interest
Abstract: 05

Contraception, pregnancy, breast feeding, and PMTCT

Adolescents at Increased Risk of Mother to Child Transmission of HIV in South Africa

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Introduction: South Africa has the highest burden of childhood HIV infection globally, and has high rates of adolescent pregnancy. To explore risks associated with pregnancy in adolescent HIV-infected women we compared mother-to-child HIV transmission (MTCT) and maternal and infant health outcomes between adolescents and non-adolescent pregnant women in a high HIV prevalence district in South Africa.

Methods: A cohort of HIV-positive pregnant women and their infants were followed at three urban sentinel surveillance facilities. Enhanced routine clinical data were collected. Adolescents were defined as ≤19 years at the first antenatal visit. Multivariable log-binomial regression was used to compare outcomes between maternal age categories.

Results: 956 mother-infant pairs were included, of whom 65 (6.8%) were adolescents. Adolescents had an increased risk of being unaware of their HIV status when booking (adjusted risk ratio [aRR]=1.56 [95% CI: 1.34-1.82]); an increased risk of not receiving ART by delivery (aRR=1.32 [95% CI: 1.23-1.38]); an increased risk of being unbooked before labour (aRR=3.24 [95% CI: 0.96-10.9]) and increased maternal mortality (aRR=35.1 [95% CI: 2.89-426]). Stillbirth amongst adolescent and non-adolescent women was 9.4% and 4.5%, respectively, aRR=3.40 [95% CI: 1.61-7.20]. MTCT at 6 weeks was 8.3% and 3.1% amongst infants of adolescent and non-adolescent mothers, respectively, aRR=2.94 (95% CI: 1.01-8.60).

Conclusion: Adolescent pregnant women had increased MTCT and poorer maternal and infant outcomes. Interventions targeting adolescent girls are increasingly needed to reduce pregnancy, HIV infection, MTCT and to improve maternal and infant outcomes.

No conflict of interest
Abstract: 06

HIV prevention in women

Progesterone Increases are Associated With HIV Susceptibility Factors in Women

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Background: Native progesterone and progestin-based hormonal contraception are suspected of increasing women's risk for acquiring sexually transmitted HIV. How progesterone and progestin-based contraceptives affect HIV target cells in women is uncertain. We investigated whether a population of HIV target cells in women, CD4 T lymphocytes, changes cell surface expression of the HIV CCR5 coreceptor, cell activation markers and response stimulation throughout a normal menstrual cycle.

Methods: Peripheral blood mononuclear cells (PBMCs) isolated from 7 women at 5 time points throughout their normal menstrual cycles were tested for expression of the HIV coreceptor CCR5 and the activation marker CD38 using flow cytometry. PBMCs were also stimulated ex vivo in the presence of Golgi transport inhibitors and intracellular production of IL-2, IFN-g and TNF-a was detected using flow cytometry. Plasma estradiol and progesterone were measured at each time point using a luminex multiplex assay. A sustained rise in plasma progesterone levels marked the beginning of the luteal phase of the menstrual cycle.

Results: The proportion of CCR5 and CD38 expressing CD4 memory T cells increased from 4% to 7% (p=0.03) from the follicular to luteal phase in 6 of 7 women. The proportion of ex vivo stimulated CD4 T cells with detectable intracellular TNF-a increased from 31% to 52% (p=0.006) from the follicular to the luteal phase while production of intracellular IL-2 and IFN-g remained unchanged. Increased populations of TNF-a producing cells were associated with higher plasma progesterone levels (p=0.04). The increase in TNF-a production occurred almost exclusively in cells which were also expressing IL-2 or both IL-2 and IFN-g. Time points with detectable increases in TNF-a production were the same or immediately preceding those where CCR5 and CD38 expression increased in 6 of 7 women. Estradiol levels were not associated with changes in CCR5, CD38, or ex vivo cytokine production.

Conclusions: Our results suggest that increases in endogenous progesterone during the luteal phase of the menstrual cycle are associated with HIV target cells that have increased expression of the HIV coreceptor CCR5, higher activation levels, and an increased response to stimulation. Knowing if these progesterone effects exist in the genital mucosa of women could be an important measure for identifying risk factors of progestin-based hormonal contraceptives.

No conflict of interest
Abstract: 07

Women Living with HIV: Adolescence through Menopause

The Association Between HIV Disclosure Status and Perceived Barriers to Care Faced by Women Living With HIV: The ELLA Study

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Introduction: Despite the reported association between HIV status disclosure and improved health outcomes, women are less likely than men to disclose their status. The ELLA study assessed global and regional barriers to access to care affecting women living with HIV in 4 global geographic regions (Latin America, China, Central/Eastern Europe, and Western Europe/Canada). This analysis examines the relationship between perceived barriers to care faced by women with HIV and disclosure of HIV status.

Materials & Methods: ELLA was a cross-sectional, non-interventional, cohort study that enrolled women ≥18 years of age who had HIV-1 infection for ≥3 months, using a non-random sampling frame. Women completed the self-reported 12-item Barriers to Care Scale (BACS) questionnaire (among other questionnaires). Women who answered ≥6 BACS items were included in the analysis and categorized by HIV disclosure status (i.e., 'disclosed' [had revealed their HIV status to close/intimate relations, extended relations, or had complete disclosure] or 'non-disclosed' [had not disclosed their status to anyone outside of the healthcare system]). The analyses of interest included the relationship between HIV disclosure status and severity scores for each BACS category subscale (geography/distance barriers, medical and psychological service barriers, community stigma barriers, and personal resource barriers) and individual BACS items. BACS severity scores ranged from 1 to 4 (higher scores indicate increased severity). Between-group comparisons were assessed using Mann-Whitney test (for continuous variables) or Chi-square test (for categorical variables).

Results: Of 1945 patients enrolled, 1929 were included in the analysis (disclosed, n=1724; non-disclosed, n=205). Of disclosed patients, 85.9% had disclosed their HIV status to a close/intimate relation, 9.6% to extended relations and 4.5% had full disclosure. 'Disclosed' participants were younger (mean age, 39.9 vs 42.0 years for disclosed and non-disclosed, respectively; \(P\)=0.008), diagnosed with HIV for longer (median time, 8.0 vs 6.3 years; \(P\)=0.02), more likely to live with a partner (57.9% vs 32.7%; \(P\)<0.0001), and received more support from family or friends (64.4% vs 23.4%; \(P\)<0.0001) versus 'non-disclosed' participants. Mean BACS severity scores for medical and psychological service barriers and most personal resource barriers were significantly lower for the disclosed group (1.6–1.7, medical/psychological services; 1.9–2.6, personal resource barriers) compared with the non-disclosed group (1.8–2.1 and 2.4–3.9, respectively; \(P\)≤0.02 for all). Community HIV/AIDS stigma and the lack of community HIV/AIDS knowledge, employment opportunities, supportive work environments, and personal financial resources were reported as severe (ie, mean severity score ≥2) barriers to care by both groups. Statistically significant \((P\leq0.03)\) differences in BACS item severity scores were observed between disclosure groups for the declination to provide direct care to persons with HIV/AIDS, the lack of trained HCPs in AIDS care, transportation, mental health HCPs, psychological support, supportive work environments, personal financial resources, and adequate/affordable housing.
Conclusions: Non-disclosure of HIV status is associated with more severe barriers to accessing healthcare services by women. Factors contributing to their non-disclosure and lack of support require further investigation to improve access to care.

Conflict of interest: M-JF, MM-T, and JVW are employees of AbbVie Inc. and may hold AbbVie stock or options.
**Abstract: 08**

**Comorbidities in HIV infected women**

**Immunogenicity of the Quadrivalent HPV Vaccine in HIV Positive Women**

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**Background:** HPV vaccines have demonstrated high immune response and effectiveness in preventing HPV infection and cervical dysplasia in HIV-negative women, but data is limited in HIV positive women.

**Methods:** An open labeled, multi-centered study of seroresponsiveness to the quadravalent HPV vaccine in HIV-positive females completed enrollment in December 2012. Genotype specific HPV (DNA) infection was determined by Linear Array, and HPV antibody (AB) levels were measured by Merck cLIA assay to HPV 6/11/16/18 at baseline, and months 2, 7 (1 month post 3rd vaccine), 12, 18 and 24. Generalized linear models were used to estimate the ratio of geometric mean titers (GMT) between those with suppressed (<50 copies/mL) and unsuppressed HIV viral load (VL) at baseline after adjusting for age. In the subset of women aged 24-45, one sample t-tests were used to compare GMTs observed in this study with published age matched values for the general population (GP).

**Results:** Data for 308 women aged 16-66 who received ≥1 dose of vaccine were available; 190 women who received 3 doses of vaccine within 1 year and had 1 month post 3rd vaccine AB data available were included in the per protocol analysis. HPV type-specific analyses were limited to those who were AB negative at baseline and DNA negative up to month 7 for ≥1 HPV type. Median (IQR) age was 39 (32-45); 43% were black, 36% white, 21% other; 15% were IDU. Median (IQR) baseline CD4 was 510 (380-695), CD4 nadir was 230 (120-340) and 71% had a suppressed VL. The overall seroconversion rate was 98.9% (96.1-99.0).

Compared to published GP GMTs, HIV-positive women aged 24-45 had significantly lower GMTs at month 7 for each HPV type but only HPV-11 was significantly lower by month 24. All results were similar when all women who received at least 1 dose of vaccine were included.

**Conclusion:** Although seroconversion rates were higher than anticipated in HIV positive women, their peak AB levels were significantly lower than those of HIV negative women. Compared to HIV positive women whose VL was not suppressed at the time of first vaccination, those with suppressed VL had a 2-3 fold higher antibody response that was sustained through the end of the study. Future research will be needed to determine the rate of decline in AB titers and the need for booster doses.

No conflict of interest

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Abstract: 09

Epidemiology of HIV in women and girls

A description of the demographic profile and reproductive choices of women living with HIV in the Russian Federation: cross-sectional survey


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Introduction: In 2013, women represented ~50% of new HIV-infections in the Russian Federation. HIV mother-to-child transmission (MTCT) also remains higher in Russia than in developed countries. To enable greater epidemiological characterization for better management of this population, this study investigated the demographic profile, HIV disease characteristics, co-morbidities and reproductive choices of HIV+ women attending routine medical care in the Russian Federation.

Materials & Methods: This was a cross-sectional survey of HIV+ women aged ≥18 years attending a routine clinical visit across 10 Russian regions: Moscow, St Petersburg, Volgograd, Vladikavkaz, N. Novgorod, Kurgan, Irkutsk, Novosibirsk, Chelyabinsk, and Vladivostok. A proportional quota sampling method was used with respect to regional and age distribution of HIV+ women. Collected data were summarized using descriptive statistics.

Results: A total of 1131 HIV+ women were enrolled from 10 clinical sites. The majority (73.3%) were aged 18-35 years. The majority (69.9%) were in relationships, of which nearly half with an HIV+ partner. Most (76.4%) reported school or college education, and 60.2% were employed. According to the Russian classification of HIV infection stages, subclinical and secondary condition disease stages were 48.8% and 47.5% at enrolment respectively. Average HIV infection duration was 4 years. The mean CD4+ count was 481.4 (SD 243.0) cells /mm³ with 40.9% at >500 cells /mm³ and 70.2% >350 cells /mm³. The median HIV RNA load was 225.0 copies/mL. The majority (64.4%) received ARVs, with NRTIs administered to 91.8%, boosted PIs to 75.3%, and NNRTIs to 18.7%. Most patients reported high ARV adherence. The majority were infected by heterosexual contact (71.6%) or IVDU (24.7%). The reasons for HIV testing were: pregnancy (31.7%), known sexual risk behavior or known HIV+ partner (18.7%), IVDU (14.2%) and prophylactic screening (13.7%). The most frequent concomitant disease was HCV (39.3%). The majority (92.0%) had a normal menstrual cycle. More than 80% reported a sole sex partner, with 55.4% reporting unprotected sex within 3 months prior to study entry. Male condoms were the preferred method of contraception in 60%, with 1.9% using oral contraceptive pills. Many (38.2%) did not use any contraceptive method. Pregnancy in medical history was reported by 76.0% of patients; with 45.4% reporting pregnancy after HIV+ diagnosis. At enrolment, 18.1% patients were pregnant. Most current pregnancies were planned (64.9%), but the majority of previous pregnancies were unplanned (61.8%). Frequencies of ART use to prevent MTCT in previous pregnancies were higher in younger women (18-25 years) [85.3% before birth, 88.2% during childbirth and 84.3% post-natal] compared to older women (36-45 years) [63.8% before birth, 69.0% during childbirth and 67.2% post-natal] (p <0.05). Percentage of HIV+ newborns was significantly lower in younger vs. older women (2.0% vs. 29.3% respectively [p <0.0001]).

Conclusions: This is the first reported epidemiological study of this type for HIV+ women in Russia. IVDU-associated infection and HCV co-infection were common, and younger patients had improved MTCT outcomes compared to older patients. The results may be useful for guiding management to support HIV+ women and reducing MTCT.

No conflict of interest
Abstract: 10

Diagnosis and treatment of HIV infection

Longer Duration of cART During Pregnancy is Associated with Improved Postpartum Retention in Care

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Background: Improving retention in care among pregnant women initiating combination antiretroviral therapy (cART) during pregnancy is essential to reducing HIV transmission. Shorter duration of cART during pregnancy signals less engagement in care and may help to identify women more likely to be lost to follow up (LTFU) after delivery.

Methods: We used log binomial models to estimate risk ratios (RR) for the association between duration of cART during pregnancy and LTFU or death at multiple time-points postpartum, among HIV-infected women in Lusaka, Zambia. We included women who initiated cART during pregnancy, had a CD4 count ≤350 and who delivered in a public-sector facility between January 1, 2009 and September 1, 2010. We excluded women who died during pregnancy or up to 42 days after delivery. Women were followed from delivery until date of first LTFU, death or administrative censoring on February 1, 2011. LTFU was defined as not presenting to HIV care within 60 days of the last scheduled appointment and women were marked as LTFU on the 61st day after a missed appointment. Duration of cART was categorized at 1-4 weeks (referent), >4-8 weeks, >8-12 weeks and >12 weeks. Multivariable estimates were adjusted for baseline CD4 count, BMI, parity and enrollment in pre-ART care prior to starting HIV treatment.

Results: The 2,102 women included in our analysis cohort were followed for a median of 25 weeks and contributed 62,195 person-weeks of follow-up. Overall, 950 (45%) women were LTFU and 10 (0.5%) died ≥42 days postpartum. Nearly half of all events (n=460) occurred within 20 weeks postpartum, 87% by 44 weeks (n=835) and 97% by 60 weeks postpartum (n=932). Because women were not categorized as LTFU until 61 days after a missed appointment, these time points correspond to a missed appointment at 12, 36 and 52 weeks after delivery. At 20 weeks postpartum, we observed decreased risk for LTFU or death among those with >4-8 weeks (RR 0.77, 95% CI 0.61, 0.97), >8-12 weeks (RR 0.62, 95% CI 0.49, 0.80) and >12 weeks (RR 0.57, 95% CI: 0.45, 0.72) of cART when compared to women receiving 1-4 weeks of cART. As we extended the length of follow-up, the risk for LTFU or death persisted but its magnitude appeared to diminish. At 44 weeks postpartum, for example, we observed the following RRs for those on cART: >4-8 weeks (RR 0.91, 95% CI 0.79, 1.07), >8-12 weeks (RR 0.79, 95% CI 0.67, 0.92) and >12 weeks (RR 0.64, 95% CI: 0.55, 0.75). At 60 weeks postpartum, the RRs for LTFU or death were as follows: >4-8 weeks (RR 0.92, 95% CI 0.81, 1.05), >8-12 weeks (RR 0.83, 95% CI 0.72, 0.95) and >12 weeks (RR 0.69, 95% CI: 0.59, 0.79).

Conclusions: Earlier initiation of cART during pregnancy was associated with a decreased likelihood of LTFU after delivery. Duration of cART during pregnancy may serve as a useful tool for identifying women at higher risk for postpartum attrition.

No conflict of interest
Abstract: 11

Comorbidities in HIV infected women

Factors Associated with Intimate Partner Violence amongst HIV-Positive Women in South-West Nigeria

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Introduction: Domestic violence among Nigerian women increased from 21% in 2011 to 30% in 2013. An estimated two-thirds of these women suffer violence perpetuated by intimate male partners. Prior studies in Nigeria have shown a correlation between HIV positivity and domestic violence, in women. This study was designed to identify different forms of, and factors associated with Intimate Partner Violence (IPV) amongst women living with HIV in South-Western Nigeria.

Materials & Methods: This cross-sectional survey was conducted at the ART clinic of a tertiary health facility catering to >1,500 women living with HIV. A structured questionnaire was used to collect socio-demographic and intimate relationship data from women. Information regarding IPV before/after HIV status disclosure and consequence(s) of the experience(s) were collected. IPV forms were defined as physical, sexual, and psychological according to the WHO definition on violence. Characteristics of respondents who reported IPV were compared to those who did not. Multivariate logistic regression analysis was used to analyze factors that were independently associated with IPV.

Results: A total of 328 consented women were interviewed, representing ~ 22% of women living with HIV accessing care at the facility. Mean age of respondents was 33.1± 0.73 years. Nearly 70% (226/328) of women knew their partner’s HIV status for the previous 12 months; 32.6% had an HIV- positive, and 36.9% had an HIV-negative partner. In total, 35.1% (115/328) of women experienced any form of IPV. Psychological violence ranked highest (62/115, 53.9%) among respondents’ IPV experiences, followed by physical (34.8%) and sexual violence (33.7%). There was a 62.8% (206/328) HIV disclosure rate to partners; 79/206 (38.3%) admitted experiencing pre-disclosure IPV, with 40/79 (50.6%) experiencing physical, 39/79 (49.4%) sexual and 62/79(78.5%) psychological violence. On the other hand, 115/206 (55.8%) experienced IPV post-disclosure (p=0.0004 compared to pre-disclosure IPV), with 58/115 (50.4%) experiencing physical, 71/115 (61.7%) sexual and 113/115 (98.2%) psychological violence. There was a wide gap in IPV rate between non-disclosed and post-disclosed women (11/115 (9.0%) vs. 104/115 (90.4%) (p< 0.001). Correlates for post-disclosure IPV were HIV+ partner (p<0.0001), older partner age ≥40yrs (p<0.0001), lower level of partner’s education (p=0.004), higher alcohol intake by partner (p=0.001), cohabitation (p=0.002), marriage (p=0.03), and >1 current sexual partners (for male partner p=0.02, for respondent p< 0.0001).

Conclusion: HIV status disclosure increases the risk of IPV in women living with HIV. Post-disclosure IPV rate (55.8%) was markedly higher than the national domestic violence rate (30.0%). Post-disclosure IPV rate strongly correlated with HIV-positive status of the male partner, and multiplicity of sexual partners, likely predisposing to nondisclosure among partnered women, decreased uptake/access to care, and increased HIV transmission to exposed infants and partners. This has dire consequences for positive living among women, and for HIV control in general. We recommend community-wide IPV education during HIV testing and counseling outreaches, and focus on HIV+ male partners in high-burden areas. Couples’ HIV testing and counseling should also be encouraged, to minimize harm to women living with HIV.

No conflict of interest
Abstract: 12

Women Living with HIV: Adolescence through Menopause

The Canadian HIV Women's Sexual and Reproductive Health Cohort Study (CHIWOS): an evaluation of women-centred HIV care (WCC)


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Background: National cohort studies on women with HIV are limited, with the most notable exception being the Women's Interagency HIV Study (WHIS) in the United States, initiated in 1993. In addition, critical health research regarding the care and health outcomes of women with HIV is only now emerging with an evolving discourse regarding the concept of women-centred HIV care (WCC). CHIWOS was developed to evaluate access and the impact of WCC on overall (i.e. quality of life), mental (e.g., depression), and women's health outcomes (e.g., cervical cancer screening), reproductive (e.g., contraceptive use, pregnancy), sexual (e.g., satisfaction, functioning) among women with HIV in Canada.

Methods: CHIWOS is enrolling over 1,400 women (self-identified, trans gender inclusive) with HIV (≥16 years) in British Columbia (BC), Ontario (ON), and Quebec (QC), with plans to expand to additional provinces, using a community-based research approach. Participants complete a peer research associate (PRA)-administered questionnaire at baseline and 18-months that includes questions concerning medical history, use of clinical and social services and WCC, health outcomes, substance use, experiences of violence, stigma and discrimination, food and housing security, and other social determinants of health. This analysis provides a description of the socio-demographic and clinical characteristics of CHIWOS participants and perceptions of WCC usage.

Results: To date, CHIWOS has enrolled 1,077 women with HIV (271 from BC [25%], 563 from ON [52%], 241 from QC [22%]). Median age is 43 years (range, 16-73). Participants represent diverse communities: 24% identified as Aboriginal, 25% as African, Caribbean, or Black Canadian, and 41% as Caucasian. Overall, 32% and 15% reported injection drug use and sex work histories respectively, and 9% and 32% reported being diagnosed with hepatitis B and C co-infection respectively. Overall, 83% of women were currently taking antiretroviral therapy and 76% reported an undetectable viral load. Of the 1,004 women who received HIV medical care in the last year, 50% and 53% perceived that the care they received from their primary HIV clinic and doctor, respectively, had been women-centred.

Conclusions: CHIWOS is Canada's largest national cohort driven by, with, and for women with HIV. Using CHIWOS, we hope to evaluate the impact of WCC and examine variations in treatment and health outcomes within a universal health care system to improve the health, care, and well-being of diverse communities of women with HIV.

No conflict of interest
Abstract: 13

Women Living with HIV: Adolescence through Menopause

“Research Shouldn´t Sit on a Shelf” - Optimizing the Health of Ontario Women Living with HIV Through Knowledge Translation and Exchange

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Background: Although HIV infection rates are rising among women in Canada, there remain large gaps in knowledge on the impacts of HIV on this diverse population. The 2010 women’s community-based research (WCBR) project ‘Involving Ontario HIV-Positive Women and their Service Providers in Determining their Research Needs and Priorities’, aimed to address these gaps. Consequently, an innovative knowledge translation and exchange (KTE) strategy was then developed to mobilize the findings collected from the WCBR project that used the participants' own voices and stories.

The WCBR project utilized a mixed-methods approach to determine research needs and priorities of women living with HIV (WLWH). Large amounts of data highlighting the needs and challenges facing WLWH were generated including: barriers to access, intersections with multiple systems of oppression, research priorities to inform services and programs for better health outcomes, and strategies to support participation of WLWH as partners in research and practice. The objective of our presentation is to highlight the multipronged KTE methods used to share these findings.

Methods: The main component of the KTE strategy was a digital storytelling workshop involving WCBR participants and community-based HIV researchers. The videos created illustrate the complex lives of WLWH, and the importance of HIV research for and by women. The videos share the results of the WCBR project and enable dialogue about the importance of translating research knowledge to the wider community. Additional KTE components included:

1. Convening regional KTE meetings/fora bringing together target audiences to discuss results from the study, and future steps in both research and practice
2. Development of a community report summarizing the WCBR project
3. Manuscript publications in open access journals
4. An interactive website combining all KTE components as a stigma-reduction tool tailored for use by target audiences

Results: The WCBR KTE strategies effectively disseminated study findings and their translation into action among diverse audiences with increased transparency of the research process. They targeted 5 distinct but overlapping target audiences: service users, community leaders/advocates, service providers, researchers and policy makers. Key results of the KTE strategy were:

- Over 700 views of Digital Storytelling videos on YouTube
- 11 Community Forums/video screenings across Ontario
- Community report disseminated via print & online
- 7 papers published in peer-reviewed journals

The reception and uptake of the KTE components were very positive, and multiple service providers across Ontario are now using the videos in their own work with WLWH. The research and feedback from the community also supported the conceptualization and development of intervention to deal with intersectional stigma and an interactive website/stigma-reducing tool.

Conclusions: The WCBR project and the subsequent KTE strategies utilize multiple mediums, address barriers to knowledge uptake, and emphasize the co-ownership of the research process. Through these approaches we gained insight into the complex lives of WLWH, including intersecting identities, social determinants of health, and the systems through which they navigate and/or provide services. We also gained deeper understanding and appreciation of using multi-media tools for
community-based KTE, and creating population-specific KTE strategies for research projects.

No conflict of interest

Abstract: 14

Diagnosis and treatment of HIV infection

Is the gender difference in virological response to ART declining over time?

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Introduction: There is evidence in developed countries of higher rates of virological failure to ART among women, and men who acquired HIV through sex with women (MSW), than men who acquired HIV through sex with men (MSM). We investigated whether differences in response to ART by gender/sexual orientation persist in recent time periods, and whether differences are decreasing over time.

Method: We included previously ART-naive individuals with a sexual risk for HIV transmission attending the Royal Free Hospital, London starting ART between January 2001-July 2013 (baseline), with a viral load (VL) measurement between 12 and 18 months after baseline (VL closest to 12 months). We assessed the proportion of each gender/sexual orientation group (MSM, MSW, women) with virological failure, defined as VL>200 copies/mL, according to year of ART initiation. We used logistic regression adjusted for ethnicity, age and ART regimen to assess whether the association between gender/sexual orientation and virological failure changed over time using a test for interaction. We repeated analyses considering virological failure after 24 months of ART (first VL between 24 and 30 months after baseline).

Results: 986 (52%) MSM, 354 (19%) MSW and 546 (29%) women were included. For MSM, MSW and women respectively, 82%, 25% and 14% were of white ethnicity, median baseline age was 38, 41 and 36 years and median baseline CD4 was 269, 155 and 205 cells/mm³. Across all three subgroups, percentages with virological failure after 12 months of ART were improved in later years (p<0.001). Of those starting ART in 2000/2001, 14% of MSM, 26% of MSW and 34% of women had VL>200 copies/mL at 12 months. Of those starting ART in 2004/2005, these values were 7%, 16% and 24%, respectively. For those starting ART between January 2010-July 2013, these figures were 3%, 8% and 14%. The differences could be explained by higher ART discontinuation: 5% of MSM, 3% of MSW and 12% of women at 12 months. In logistic models adjusted for ethnicity, age and ART regimen, differences in virological failure proportions in women (p<0.0001) and MSW (p=0.0210), compared to MSM were apparent at each calendar year of starting ART. The interaction term between gender/sexual orientation and year of ART initiation suggested no evidence that the differences in 1-year virological failure rates between the groups were narrowing or widening over time (p=0.2534). However, there was evidence of an interaction at 2 years of ART (p=0.0099), with women experiencing significantly smaller improvements in virological response over time than MSM.

Conclusion: Overall virological failure rates are now low, but women and MSW remain more likely to experience virological failure than MSM, even in the most recent time periods. There is no evidence that this difference is narrowing for those starting ART in more recent years. The effect of socio-economic status, migrant status and lifestyle factors are likely to contribute to the differences seen. These findings highlight that in this developed setting with universal free access to healthcare, women are at higher risk of virological failure. Efforts to reduce this difference need consideration.

No conflict of interest
Abstract: 15

Diagnosis and treatment of HIV infection

Gender and Race Differences in Persistence of HIV Treatment Regimens

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Background: HIV-infected women are more likely to be diagnosed with HIV and more likely to be linked to HIV care. However, long-term clinical outcomes have been reported to be the same if not worse for women in comparison to men. Despite better linkage to care, the proportion of women who achieve HIV viral load suppression is the same as in men and mortality rates are higher. Limited information exists regarding gender and race differences in antiretroviral (ARV) treatment persistence and discontinuation, which potentially could explain unfavorable clinical outcomes among women. Therefore, the objective of this study has been to determine potential differences in ARV discontinuation rates stratified by gender and race.

Materials & Methods: A retrospective cohort study including 422 HIV+ individuals attending an urban outpatient clinic in Birmingham, AL, was conducted ascertaining rates and reasons for change or discontinuation of ARV treatment. A regimen was considered discontinued/changed if any ARV within the regimen was discontinued or if any additional ARV was added. Changes in therapy lasting less than 14 days were not considered in this analysis. Patients were included if their first clinic visit was between January 2004 and February 2009 and were ARV naïve at the time they initiated care at the clinic. Variability and frequencies in reasons for discontinuation/change of ARV treatment are described stratified by gender and race. Time to individual regimen discontinuation was modeled using Cox proportional hazards regression. Active regimens were censored at date the data was reviewed. Because many patients have more than 1 regimen the Lin and Wei robust sandwich estimate for the covariance matrix was used. The patient-level count of the number of holiday (off ARV therapy ≥14 days) days was modeled using Poisson regression using the log of the follow-up time as an offset. Models were adjusted for overdispersion using the deviance.

Results: Among 422 HIV+ individuals included in this analysis, 90 (21%) were female and 226 (54%) were African American (64 African American female, 162 African American male, 22 White female, 151 White male and 23 race other/unknown). Two hundred forty three (58%) patients discontinued/changed at least one ARV regimen during a median follow up of 2.8 years, with African American women having a higher hazard of discontinuation/change than White men, who reported the lowest discontinuation rate (HR: 1.6 (CI:1.2-2.2), p=0.004). The overall ARV therapy holiday rate was 13.9 days/year, with African Americans being on ARV therapy holidays more days (17.5 days/year) than Whites (9.4 days/year) (p=0.05). Most frequent reasons for changing ARV therapy for African American Women were: Poor Adherence (49%), other medical conditions (13%), patient/physician choice (11%) and GI toxicities (8%).

Conclusions: Gender and race differences in treatment discontinuation/change may explain some of the differences seen in unfavorable treatment outcomes among female and especially African American female HIV patients. Further investigations into the reasons for higher ARV discontinuation rates and longer ARV holidays among African American females are warranted.

No conflict of interest
Abstract: 16

Diagnosis and treatment of HIV infection

Genotypic Analysis of the Global Clinical Trial of Treatment-naïve Women: WAVES


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Background: Women account for nearly half of the HIV-1 epidemic, but remain underrepresented in most HIV antiretroviral therapy (ART) studies. Women AntiretroViral Efficacy and Safety study (WAVES) is the first women only, international, randomized, double-blind, phase 3 clinical trial designed to evaluate the safety and efficacy of two recommended regimens. Here, the baseline protease and reverse transcriptase (PR/RT) genotypes of subjects in WAVES (Study 236-0128) are presented.

Methods: Eligible HIV-1 infected, antiretroviral treatment-naïve adult women were enrolled in this double-blind 48 week clinical study and randomized 1:1 to elvitegravir (EVG)/cobicistat (COBI)/emtricitabine (FTC)/tenofovir disoproxil fumarate (TDF) or ritonavir (RTV) boosted atazanavir (ATV) plus FTC/TDF. Key entry criteria include HIV-1 RNA>500 copies/mL, estimated GFR>70 ml/min and no prior history of ART. Genotypic analyses of PR/RT and predicted drug susceptibilities were assessed by Monogram Biosciences.

Results: 575 women were enrolled and dosed with study drugs in 11 countries (Belgium, Dominican Republic, France, Italy, Mexico, Portugal, Russia, Thailand, Uganda, UK, and US). HIV-1 with non-B subtype predominated with subtype A being the most prevalent (46%) followed by subtype B (26%). Distinct regional demographic differences (North America, Europe, Africa, Asia) were seen in HIV-1 subtype distribution with subtype A predominantly in Russia and Uganda, and subtype B predominantly in the US. The A62V substitution in RT was highly prevalent in Russia. Transmitted resistance substitutions were present in 34% of the study population; NNRTI-R and NRTI-R were frequent (20% each), and primary PI-R was rare (1.7%). Prevalence of decreased drug susceptibility to specific agents was: rilpivirine (6.2%), nevirapine and etravirine (5.2% each), efavirenz (4.9%), and zidovudine (1%).

Conclusions: The WAVES cohort comprises a diverse demographic population of treatment-naïve women encompassing a global distribution of infecting HIV-1 subtypes. The impact of pre-existing resistance on treatment outcome and resistance development remains to be determined.

Conflict of interest: J.S, K.W and H.C are employees Gilead Sciences
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Contraception, pregnancy, breast feeding, and PMTCT

Peripartum Hair Levels of Antiretrovirals Predict Viral Suppression in Ugandan Women

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Introduction: Combination antiretroviral therapy (ART) is recommended for all HIV-infected pregnant women worldwide. Adequate antiretroviral (ARV) exposure is critical to maintain maternal health and reduce transmission to infants and partners. Hair concentrations are a non-invasive measure of cumulative ARV exposure that integrate adherence and pharmacokinetics and are the strongest predictor of viral suppression in large prospective cohorts. However, hair concentrations of ARVs have not yet been examined in the peripartum period.

Methods: The PROMOTE trial (NCT00993031) enrolled HIV-infected, ART-naïve pregnant Ugandan women at 12-28 weeks gestation who were randomized to initiate lopinavir (LPV) or efavirenz (EFV)-based ART. Small hair samples were collected at 30-34 weeks gestation and 12 weeks postpartum. EFV and LPV hair concentrations were measured via liquid chromatography/tandem mass spectrometry. Multivariate logistic regression models examined predictors of viral suppression (HIV-1 RNA <400 c/ml) at delivery and 24 weeks postpartum in women on ART for ≥6 weeks. Potential predictors included log-transformed ARV hair concentration (interpolated for delivery), age, pretreatment HIV-1 RNA, self-reported adherence, and time on ART.

Results: Among 325 women, mean age was 30 years (SD 5.4) and median CD4 cell count was 366 cells/mm³ (IQR 270-488) at ART initiation. Median time on ART at delivery was 17 weeks (IQR 14-21). Mean self-reported adherence was >97% in each arm. Viral suppression was achieved by 98% (EFV) and 87% (LPV) at delivery and 93% (EFV) and 91% (LPV) at 24 weeks postpartum. In multivariate models including self-reported adherence and pretreatment HIV-1 RNA, ARV hair concentrations were the strongest predictor of viral suppression at delivery (EFV: aOR 1.86 per doubling in concentration [95% CI: 1.14-3.1], p=0.01; LPV: aOR 1.90 [95% CI: 1.33-2.7], p=0.004) and 24 weeks postpartum (EFV: aOR 1.81 [95% CI: 1.22-2.7], p= 0.003; LPV: aOR 1.53 [95% CI: 1.05-2.2], p=0.03).

Conclusions: We examined hair concentrations of ARVs in relation to virologic outcomes in pregnant and postpartum women for the first time. Hair concentrations of EFV and LPV were the strongest predictors of viral suppression at delivery and 24 weeks postpartum, surpassing self-reported adherence and pretreatment HIV-1 RNA. Hair concentrations are an innovative tool for measuring long-term ARV adherence and exposure and may be helpful to monitor women during the critical peripartum period.

No conflict of interest
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Abstracts
Guided Poster Presentations
Abstract: 18

Contraception, pregnancy, breast feeding, and PMTCT

Implementation of Option B Plus: Experience at Mulago Hospital, Kampala, Uganda

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Introduction: In September 2012, just 6 months after World Health Organization (WHO) released their 'Programmatic Update on Use of Antiretroviral Drugs for Treating Pregnant Women', Uganda adopted the 'Option B-Plus' strategy to achieve virtual elimination of Mother to Child Transmission. This policy recommends all pregnant HIV-infected women receive triple antiretroviral therapy (ART) for life regardless of their CD4 cell count or WHO stage and their infants to receive 6 weeks of Nevirapine (NVP) syrup from birth. This PMTCT policy shift results in much longer maternal and infant ART exposure than before. Sustained maternal ART adherence is critical for individual and public health effectiveness. We evaluated early programmatic data from Mulago National Referral Hospital which provides care to around 28,000 pregnant women annually.

Materials & Methods: All pregnant women attending for their 1st antenatal visit at Mulago without known HIV-positive status were offered free routine counseling and HIV testing. All HIV-infected women were counseled and initiated on option B-Plus as per 2012 Ugandan PMTCT policy guidelines. They are also encouraged to deliver at Mulago Hospital and ensure their infants receive NVP syrup. Mothers are counseled to return for a 6 week postnatal visit to receive postnatal services for themselves and their babies. We analyzed routine monitoring program data using the Statistical Package for the Social Sciences (SPSS) version 10 with a focus on the population of pregnant women newly diagnosed with HIV infection through delivery and early postpartum follow-up.

Results: From 16th October 2012 to 31st May 2014, a total of 44,995 women attended for their 1st antenatal visit at Mulago, of whom 10.2% (4,607) were HIV-positive including 3,013/44,995 (6.7%) who knew their HIV-positive status and 1,594/44,995 (3.5%) who were newly identified as HIV-positive. Among the newly diagnosed HIV-positive, 1,277/1,594 (80%) were initiated on Option B-Plus ARV during pregnancy. Of these, 889/1,277 (70%) came back and delivered at the hospital. Of the women who delivered at the Hospital, 609/889 (69%) returned for their 6-week postnatal visit at Mulago.

Conclusions: Among newly diagnosed HIV-positive pregnant women there is a substantial loss at every step of the PMTCT cascade from diagnosis through the early postnatal visit at Mulago Hospital. Effective strategies are urgently needed to support initiation of Option B-Plus ARVs and continued postpartum follow-up of HIV-positive women. Further research is needed to understand the reasons for these low return rates.

No conflict of interest
Abstract: 19

HIV prevention in women

From Clinical Trials to Laboratory Sciences: Does timing of collection of specimen in relation to the menstrual cycle affect innate immune markers?

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Introduction: Inadequate, irrelevant, or inappropriate timing of biological specimen collection during clinical trials is a cause for delay in understanding and explaining correlates of protection and/or effectiveness, particularly at the portal of entry in the context of sexual HIV transmission and its prevention. We aimed to investigate changes in innate immune markers that are associated with increased vulnerability/resistance to HIV infection occurring at fixed time-points in a menstrual cycle in the female genital tract (FGT).

Materials and Methods: Women of reproductive age at low risk for HIV infection were recruited from an HIV vaccine institute. Using a menstrual cup, a concentrate of cervicovaginal fluid (CVF) secretions was collected at three time-points from each woman corresponding to the estrogenic (D5–8), mid-ovulatory (D14–16), and progestogenic (D19–22) phases of a single menstrual cycle. Concentrations of MIP-3α and 23 other soluble proteins with pro-inflammatory, adaptive, chemoattractant, growth and haematopoietic functions were measured using Luminex. Profiles of expression of the main protein categories were described for each time-point and changes in mean concentrations of protein levels were evaluated using one-way analysis of variance (one-way ANOVA).

Results: 11 of the 31 women recruited met eligibility for this analysis: three had underlying genital tract pathology on gross appearance of CVF while eight others did not. Of 24 analytes, 18 had concentrations that were detected within the range of the assay platform. Chemokines and pro-inflammatory cytokines remained the most prevalent proteins in the FGT irrespective of the menstrual phase. Haematopoietic and adaptive cytokines however fluctuated with the menstrual phase. Haematopoietic cytokines were upregulated more in the estrogenic versus other phases while adaptive cytokines were higher in the mid-ovulatory phase. In women without pathology IL-8, IP-10, and IL-1α were in the highest concentrations while in women with pathology IL-6, IL-16, MCP-1, MIP-3α, RANTES, SDF-1, IL-7 and IFN-β were also significantly upregulated. Fold increases ranged from 2 to 100. MIG and MIP-1β were not quantifiable in the absence of CVF abnormalities and hence their presence seemed to suggest some underlying pathology in this cohort.

Conclusion: The majority of soluble proteins in the concentrate of genital tract secretions remain relatively stable over the menstrual cycle. Against the backdrop of sub-compartmentalisation of innate immune markers, it could be said that the effects of hormone fluctuation on innate levels are masked by the type of specimen collected. And hence, specimen collection from the endocervical compartment, a site recently suggested as primary infection site, might be more representative and therefore more appropriate for the indication at hand. Until a comparative analyses of the two specimen types is done, it is difficult to draw firm conclusions at this stage.

No conflict of interest
Abstract: 20

Comorbidities in HIV infected women

Cervical cancer screening in women living with hiv using self-collection based human papillomavirus testing in Uganda

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Introduction: Women living with HIV (WHIV) are at greater risk for acquiring human papillomavirus (HPV) and progression to cervical cancer. Uganda does not have a comprehensive pap smear screening program and has limited practitioners and laboratory facilities for standard pap testing. We hypothesized that self-collected vaginal samples would be a feasible and acceptable method for pre-cancer screening in this vulnerable population.

Methods: A total of 87 WHIV who had previously engaged in a study exploring attitudes towards self collection were contacted and offered to provide a self-collected sample for HPV testing. All women were engaged in HIV care at the time of the study. Consenting women provided self-collected vaginal swabs. The swabs were tested for HPV, N. gonorrhea and C. trachomatis with real-time PCR. Data abstraction from chart review and prior survey data was utilized to explore factors associated with HPV status and uptake of screening, which was defined as providing an HPV sample. In this clinical setting, women do not necessarily receive clinical bloodwork at each visit, but only if symptomatic or not on cART.

Results: The 87 WHIV from our prior survey study were contacted by phone, and 40 women agreed to provide a self-collected sample, while attending the HIV clinic, between February – June 2014. Among women tested, 45% were oncogenic HPV positive, 33% with HPV 16 or 18. In the logistic regression, time since last HIV blood work (>6months) was associated with attendance for HPV screening (AOR= 3.55, 95% CI: 1.30, 9.67; p=0.01). HIV positive women who reported use of oral contraceptives and having blood work in the past 6 months were more likely to be HPV positive (OR=6.65, 95% CI: 1.16, 38.19; p=0.03) and (OR=0.16, 95% CI: 0.03, 0.74; p=0.02) respectively. In the HIV positive women who did not attend for HPV screening, having the time or money to travel to the clinic was the main reason for not attending. There were no cases of N. gonorrhea and C. trachomatis in the study population.

Conclusions: In this group of WHIV engaged in HIV care, there was a high prevalence of oncogenic HPV, a large proportion of which were HPV genotypes 16 or 18. There is a great need for cervical cancer screening in WHIV, which could be achieved through integration of reproductive health and HIV services. Despite high acceptability, only 46% attended screening, suggesting that integrating cervical cancer screening into existing HIV care visits may yield higher uptake.

No conflict of interest
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HIV prevention in women

Cervicovaginal and Rectal Fluid as a Surrogate Marker of Antiretroviral Tissue Concentration: Implications for Clinical Trial Design

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Background: Use of antiretrovirals for HIV prevention and cure initiatives requires a thorough characterization of antiretroviral distribution to mucosal tissues to ensure adequate exposure for protection or treatment. However, the procedures are invasive, and the number of tissue samples collected per individual are limited, thus complicating pharmacokinetic study design. To circumvent these challenges, mucosal fluid collection by direct aspiration (cervicovaginal fluid; CVF) or swab (rectal fluid: RF) have been used as a surrogate for tissue collection. Yet, the degree of correlation between fluid and tissue concentrations has not been well characterized. We conducted a robust pharmacokinetic study to investigate the relationship between tissue and fluid concentrations of 4 antiretrovirals.

Materials and Methods: This open label, dose-ranging study enrolled 48 healthy women given single oral doses of tenofovir, maraviroc, emtricitabine, or raltegravir at 50%, 100% or 200% of the treatment dose. In each woman 13 plasma, 12 CVF, 12 RF and 1 cervical, vaginal and rectal biopsy were collected over 48hrs. Antiretroviral (ARV) concentrations were measured by LC-MS/MS. Fluid and tissue AUC0-48h was calculated by linear trapezoidal rule using WinNonlin® software. Linear and stepwise multiple linear regression were performed on log transformed data using SAS® software. Dose proportionality was declared if the 90% confidence interval (CI) around the slope (β1) of the regression line between AUC0-48h and dose was within 0.64-1.36.

Results: No fluid or tissue concentrations [with the exception of emtricitabine in female genital tract tissue (β1=0.914; 90% CI=0.78, 1.047)], met ARV dose proportionality criteria. However a linear relationship between CVF exposure and dose was observed for maraviroc (R²=0.66, p<0.0001), tenofovir (R²=0.53, p=0.0001) and emtricitabine (R²=0.23, p=0.02). For RF, only emtricitabine exposure increased linearly with dose (R²=0.27, p<0.01). For all ARVs, concentrations in CVF were significantly correlated with female genital tract tissue (R²≥0.4; p≤0.0009) and concentrations in RF were significantly correlated with rectal tissue (R²≥0.53; p≤0.0001). Combining plasma and fluid concentrations into a predictive regression model resulted in improved model predictions for all ARVs in the female genital tract (R²≥0.8; p<0.0001) and rectal tissue (R²≥0.62; p<0.0001). The one exception was tenofovir rectal tissue concentrations, for which use of RF alone resulted in the best correlation (R²=0.89; p<0.0001).

Conclusions: Most mucosal fluid and tissue exposure did not meet dose proportionality criteria. The linear relationship observed between dose and CVF exposure indicates increased female genital tract tissue concentrations with increased dose. In RF however, only emtricitabine exhibited a linear relationship with dose. Incorporating plasma and fluid concentrations into a regression model best predicted tissue concentrations for all antiretrovirals with the exception of tenofovir (which exhibited better model predictions with RF alone). Our findings support the use of mucosal fluid as a surrogate for tissue concentration for some antiretrovirals, and demonstrate the importance of plasma concentrations in imputing these values. These data support the use of plasma and mucosal fluid concentrations as surrogates for tissue drug concentrations, but only after a relationship can be documented.

No conflict of interest
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HIV prevention in women

Willingness to use HIV prevention strategies to conceive with an HIV-infected partner: opinions from HIV-negative women in serodifferent relationships

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Introduction: Thousands of HIV positive men and women are living long and productive lives in the United States. Nearly half of HIV positive heterosexual men have HIV negative female partners. Many women with male partners living with HIV would like to become parents but little is known about their willingness to utilize various interventions to reduce HIV transmission risk. We conducted an online survey of HIV negative women with HIV-positive partners to evaluate the acceptability and willingness to use various HIV prevention strategies in order to conceive.

Materials and methods: Between February 2010 and December 2014 we conducted an anonymous web-based, cross-sectional study among HIV-negative women who were in serodifferent relationships and who wanted to parent now or in the future. Patients were recruited through their providers based at HIV specialty clinics, fertility clinics, and through HIV-related websites and media coverage. Women were referred to a weblink that could be accessed from a personal computer and completed a self-administered, computer-based, confidential survey.

Results: We enrolled 98 HIV-negative women with HIV positive male partners. Participants came from 19 states across the United States. The median age was 32 years (IQR 27-36; range 19-48). Two-thirds (64%) of participants were Caucasian, 26% African American, and 7% Latina. Nearly all (98%) had at least a high school education, while 28% had a post college/graduate degree.

Nearly all (97%) women reported wanting to have a child in the future with their current HIV-positive partner. Women estimated their risk of HIV acquisition while trying to get pregnant with an HIV positive man ranged from <1% to 100% (median 30%, IQR 5%-50%). Participants were willing to use methods to reduce the risk of HIV transmission while trying to conceive; 63% would use sperm washing with intrauterine insemination, 46% pre-exposure prophylaxis (PrEP), 42% condomless intercourse timed to peak fertility, 41% in-vitro fertilization, 40% post-exposure prophylaxis (PEP), 9% sperm donation, and 43% would adopt. Most women (70%) indicated they would be willing to accept an HIV prevention method that reduced their chance of getting HIV to 1/10,000, while others would accept a 1/10 chance (13%), a 1/100 chance (7%), and a 1/1000 chance (10%).

Conclusions: Women willingly accept a level of risk to conceive a child with their male partners living with HIV. Given the expanding array of HIV prevention methods – e.g. treatment as prevention, PrEP, and wider access to assisted reproductive technologies – there are now numerous HIV risk reduction strategies that women want to use to protect themselves from getting HIV while trying to conceive. Safer conception services are an important part of an integrated reproductive and sexual wellness approach and critical to the larger public health goals of eliminating sexual transmission of HIV.

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Contraception, pregnancy, breast feeding, and PMTCT

Mother-to-child transmission for HIV, hepatitis B and syphilis in the European Union and European Economic Area: results from a 2013 survey in the Member States

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Introduction: Yearly, 5.3 million women give births in the European Union and European Economic area (EU/EEA) and potentially undergo antenatal screening. Mother-to-child transmission (MTCT) of HIV, syphilis and hepatitis B (HBV) continues to be reported, with variation across countries, suggesting unequal performance of antenatal screening programmes. A European Centre for Disease Prevention and Control (ECDC) study aimed to map antenatal screening policies and practices and identify gaps in the prevention of MTCT transmission.

Method & Material: A structured online-questionnaire developed by an expert group, collected information on HIV, HBV and syphilis screening policies, testing coverage, timing of testing, number of positive pregnancies, prevention interventions and requested Member States to rank sub-population most at risk of MTCT. Cases of HIV-MTCT in persons born in the reporting country and congenital syphilis reports were retrieved from The European Surveillance System.

Results: Most EU/EEA countries implement antenatal screening: HIV 23/25 (92%), HBV 18/21 (86%), syphilis 25/25 (100%) with opt-out strategy mostly reported: HIV 15/23 (65%), HBV 13/24 (54%), syphilis 15/25 (60%). Testing during first trimester was recommended for: HIV 23/23 (100%), HBV 11/18 (61%), syphilis 20/23 (87%). Testing coverage ranged between 80-99% for HIV, 88-100% for HBV and 90-100% for syphilis for most countries. Positivity rate per 1000 women tested ranged between 0.03-2.33 (median 0.6, n=14 countries) for HIV, 1.4-8.6 (median 2.5, n=8) for HBV and 0.1-1.6 (median 0.54, n=0.54) for syphilis. Proportion of MTCT averted was 81-100% (median 99%) for HIV and 98-100% (median 100%) for syphilis.

Migrant women, those presenting late for antenatal care and women injecting drugs were identified as most vulnerable to MTCT for all infections. Lack of resources, lack of systematic collection and analysis of data, lack of procedures, clinical guidelines, and incapacity to reach the risk groups were among the identified challenges.

Conclusion: Antenatal screening programmes should be strengthened to better serve those vulnerable groups that evade testing. Development of evidence based guidance addressing vulnerable groups and health systems barriers, together with a set of programme effectiveness indicators, is planned by ECDC.

No conflict of interest

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Contraception, pregnancy, breast feeding, and PMTCT

The effects of viral load burden on pregnancy loss among HIV-infected women in the United States


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Background: Due to improved maternal health, and the low probability of mother-to-child transmission with effective and timely treatment, increasing numbers of HIV-infected women of reproductive age are deciding to become pregnant or expressing a desire for future childbearing. Higher rates of HIV replication (indicated by quantity of HIV RNA in plasma) have been previously associated with adverse birth outcomes.

Methods: An analysis of HIV-infected women enrolled in the Women’s Interagency HIV Study (WIHS) between 1994 and 2013 was conducted to evaluate the effects of HIV viral load, measured cross-sectionally and cumulatively, on the risk of miscarriage and stillbirth among HIV-infected women in the United States. We assessed three exposures: most recent viral load measurement before the pregnancy ended, log_{10} copy-years viremia from initiation of antiretroviral therapy (ART) to conception, and log_{10} copy-year viremia in the two years pre-conception. Risk ratios and risk differences were estimated using log-binomial and linear regression, respectively. Multivariable models were used to adjust for covariates identified using posited causal directed acyclic graphs (DAG).

Results: Most women were black, low-income, and experienced pregnancy at a median age of 32 (interquartile range [IQR]: 29-37). The risk of pregnancy loss for pregnancies whose viral load measurement before pregnancy ended was in the highest category (>4.00 log_{10}) was 1.80 (95% confidence interval [CI]: 1.20, 2.69) times as high as the risk experienced by women whose final viral load was in the lowest category (≤1.60). There was not a meaningful impact of log_{10} copy-years viremia since ART on pregnancy loss or log_{10} copy-year viremia in the two years before conception on pregnancy loss (adjusted risk ratios [aRR]: 0.80 (95% CI: 0.69, 0.92) and 1.04 (95% CI: 0.93,1.16), respectively).

Conclusions: These results help inform on the role of viral load burden in pregnancy loss among HIV-infected women. We addressed multiple constructs of viral load burden, including two novel approaches to copy-years viremia as well as one cross-sectional measure of viral load for comparison to the literature. Cumulative viral load burden does not appear to be an informative measure for pregnancy loss risk, but the extent of HIV replication during pregnancy, as evidenced by plasma HIV RNA viral load proximal to pregnancy outcome, predicted pregnancy loss versus live birth in this ethnically diverse cohort of HIV infected U.S. women. While control of viremia is known to prevent vertical transmission of HIV, these findings support older studies that demonstrated an increased risk of miscarriage with HIV infection. These results highlight the importance of early identification of pregnancy, initiation of or adjustment to more appropriate therapy during pregnancy, and subsequent control of viral load to potentially reduce the risk of pregnancy loss.

No conflict of interest

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Contraception, pregnancy, breast feeding, and PMTCT

Evaluation of HIV status disclosure among HIV positive women in rural North Central Nigeria

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Introduction: Failure to disclose one’s status to sexual partners and family is recognized as a significant barrier to PMTCT (Prevention of Mother-to-Child Transmission of HIV) outcomes in resource-limited settings. We present both qualitative and quantitative findings regarding disclosure among HIV-infected women in rural North Central Nigeria.

Materials & methods: Disclosure status of experienced (Mentor Mothers and Mother-to-Mother support group members) and less experienced HIV-positive women from rural North-Central (NC) Nigeria were evaluated. Key Informant Interviews (KIIs) were conducted with semi-structured questionnaires among less-experienced women to evaluate challenges and facilitators in disclosure. KIIs were transcribed, analyzed by theme and content, and results were peer-reviewed by 4 pairs of research staff. Descriptive statistics were applied, and Chi square was used to compare proportions.

Results: We identified 37 experienced and 100 less-experienced HIV-positive women accessing HIV care at rural healthcare facilities in NC Nigeria for the study. Median age range for experienced and less-experienced women was 31-40 years. Married women constituted 91% and 86% among the experienced and less experienced groups, respectively. Experienced HIV-positive women had an average of 2 years’ experience with mentoring and/or support group attendance; the largest proportion (40.5%) had only 1-2 children. Women with only 1-2 children also constituted the largest proportion (47.0%) of less-experienced women. Out of 37 experienced HIV-positive women, 27 (73.0%) indicated disclosure to a spouse or close family member; 70% of less experienced women had disclosed to a spouse or family member. There was no difference in disclosure rate between experienced and less-experienced women (p=0.77).

Conclusions: In our study, HIV disclosure rates between experienced and less experienced HIV+ women were similar. The expectation is that experienced women would have a disclosure rate approximating 100% and that this would be significantly higher than that of less experienced women. Our study is limited in that we did not ascertain whether less-experienced women had received formal or informal counselling and support for disclosure. This may have contributed to their relatively high disclosure rates compared to experienced women. PMTCT programs should continue to review disclosure status amongst both experienced and less experienced HIV positive women to facilitate better outcomes for the mother and child. HIV disclosure support can be provided by health care workers as well as trained peer counsellors to reduce rates of non-disclosure among PMTCT clients.

No conflict of interest

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Contraception, pregnancy, breast feeding, and PMTCT

Unmet need for contraception among HIV positive women- A call to integrate family planning and HIV services

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**Background:** In Preventing Mother to Child HIV Transmission (PMTCT), effective contraception remains a core strategy to prevent unplanned pregnancies. However in environments where contraceptive prevalence rates are low in general populations, it is important to rule out the presence of unmet contraceptive needs/unplanned pregnancies among People living with HIV (PLHIVs) which will mitigate this PMTCT strategy. This study was to assess this as well as the occurrence of barriers to access among this vulnerable group in order to inform review of service delivery.

**Methods:** Structured and pre-tested questionnaires were administered to 350 non pregnant sexually active postpartum women receiving PMTCT services at Jos University Teaching Hospital HIV Clinic. The data was analyzed with Epi-Info Statistical Package version 3.3.

**Results:** Age ranged 19 to 44 years and 87.1% were married, with 81.4% being Christians and 18.6% Muslims. Some 20.1% possessed primary education, 35.5% had secondary while 34.4% had tertiary and 44.1% tested positive within one year. Husbands of 47.6% were HIV positive, 24.4% negative and status of 28.1% unknown. Previous pregnancies ranged from 1 to 10. The number of children alive were 0 to 9 with 59.1% having between 1 and 2 living children. Children that had died ranged 0 to 6 per woman; 32.4% of the women had lost 1 child. Preceding pregnancies were planned in 38%, unplanned in 62% of the women, and 33.8% did not desire more children. Regularly sexually active constituted 81.4% were while 8.9% had occasional episodes. Contraception awareness was found in 84.5% of the women, but 87.1% did not use any female contraception while 4% used occasionally and 8.9% used always. The injectable was preferred by 54.2% of those who utilized contraception, while 37% of husbands of the women always wore condoms, 34.7% sometimes and 28.3% never wore. Of those who indicated they didn’t want more children, 48.4% always used contraception. Husbands of 49.4% women encouraged family planning. The women who desired contraception and requested referrals were 52.2% but 72% had been to a family planning clinic before, of whom 30.5% disclosed their status with only few cases of stigmatization. However 80.7% indicated family planning will be easier to assess and utilize if offered in the HIV Clinic because they were comfortable with the staff and the Family Planning Clinic had closed before the mother bay pairs where attended to at the HIV clinic.

**Conclusion:** Unmet need for contraception abounds with high unplanned pregnancy rates abound among PLHIVs. The awareness is high but long hours at the HIV clinic and closure of the family planning clinic are among reasons they are unable to access contraception. Male condom is acceptable as a means of contraception and should be emphasized for dual protection. This demonstrated the need to integrate RH services including family planning into the HIV specific care for HIV positive women. Thus a Reproductive Health Clinic was integrated into this HIV clinic where women get contraception and cervical screening. This has removed some barriers to access for contraception among PLHIVs.

No conflict of interest

**Abstract: 27**

Contraception, pregnancy, breast feeding, and PMTCT

Barriers and facilitators HIV positive female adolescents face in seeking family planning services: A qualitative assessment of providers’ perceptions in western Kenya

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**Introduction:** Avoiding unintended pregnancies is important for adolescents; for adolescents living with HIV, this has the additional benefit of preventing mother to child transmission. Understanding family planning (FP) use among adolescent females living with HIV is not only key in decreasing their rates of unintended pregnancy but also linked with greater female empowerment and enhanced educational and economic opportunities. There is sparse data on the barriers and facilitators of FP services among adolescent females living with HIV. Health facility providers represent an untapped resource in understanding broader issues facing adolescents who desire FP.

**Methods:** We conducted semi-structured interviews with 40 providers involved in FP service provision at 21 Family AIDS Care & Education Services (FACES)-supported clinics in Migori, Homa Bay and Kisumu Counties, Kenya, between July and August 2014. These clinics ranged from County and sub-County hospitals to peripheral health facilities. Providers' perspectives on FP service provision to HIV positive adolescent females were probed using open-ended questions. Qualitative data were analyzed using inductive content analysis. Key barriers and facilitators influencing FP use for HIV positive adolescent females informed our ecological model, investigating the relationship between these themes at personal, interpersonal, institutional, and societal levels.

**Results:** While there is a complex interplay between all four levels of the ecological model, according to the providers the interpersonal factors dominated the barriers these adolescent females face. Adolescent females fear disclosing their sexual activity to their parents, peers and providers, due to repercussions of perceived promiscuity when wishing to use FP methods. It is particularly challenging to seek care without a male partner because providers and community members view these adolescent females as not being serious about their relationships or having multiple concurrent relationships. Fear of this stigma leads adolescent females to avoid seeking care or asking for FP when they visit providers.

On the other hand, providers noted that institutional factors facilitated FP use by these adolescents. Integration of FP services into clinics providing HIV care allows easier access to FP services by removing the stigma of coming to the clinic solely for FP services. Youth-friendly services, including serving youth on specific days separate from adults, create a more comfortable setting for youth to seek services. Providers also identified other institutional factors such as space, commodities, and focused counseling as facilitators of FP use among HIV positive adolescent females.

**Conclusions:** Providers at these facilities identified attitudes of promiscuity from parents, partners, health providers, and peers as barriers preventing HIV positive adolescent females from seeking FP services, while HIV and FP service integration and youth-friendly services facilitated their FP use. Health facilities should continue to provide appropriate counseling and contraceptive methods for adolescent females in a youth-friendly manner, and integrate HIV and FP services to encourage more HIV positive adolescents to seek FP while receiving their HIV care. As importantly, HIV programs need to recognize that HIV positive adolescent female relationships with parents, partners, health providers, and communities are crucial in enhancing adolescents' use of FP.

*No conflict of interest*

**Abstract: 28**

Contraception, pregnancy, breast feeding, and PMTCT

Provider Knowledge and Attitudes About PrEP for safer conception: Qualitative data from 7 U.S. Cities

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Pre-exposure prophylaxis (PrEP) has demonstrated significant protection for HIV-uninfected individuals at high risk of acquisition, and thus is an option for sero-different couples trying to conceive (PrEPception). HIV provider knowledge, attitudes, and experience utilizing PrEP for this purpose is largely unexamined.

Methods: Trained interviewers conducted semi-structured phone interviews with HIV providers in seven cities (Atlanta[10], Baltimore[14], Houston[12], Kansas City[14], Newark[8], Philadelphia[20], San Francisco[13], n=91 total). Interviews covered topics related to childbearing options for HIV+ patients and their partners. Audio files were transcribed and coded using Dedoose, a web-based program for qualitative analyses. Employing content analysis methodology, we identified emergent themes from providers' responses regarding the benefits and barriers of using PrEP for safer conception.

Results: HIV providers (71.6% female, 45.2 mean years of age, 71.8% white, 11.5 mean years treating HIV+ patients, 46.1% at community vs. academic health facilities, 56.1% MD, 35.1% NP or PA, 8.8% Nurse or SW) discussed both benefits and concerns of PrEP for safer conception among sero-different couples. Benefits included added protection and a greater sense of control for the HIV-uninfected partner. Concerns were categorized as clinical (adherence, resistance, side-effects, safety for fetus and long term patient use), system-level (ability to closely monitor HIV-uninfected partner, navigating insurance coverage for range of patients), and behavioral (false sense of security, limiting condom use). Provider experience with PrEP ranged from theoretical to routine; 20.8% of providers reported experience prescribing PrEP, 70.3% were willing to prescribe it under ideal circumstances, and 6.6% were not comfortable prescribing PrEP. The ideal conditions for PrEPception were repeatedly described as: HIV+ patient with undetectable viral load, committed relationship, uninfected partner is female, and used in the context of timed intercourse to reduce exposure. A few providers (5%) questioned if PrEP provided a measurable increase in protection beyond that achieved by an undetectable viral load in the HIV+ partner.

Conclusions: Most HIV providers were open to recommending PrEP for safer conception as long as patients understood the range of concerns and could make informed decisions. Providers perceived high financial costs as the greatest barrier and wanted more information on how to resourcefully navigate procurement for patients.

No conflict of interest

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Contraception, pregnancy, breast feeding, and PMTCT

An environmental scan of the adoption agencies that serve potential adoptive parents with HIV in Ontario, Canada

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Introduction: Reports from the United States indicate that HIV discrimination is a barrier to adoption. There are no studies documenting organizational level policies pertaining to the eligibility of people with HIV as adoptive parents. This study aimed to identify structural and social facilitators and barriers for people with HIV who are navigating the adoption system.
Methods: We conducted an environmental scan of adoption services in Ontario, Canada through online searches and telephone surveys. A list of adoption service providers recognized by the Ontario government was compiled (total of 181, including agencies, practitioners, and licensees). Services were pre-scanned using available websites (n=71). All of the service providers were then contacted via telephone to address missing data.

Results: Telephone surveys were completed with 75 adoption service providers and online data collection was possible for an additional 2. The survey included 12 areas of interest. Most providers did not have formal policies prohibiting individuals with HIV from adopting (n=68/77). International adoption agencies (n=6/53 total agencies) had the most detailed policies regarding eligibility criteria for prospective parents, ranging from full prohibition of people with HIV adopting to some restrictions apply. Domestic private adoptions were also noted as problematic as health status is disclosed at the request of the birth parents (noted by 7 service providers). Private adoptions (international and domestic) posed significant, if not insurmountable, barriers to adoption for prospective parents with HIV. Some of the domestic adoption service providers (n=17) lacked clarity in terms of admissibility, admitting they were unsure if people with HIV were eligible to adopt. However, a small portion (n=6) of service providers confirmed they were aware of successful adoptions to people with HIV. Incidental findings during the telephone surveys included that some service providers were unaware of the medical advances in the field of HIV and believed that HIV was a terminal illness that hastens death.

Conclusions: People with HIV are exploring various ways to become parents. Although less commonly considered, adoption may be a viable option. Many adoption service providers were not aware of organizational policies prohibiting people with HIV from adopting through public, domestic services in Ontario. Some service providers have been successful in facilitating adoptions for people with HIV.

No conflict of interest

Abstract: 30

Contraception, pregnancy, breast feeding, and PMTCT

Assessing The Knowledge and Use of Contraceptives – Perspective of HIV-Positive Women

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Background: Contraceptive use is the most effective approach to avoiding unintended pregnancies and subsequently reducing the number of infants at risk of HIV infection. The current guidelines set up by the World Health Organization (WHO) recommends that dual contraception should be adopted for sexually active women living with HIV to prevent unintended pregnancies and minimize HIV transmission. This study was carried out to understand and describe the knowledge and use of contraceptives amongst HIV-positive women in the teaching hospital.

Methods: A cross-sectional study of 216 sexually active women of reproductive age. The serological statuses of their steady partners were also known. Standardized questionnaire on the knowledge and use as well as sexual activity was issued to the participants at each visit. Multivariate models were used to investigate parameters associated with the use of contraceptive methods.

Results: Women with an HIV-seronegative partner (85%) were more likely to use contraception than women with an HIV-seropositive partner (51%); P = 0.0001. Condom use and withdrawal method was higher in serodiscordant couples than in seroconcordant couples (odds ration [OR] = 5.7, 95% CI = 0.1 - 0.2, P < 0.001). Oral contraceptives and intrauterine devices (IUDs) was higher in seroconcordant than serodiscordant couples (OR = 2.8, 95% CI = 1.5 – 2.9, P < 0.001). On introduction of Highly Active Antiretroviral
Therapy (HAART), the use of oral contraceptives decreased amongst women with an HIV-seronegative partner and was higher in couples with inconsistent condom use.

Conclusions: Our results highlight that contraception counseling should take into account the serostatus of the participants and their partners as well as highlighting the need to improve their knowledge on sexual and reproductive health and rights, transmission of HIV and other Sexually Transmitted Infections (STI). Further efforts are needed to improve uptake of modern methods including dual contraception methods and more accessible options for better combination prevention approaches.

No conflict of interest

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Contraception, pregnancy, breast feeding, and PMTCT

Methods of contraception among women living with HIV in Chennai, South India.

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Background: Contraceptive use in HIV positive women will prevent the transmission of infection to their partners, reinfection with different HIV strains, limit unwanted pregnancies and postpone childbirth. Counseling on contraceptive methods will empower the HIV positive women of its use. The objective of this study was to determine the methods of contraceptive practices in HIV positive women living in Chennai.

Material and Methods: This was a cross sectional study conducted from October 2013 to October 2014. Consenting HIV positive women who visited the Department of Experimental Medicine for various other investigations were enrolled into this study. A structured questionnaire that included demographics and contraceptive practices was administered by an interviewer. The data was collected and analyzed using SPSS 16 software.

Results: A total of 122 HIV positive women took part in this study. Most (45%) of the women participated in the study belonged to 31-40 years of age followed by 18-30 years of age (27%). Majority (62%) of the women were Hindus and 25% were Christians. About 76% were married and living with their husbands and 23% were married and had lost their husbands. Thirty four percent of the women were educated up to high school (10th class/grade) and 29.5% had primary school education alone (up to 5th class/grade). Twenty five women had no formal education. There were 53 (43.4%) home makers. Women who were employed had an average earning of Rs 4469.50 ($75) per month.

Most (85%) of these women were on Antiretroviral Therapy (ART). Almost all women disclosed their HIV status to their husbands/partner. Only 55% of women had regular menstrual cycle. The overall contraceptive use was high; 79% were using some method of contraception. About 58 women who used contraceptives were employed. Tubal ligation (sterilization) as permanent method of contraception was reported by 39.3% of women. This was followed by the use of Intrauterine device (Copper-T) by 20.5% of women whereas 18.9% women reported that their husbands/partners use male condoms. Dual method of contraception was used only by one woman (natural method and male condoms). None of the women took oral contraceptive pills and none of the husbands/partners had vasectomy.

Conclusions: Awareness on contraceptive options should be offered to HIV positive women. The use of male condoms was low in this study. Dual contraceptive methods can be promoted in these women even if they are on ART. Training of health care providers in offering better contraceptive options to the HIV positive women is essential.

No conflict of interest
Abstract: 32

Contraception, pregnancy, breast feeding, and PMTCT

Pregnancies in HIV infected women: 10 year retrospective evaluation in Santiago, Chile

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Introduction: Mother to child HIV transmission has been reduced from 15-45% to <5% since the introduction of effective intervention worldwide. In Chile 16% of HIV infected patients are women and it is mandatory to offer HIV testing during pregnancy since 2005. We present data from two major HIV care centers in Santiago, Chile.

Methods: Retrospective observational study conducted in two HIV care centers in Santiago-Chile: Fundación Arriarán and Hospital San Juan de Dios. Medical records from HIV + pregnant women from 2004 to first semester 2014 were collected. Information from the mother, pregnancy and neonatal HIV outcome was obtained.

Results: A total of 170 records for pregnancies were found. Six patients were excluded for lack of data. Finally, 164 pregnancies in 151 women were reviewed. Median age at pregnancy was 27.4 years (IQR: 23.0-32.9); 76.2% of patients were Chilean and 23.8 % foreign born, mostly Peruvian. Of the whole, 99 women (65%) were diagnosed HIV infected during pregnancy; 29 (19%) others requested HIV testing because of an HIV positive sexual partner. At first HIV clinical visit, CDC stage data was available for 122 (81%), 17.2 % of them had AIDS. In the 91 gestations of HIV + women who were diagnosed during pregnancy, the median gestational age (GA) for HIV care initiation was 20.3 weeks (IQR 13.7-25.9). In 20.9% HIV care was initiated at third trimester of pregnancy (≥ 28 week).

Antiretroviral therapy (ARV): 34 (20.7%) women were receiving ARV prior to becoming pregnant; 3 (1.8%) didn’t receive ARV during pregnancy and 5 (3%) were lost to follow up after pregnancy diagnosis with no further information available. The median GA at ARV initiation for treatment naïve patients was 21.2 weeks. Among those who received ARV, 138 (88%) received protease inhibitors-based regimes. Intrapartum ARV was administered according to guidelines in 87.1% of women. The delivery mode was cesarean section in 89%. Viral loads (VL) determinations between 3 months prior to and 15 days post-delivery were available in 115 (70.1%) of cases. Altogether, only 52.4% of 164 pregnancies reviewed had undetectable VL. Median CD4+ in the period between 3 months prior to and 1 month post-delivery was 452 (IQR: 343-577). This data was found in 44.5% of pregnancies. Newborn HIV transmission occurred in 7 (4.3%) newborns, and in another 7 HIV status was unknown. Most infants, 150 (91.4%) did not get infected.

Conclusions: This study shows the experience of pregnancy in HIV positive women in a middle income country. In two thirds of patients HIV was diagnosed during pregnancy. Patients started HIV care at GA 20.3 weeks, and initiated ARV less than one week after first visit. Only a small percentage of patients had peripartum VL determinations. Of those studied nearly half were undetectable at delivery. Despite this, less than 5% of newborns became infected. HIV detection among women must be improved to diagnose HIV before pregnancy and the management of these pregnant women should follow the national protocols.

No conflict of interest
Abstract: 33

Contraception, pregnancy, breast feeding, and PMTCT

Assessment of Acceptability, Feasibility, Affordability, Safety and Sustainability criteria at 6 months among HIV-infected women attending Mulago Hospital

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Background: In 2010, Uganda new feeding guidelines recommended HIV-infected mothers to exclusively breastfeed until 6 months, and continue breastfeeding while introducing complementary feeds until 12 months. However, if mothers desired to replacement feed, they could, if able to meet the Acceptable, Feasible, Affordable, Sustainable and Safe (AFASS) criteria summarized as follows: Acceptable: mother perceives no significant barrier(s) to choosing a feeding option. Feasible: mother/family member have adequate recourses/time and knowledge/skills to prepare for infant. Affordable: mother/family can pay for the costs of the feeds. Sustainable: mother has access to continuous supply of all products needed. Safe: feeds are correctly/hygienically prepared and stored. At 6 months, we assessed AFASS among HIV-infected mothers randomized in a three arm trial using different strategies to support infant feeding.

Materials & Methods: From 8th February 2012 to 28th February 2013, 218 mothers were randomized in three arms as follows; arm A, n=73 (standard intervention with PMTCT group counselling on infant feeding using MOH materials and videos), arm B, n=72 (enhanced intervention where family member/peer supported mother to feed) and arm C- n= 73 (enhanced intervention where a special infant feeding counsellor supported mother on demonstration techniques). Data was collected using semi-structured questionnaire to assess AFASS and we compared enhanced interventions B and C to standard PMTCT Arm A. Analysis was done using Stata 10.1. Logistic regression was used to compute the odds ratios between the standard arm and the 2 enhanced arms combined, the standard being the reference group. 30/218 mothers did not return for AFASS due to various reasons.

Results: At 6 months, 188/218 (86.2%) mother-baby pairs returned, 63 from arm A and 125 from arm B and arm C combined. Comparing arm B and arm C to arm A showed varying odds for the different AFASS aspects; Affordability to buy milk [OR = 0.4 (95% CI 0.1-2.2)], affordability of transport to buy milk [OR = 0.7 (95% CI 0.14-3.1)], storage of feeds [OR = 1.0 (95% CI 0.8-1.2.)] and support to feed baby; Partners’ support [OR = 2.6 (95% CI 1.1-6.2)], mothers’ support [OR = 2.3 (95% CI 0.4-15.1)], sisters’ support [OR = 2.3 (95% CI 0.4-13.7)].

All three arms combined, 97.9% could afford cow’s milk, 1.6% formula and 0.5% other milks. 100% of those affording cow’s milk could use it along with introduction of safely prepared complementary feeds. Irrespective of type of milk, 100% reported they could buy milk for daily feeding of their baby through age 2 years; 99% could afford utensils needed to prepare feeds and boiling water; and 100% could buy both sugar and fuel until the baby was age 2 years. Regarding storage, 54.8% would store in a cupboard, 8.5% in fridge, 15.4% on the table; and 21.3% in other places.

Conclusions: Almost all HIV-infected mothers reported they could meet AFASS criteria at 6 months post delivery irrespective of study intervention arm. Partner support was however significantly associated with increased odds to meet the various aspects of the AFASS criteria when compared to the combined arms.

No conflict of interest
Abstract: 34

Contraception, pregnancy, breast feeding, and PMTCT

Effectiveness of the prevention of HIV mother-to-child transmission program in Senegal

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Introduction: To improve the medical care of HIV infected children, early infant diagnosis was carried out in Senegal using dried blood spot (DBS) since 2007, making molecular diagnosis accessible for patients living in decentralized settings. To measure the impact of the national PMTCT program, this study aimed to determine the evolution of the HIV transmission rate from 2008 to 2013.

Material and methods: This retrospective study was carried out on DBS and Buffy coat (BC) samples from children born to HIV infected mothers and collected between January 2008 and December 2013. DBS were stored at room temperature (25-40°C) with dessicants and humidity indicators, and BC were stored at -20°C. HIV infection diagnosis was carried out using Amplicor HIV-1 DNA (Roche Diagnostics) Cobas AmpliPrep/Cobas TaqMan HIV-1 Qual (Roche Diagnostics) or NusliSENS easyQ HIV-1 (Biomérieux).

Results: A total of 3828 DBS and 285 BC collected from 168 primary PMTCT sites in Senegal were analyzed. These samples were from 3192 children with a median age of 9 weeks [1-96 weeks] and a sex ratio of 1.1 in favor of boys. Among them, 33.5% (n=1069) had been diagnosed in their first 2 months of life. Twenty five percent (n=810) of children have benefited of more than one molecular diagnosis testing. A significant decrease of the transmission rate was noted during the 5 years of the study from 19.01% in 2008 to 5.9% in 2013 (CI 95%, p <0.001) with prophylaxis improvement in mother-child pairs.

Conclusion: This study showed the effectiveness of PMTCT and proved that the efforts in decreasing MTCT rate should be maintained and strengthened to achieve the elimination of mother to child transmission goal.

No conflict of interest

Abstract: 35

Contraception, pregnancy, breast feeding, and PMTCT

HIV prevalence and factors associated with the use and choice of contraceptive methods among women in the fishing industry along Lake Victoria

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Introduction: Sub-Saharan Africa is burdened by dual challenges of high rates of both unintended pregnancy and HIV yet contraceptive use is low. Fishing communities in Kenya are considered a key population for HIV prevention and care due to their mobility; and women working in and around the lake being a specific concern because of the sex-for-fish phenomenon. We sought to establish the HIV prevalence and factors associated with use and choice of
contraceptive methods among women working in the fishing industry.

**Methods:** We conducted a cross-sectional survey among 2638 fisherfolk among whom 858 were female from all the 308 fish-landing beaches in the five counties of Migori, Homa Bay, Kisumu, Siaya and Busia that border Lake Victoria in Kenya. Participants enrolled from each beach were weighted based on the size of the beach determined by number of functional registered boats. We then used simple random sampling to select the participants to be approached from the categories of fishermen, boat owners, fish traders, fish brokers, food kiosk and bar owners. Consenting participants were privately interviewed about their demographic, socio-economic and contraceptive use and invited to test for HIV using the rapid test algorithm recommended by Kenya’s Ministry of Health. We used descriptive statistics and multivariate logistic regression for analysis.

**Results:** Overall HIV prevalence was 37.4% with county specific prevalences of 47.4% in Migori, 42.7 in Homa Bay, 39.1% in Siaya, 32.6% in Kisumu and 13.9% in Busia. Half of the women (52.7%) reported current contraceptives use with higher use reported among single women (56.1%) compared to married women (42.3%) (p < 0.05). The most common contraceptives used were the injectables (61.9%). The others were: inter-uterine device (8.3%), pills (7.3%) and condoms (6.9%). Use of contraceptives was independently associated with older age (adjusted odds ration [aOR] 0.91; 95% confidence interval [CI]: 0.89-0.93), increasing number of biological children (aOR 1.21; 95%CI: 1.11-1.31), increasing number of sex partners in the preceding three months (aOR 1.65; 95%CI: 1.18-2.30) and having been recruited from a beach in Homa Bay County (aOR 0.45; 95%CI: 0.27-0.73). Controlling for the number of biological children, level of education, denomination, number of sex partners in the preceding three months and previous HIV test, the choice of use a more effective contraceptive method (injection, pills or IUD) compared to condoms was associated with one’s current HIV status (aOR 3.23; 95%CI: 1.44-7.24).

**Conclusion:** HIV prevalence among women in these fishing communities is high with relatively low contraceptive use. Increasing age and number of children, being from Homa Bay County and reporting fewer number of sex partners in the preceding three months were associated with reduced likelihood of contraceptive use. HIV positive women tend to use more effective methods of contraception. Intensification of HIV prevention interventions in this population may need to be accompanied promotion of contraceptive use.

*No conflict of interest*

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Abstract 36 is withdrawn

**Abstract: 37**

**Women Living with HIV: Adolescence through Menopause**

Consumption of recreational drugs, alcohol and tobacco in HIV+ women at an HIV/AIDS care center in Chile

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**Introduction:** The use and abuse of recreational drugs, alcohol and tobacco directly affects the response to antiretroviral therapy (ART). The many drug-drug interactions may alter the efficacy of HIV treatment and the consumption of these substances can affect directly the adherence to ART.

**Material-Methods:** At Fundacion Arriaran, HIV clinical care center in Santiago, Chile we performed a rapid screening test that consisted of a survey to patients conducted in a 9 month period. Anonymously the patients were asked...
about consumption of recreational drugs (marihuana, cocaine, cocaine paste, crack, heroin and methamphetamine) alcohol and tobacco during the last 7 days previous to the survey. Patients with ART there was also asked about the number of missed doses of HIV treatment. General demographic data was collected. The study was approved by the local ethical committee.

**Results:** 1562 surveys were performed in 1070 patient. 184 (11.7%) were women. The surveys were done in medical, laboratory or nurse/midwife regular visits. The median age of participants was 43.2 years for women and 41.5 for men (p NS), with ART 90.2% of women and 89.4% of men. The rate of main drugs consumptions for women and men was: marihuana 2.7% vs 8.1% (p =0.006), cocaine + cocaine paste 1.6% vs 1.8% (p NS), methamphetamine, crack, and heroine 0% for both genders. Alcohol 36.4% vs 55.4% (p 0.0001) and tobacco 27.2% vs 43.8% (p 0.0001) respectively. From the 1400 surveys in patients with ART, in the female group 70.5% had complete adherence to ART vs 75.3% of male group (p 0.3) in the 7 days previous to the survey. The median age of women with total ART adherence was 44.9 vs 40.6 years (p 0.009) with incomplete adherence to ART.

**Conclusions:** Thirty percent of female patients fail to take all their ART medications based in a 7 days period retrospective survey. Full adherent patients were older. The rate of tobacco, alcohol or drug consumptions was significantly lower in women than in men. The use of recreational drugs affects the adherence to ART, decreasing the total ART intake in a variable range depending on the recreational drug. Tobacco and alcohol consumption did not influence ART adherence in women.

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*No conflict of interest*

**Abstract: 38**

Women Living with HIV: Adolescence through Menopause

Adolescent Friendly Services among HIV Positive Clients at Two Health Facilities in Rwanda


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**Background:** The burden of HIV-infection amongst adolescents is an emerging health issue in sub-Saharan Africa. Most of service delivery programs are not yet tailored to their special needs. The Rwanda-Biomedical-Center developed and implemented a model to deliver adolescent friendly-services for HIV-positive adolescents with emphasis on capacity-building of health-workers, establishment of efficient-referral-systems, peer education& support, establishment of cross-sectoral-linkages& generating evidence.

**Methods:** With Ethical considerations, all HIV positive adolescents aged to 15-19 years enrolled in the adolescent clinics at Centre-Hospitalier-Universitaire de Kigali and Ruhengeri District-Hospital and in follow-up for at least one year at the time of the survey was included. Chart review of routinely collected data was conducted. The adolescents were then interviewed on their treatment adherence using the Visual-Analog-Scale [VAS], HIV-related knowledge, barriers to care, satisfaction with care services, and psychological state using Beck-Depression-Inventory [BDI].

**Results:** Overall, 199 adolescents were enrolled for at least one year in program. The median-age of enrollment was 16 years (interquartile-range: 15-18) & 89% (177 of 199) had initiated ART. 61% (107 of 175) depicted good immunological
evolution (increase of >50-cells/cm3/6month), 12% had no immunological response (static CD4), and 27% had immunological failure (>50% decrease from peak CD4 or CD4 decrease to below pre-treatment value). 51.3% (73 of 142) had complete viral suppression (viral-load of <40copies) and 37% had viral-load failure (>1000copies). In regards to medication adherence, 55.6% (79 of 142) reported an adherence of 85% or less on VAS. Barriers to medication& visit adherence were also identified. 49 % (96 of 197) demonstrated depression by the BDI. Overall, 84.4% (167 of 198) of adolescents reported that they were satisfied with the adolescent-clinic-services provided.

Conclusions: The findings of this report serve to provide useful lessons that can help strengthen programing efforts for HIV+ adolescents in Rwanda. Most importantly, in order to improve treatment response, adequate adherence must be ensured by tailoring care to the unique needs of adolescents, including educational, nutritional, socioeconomic, and psychosocial supports.

No conflict of interest

Abstract: 39

Women Living with HIV: Adolescence through Menopause

Metabolic disorders in HIV infected women on Antiretroviral Therapy in South India

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Background: HIV frequently present alterations in lipid metabolism in HIV infected patients. The long term use of Antiretroviral Therapy (ART) is associated with lipid abnormalities which should be monitored. The objective of this study was to assess lipids abnormalities and insulin resistance in HIV infected women on ART.

Materials & Methods: This was a cross sectional study conducted from September 2013 to October 2014 in ART centre, Kilpauk Medical College and Hospital, South India. HIV infected women who attended the ART centre were enrolled into the study. After obtaining written informed consent, anthropometric measurements (height in cms, weight in kgs) were recorded. Body Mass Index (BMI) and Waist-Hip ratio (WHR) were calculated. History of HIV disease, CD4 counts and duration of ART were collected from patient's records. Fasting glucose and lipid assays (total cholesterol, triglycerides and HDL-c) were estimated by enzymatic-linked colorimetric methods. Insulin levels were tested using ELISA (Monobind Inc. USA) and insulin resistance was measured by homeostatic model assessment (HOMA) formula. All the tests were performed in the Department of Experimental Medicine, TN. Dr. MGR Medical University, Chennai. Statistical analysis were done using SPSS, Pearson's and Spearman's correlation was used to find the strength of relationship among the variables.

Results: A total of 42 HIV infected women were enrolled into the study. The median age was 39 years (IQR: 34 - 46) and were receiving ART for more than one year (duration: 1½ -11 years). Twenty six women received fixed dose combination of Zidovudine/Lamivudine/Nevirapine (ZLN), 14 were on Tenofovir/Lamivudine/Nevirapine (TLN) and 2 were on Tenofovir/Lamivudine/Eefavirenz (TLE) regimen. The mean BMI and WHR were 21.9 ± 4.16 and 0.93 ± 0.14 respectively. The recent median CD4 counts were 576 cells/µl and 20 (47.6 %) had higher LDL-c. A
A strong negative correlation was observed between total cholesterol and CD4 counts ($r = -0.06$, $p < 0.001$), LDL-c and CD4 counts ($r = -0.107$, $p < 0.001$). A positive correlation between duration of ART and HOMA ($r = 0.049$, $p = 0.759$) was not statistically significant. None of them had developed lypodystrophy except for one woman.

**Conclusion:** The study has demonstrated that 35% of the HIV infected women who were on ART for more than one year had dyslipidemia. High cholesterol levels were observed in women on TLN and TLE regimens. All HIV infected women on ART for more than one year should be monitored for lipid and insulin levels.

**Abstract:**

Women Living with HIV: Adolescence through Menopause

Aging in Latin-American women; results of a large collaborative study group

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**Background:** Limited research has explored the question of aging in Latin-American countries. Routine HIV testing during pregnancy in all Latin-American countries may result in earlier diagnosis and a different age distribution in HIV infected women than in men. The Latin-American Study Group is a collaborative workshop of 17 HIV care centres from 5 South-American countries including data of 30,853 HIV infected patients; 8,555 (27.7%) of them are women. This study was done to compare distribution by age and gender in HIV infected population in Latin-America to identify specific issues to be addressed.

**Methods:** Information from patients in active care in 17 HIV care centres from Peru, Argentina, Chile, Colombia and Ecuador were collected and a cross sectional study was done in September 2014. 18,937 out of 30,853 patients from 4 countries are presented in this analysis. Descriptive and analytical statistics were used to evaluate gender differences for demographic data.

**Results:** 18,937 patients; 4,409 (23.3%) women; percentage of women ranges from 13.4% (Chile) to 31.4% (Argentina) ($p<0.001$). Peruvian patients are younger than those from other countries (18.5% older than 50 years vs 24.2–25.6%; $p<0.001$). Age distribution was similar in women than in men: 16.4% vs 16.6% 15-29 years; 61.1% vs 60.4% 30-49 years and 22.5% vs 23.0% older than 50 years ($p=0.691$). Argentina and Colombia show same age distribution by gender ($p=0.418$ and 0.695). Nevertheless there is a higher percentage of women than men older than 50 years in Chile (29.3% versus 23.4%, $p<0.001$), while the opposite is observed in Peru (15.7% versus 19.6%, $p=0.003$).

**Conclusions:** To the best of our knowledge, this is the largest report on HIV in women in Latin America. Close to 25% of HIV infected population in this region are women. HIV infected women are mostly young, especially in Peru, being only one out of four older than fifty. In Latin America efforts should be focused on specific conditions affecting younger women with...
pre-conception counselling, gynaecological care and reinforcement of adherence. Age distribution is similar than men in spite of testing during pregnancy, except for Peru and Chile; a higher rate of aging women than aging men is observed in Chile and the opposite in Peru. The Latin-American Workshop Study Group is now including more centres and more countries to conduct further research to explain these differences in aging in HIV infected women in Latin America.

No conflict of interest

Abstract: 41

Women Living with HIV: Adolescence through Menopause

Identifying Pathways for Organizational Integration of Disclosure Interventions for Women Living with HIV

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Introduction: HIV-positive status disclosure has been a major issue in the overall fight and control of HIV/AIDS. Disclosure is linked to reductions in HIV transmission; adherence to medical regimens; access to support services; improved mental health status; and effective adaptation to living with HIV. Yet, it remained a significant challenge for people living with HIV and their service providers. While governments worldwide have passed laws to deal with the issue by putting the onus on individuals to disclose their status, the ability to effectively disclose ones’ HIV-positive status has not been considered. A group of service providers and women living with HIV (WLWH) in Toronto, Canada developed and pilot tested an HIV-positive status disclosure intervention to provide a systemic way to support individuals’ through the process. To implement the intervention, service providers asked for guidelines to be developed to support seamless integration within their organizational infrastructure. This study investigated strategies for effective integration of the intervention within AIDS Service Organizations (ASOs).

Methodology: In 2012/13, an in-depth literature review was conducted to identify existing guidelines on intervention integration and facilitators/inhibitors of organizational adoption of the HIV disclosure intervention. Both published and ‘grey’ literatures were explored for inclusivity of all information on the topic. Additionally, 4 focus groups (N=28) were held with organizational management; peers/volunteers who have disclosed; support workers; and HIV-positive women who have not disclosed. Participants were recruited through ASOs and community health centres in Toronto. Discussions were recorded and transcribed verbatim, and the data was analyzed thematically using NVivo 10.

Findings: The literature review identified 6 significant considerations for the successful integration of the disclosure intervention as follows: I) use of focus groups and key informant interviews to guide the integration process; II) acknowledgement of peers, advisory committees and external consultants as key facilitators in the process of integration; III) importance of identifying roles and responsibilities to allow for efficient and effective application of intervention and distribution of knowledge; IV) need for organizational 'flexibility' and the need to avoid unwanted imposition of conformity; V) need to create a shared vision; VI) significance of organizational assessment/review to identify how intervention(s) would impact service delivery.
Focus group findings also revealed 6 core themes that influence the process of disclosure within organizations including: I) provision and need for training at multiple levels; II) influences of organizational support programs; III) impact of organizational frameworks/policies on disclosure; IV) positions/roles that influence disclosure processes within organizations; V) effect of peoples’ historical engagement with systems; and VII) significance of counselling and mental health services in supporting disclosure processes.

**Conclusion:** Disclosure is an effective HIV prevention and support strategy and when managed properly, it can be beneficial for both the person disclosing and the person being disclosed to. These benefits can be realized only when effective interventions to support disclosure are integrated into services offered for WLWH. Our study highlights the significance of strengthening organizational infrastructures to support integration of the HIV disclosure intervention(s) as part of their overall service delivery.

No conflict of interest

**Abstract: 42**

**Women Living with HIV: Adolescence through Menopause**

**Thyroid dysfunction in women living with HIV in rural South India**

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**Introduction:** Thyroid hormones play an important role in metabolism and act as modulators of the immune response. Although, thyroid dysfunction has been reported among HIV-infected patients, there is limited data regarding thyroid disease among HIV-infected women, particularly in India. Therefore, in this rural South Indian population, the objective was to (1) study the prevalence of thyroid disease in HIV-infected women and to compare gender differences, and (2) to investigate risk factors associated with thyroid dysfunction

**Material and Methods:** After informed consent, HIV-infected women and men (ART-naïve and on ART) were recruited from Namakkal district, Tamilnadu, India. Data on age, sex, BMI, ART, HIV disease stage, and lipodystrophy were collected. Free Thyroxine (T4), Free Triiodothyronine (T3), Thyroid Stimulating Hormone (TSH) and CD4 counts were measured. Hyperthyroidism was defined as TSH (normal range=0.4 to 4.2 µU/ml) below the normal range and T4 (normal range=0.8 to 2.0 ng/dl) or T3 (normal range=1.97 to 4.10 pg/ml) above the normal range. Hypothyroidism was defined as TSH above the normal range and T4 or T3 below the normal range. Non-thyroidal illness was defined as TSH within the normal range and T4 or T3 below the normal range. Statistical analysis: Chi-square, t-test, logistic regression.

**Results:** Among 127 subjects, 81 (40.7 % were on ART, 59.3 % were ART-naïve) were women and 46 (65.2 % were on ART, 34.8 % were ART-naïve) were men. Mean age was 33.5±6.5 years, and mean BMI was 20.9±4.60 kg/m². Women were younger than men (31.0±6.1 vs 37.9±4.6 years, p=0.00). There were no significant differences between women and men in mean TSH (3.8±2.6 vs 3.5±2.2 µU/ml, p=0.315), T4 (1.4±0.4 vs 1.3±0.4 ng/dl, p=0.328), and T3 (2.3±0.8 vs 2.4±0.8 pg/ml, p=0.315) levels. The prevalence of hypothyroidism was 14.8% among HIV-infected women and 19.7 % among the total study population. Hyperthyroidism was not present in this population. The prevalence of non-thyroidal illness was 9.9% among women and 11.0% among the total study population. Women had a lower prevalence of hypothyroidism compared to men (14.8% vs 28.3%; p=0.056). Women had a moderately lower prevalence of non-thyroidal illness compared to men (9.9% vs 13.0 %; p=0.127). Patients on ART had a significantly higher prevalence of hypothyroidism (27.0%) compared to the ART-naïve (12.5%) (p=0.040). Taking women in particular, hypothyroidism was more
prevalent in women on ART (21.2%) than in ART-naïve women (10.4%) (p=0.153). However, on logistic regression analysis, ART usage was not a significant risk factor (Odds ratio: 1.77, 95% CI=0.6 - 4.7, p=0.256). Age was the only significant risk factor for developing hypothyroidism (Odds ratio: 1.11, 95% CI=1.03 - 1.2, p=0.007).

Conclusions: We have revealed an increased prevalence of hypothyroidism among HIV-infected women in this rural South Indian population. Except age, there were no significant risk factors in the development of hypothyroidism, including ART usage. We have also demonstrated a lower prevalence of hypothyroidism in women compared to men. This may be due to their younger age. Our data suggests that routine screening of thyroid function in HIV-infected patients is warranted in this population.

No conflict of interest

Abstract: 43

Women Living with HIV: Adolescence through Menopause

Women Helping Women: Engaging Mentor Mothers to Support Women Living with HIV in Rural North-Central Nigeria

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Introduction: Mentor Mothers (MMs) are HIV-infected women with comprehensive Prevention of Mother-to-Child Transmission (PMTCT) experience. MMs provide psychosocial, adherence and retention support for women living with HIV. With <20% of HIV-infected pregnant women receiving ART and ~30% mother-to-child HIV transmission rate, Nigeria is a significant global PMTCT target. We present pilot data from implementation of a peer-mentoring program developed to improve PMTCT service uptake and retention in an implementation research project: the INSPIRE MoMent-Nigeria study.

Materials and Methods: HIV-positive women were recruited from Primary Healthcare Center (PHC)-linked mother support groups in rural North-Central Nigeria. Selection was restricted to PMTCT-experienced, community-resident women 18-45 years old, who spoke at least one local language. English reading/writing skills were considered an added advantage. Selected women received 5-day bilingual (English and Hausa) training, including sessions on HIV/PMTCT, counseling, confidentiality and documentation. Pre-/post-tests were administered; illiterate women were tested verbally. Paired T test was used to compare pre/post test scores. Scope-of-work and client visit/tracking logbooks were explained and provided to each MM. Up to 2 MM were targeted to each PHC’s catchment area and were provided activity-related stipends. Multilingual supervisors were engaged to monitor/audit MM activities and provide MM support and PMTCT re-trainings. Pre-implementation qualitative studies were conducted to assess MM program acceptability among stakeholders.

Results: Qualitative studies showed high-level MM program acceptability among stakeholders (HIV-positive women, healthcare providers/policy-makers, traditional birth attendants, community/religious leaders, male partners). Stigma by MM-association was a concern, so adjustments were made for client visits at non-residential locations as necessary. In 2013, we trained 38 MM; 20 were attached to 10 intervention PHCs. Median age was 31.5yrs (IQR 26.8-35.3, range 20-38); 31 (81.6%) were married. Highest education was primary-level for 12 (31.6%), secondary for 14 (36.8%), tertiary for 7 (18.4%), and none for 5 (13.2%). English-
speaking proficiency was 'none' for 1 (2.6%), 'basic' for 21 (55.3%), and 'moderate or better' for 16 (42.1%). Median time-period since HIV diagnosis was 2.0 years (IQR 1.8-4.3). Mean pre-test score was 72.4% and improved to 87.5% at post-test (p <0.0001). The MM program’s early successes included better MM work attendance, improved documentation, increased timeliness/less missed opportunities for client tracking and increased frequency/quality of MM-client interactions.

Conclusions: Even though education and English proficiency were relatively low, MMs were able to absorb and retain training knowledge when taught in English and the dominant local language. Their relatively high baseline PMTCT knowledge was encouraging. With appropriate supervisory support, these lay HIV-positive women can function as effective peer mentors. However, stipend insufficiency, workload at high-volume PHCs and community-level stigma are ongoing challenges. Pre-engagement qualitative studies were key to designing the program to the needs of MMs and their clients. Without advocacy to address unmet needs, there is high risk of MM dropout. Programs engaging MMs in wide-scale PMTCT service delivery should include pre-implementation qualitative studies, day-to-day MM supervision, and advocacy for MMs’ unmet needs.

No conflict of interest

Abstract: 44

HIV prevention in women

Examining gender differences and first line ART durability among a 4-year cohort in Nairobi

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Introduction: It is critical to maintain patients on their initial suppressive anti-retroviral therapy (ART) regimen. Recent findings suggest gender may influence ART regimen modification, yet information on how ART durability may differ between genders is scarce. This study examined patient clinical differences at ART initiation as predictors of ART durability and reasons for regimen modification between genders.

Materials & Methods: Male and female adult ART-naïve patients initiated on first-line ART in care for >3 months between January 2005 - August 2010 were retrospectively evaluated using routine clinical data from baseline and follow-up visits. Regimen modification was defined as any sustained drug change to the ART regimen. Patients were right-censored at date of confirmed pregnancy, transfer-out, confirmed death, ART discontinuation, loss to follow-up, or end of study period. Chi-square tests were used to compare characteristics at ART initiation and reason for ART modification, by gender. Time-to-event analysis used a Cox proportional hazards model to determine regimen modification predictors for males and females separately. Chi-square test results and predictors from the Cox proportional hazards model were considered significant at alpha <0.05.

Results: A total of 1,509 adult patients were evaluable, 583 (38.6%) men and 926 (61.4%) women. Median follow-up time was 2.4 years (IQR 1.3-3.2) for men and 2.0 years (IQR 1.1-3.0) for women. CD4 count at ART initiation was not significantly different between genders, 79% of men had CD4 count <250mm3 compared to 78% of women (p=0.67), however there was a significant difference in WHO stage at ART initiation: 50% of men were WHO stage III/IV compared to 40% of women (p<0.001). For initial ART regimen: 99% of men and women were on NNRTI 3TC and among those on NNRTI NVP, more women were on NVP than men (65% vs 55% respectively, p<0.001); there was no significant gender difference for NRTI’s prescribed (d4T, TDF, and AZT) (p=0.30). Approximately one-third of men and women modified their regimen (30% and 31% respectively). Median time to ART modification
was 4.8 years (IQR 2.6-6.1) for men and 4.5 years (IQR 2.4-6.1) for women. Most patients who modified had an initial regimen containing d4T (women: 85% men: 87%). For women, d4T use at baseline had an increased hazard compared to AZT, but not for men (male: AHR 1.59, 95% CI 0.65-3.90 p=0.31; female: AHR 4.99, 95% CI 2.49- 9.99 p<0.001), which were dependent on time and increased overtime; one year past baseline, the adjusted hazard ratio was 3.39 (95% CI 1.82-6.31, p<0.001) for males and 5.29 (95% CI 3.19-8.76, p<0.001) for females. Among those who modified, the most common reason was toxicity/side effects, with no significant gender difference (men: 76%; women: 82% p=0.36).

**Conclusion:** Gender and clinical characteristics at ART initiation did not predict ART modification. Toxicity/side effects, the primary reason for modification, was similar among both genders. Initial regimens containing d4T influenced modification however further investigation is needed to determine factors contributing to d4T predicting ART regimen durability differently for women versus men at baseline, yet predicting modification similarly for both genders after one year.

*No conflict of interest*

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**Issues:** Based on strict religious observances, societal perception and lack of proper sex education at secondary schools, female students had to face sex related challenges.

**Description:** Initially, there was nothing like sex education and even now, sex information remain scanty and abstract. Based on the physical and emotional changes at adolescence as manifested in physical signs like the changes in their body by age factor, the natural instinct to find answers to every new development often leads adolescents to get involve in risky behaviour which eventually lead to problems of unwanted/unintended pregnancy, STIs/HIV and sexual violence like rape which has now become rampant. Ministry of education with the support of relevant civil society groups have included sex education into the school curriculum especially for secondary schools Nigeria. Experience and evidence have shown the benefits of Sex education to students and society at large because it contains convincing explanations on sex and sexuality; and basic life skills to moderate behaviour. Considering the societal perception and strong religious belief of the people, parents and even the teacher are still unable to teach sex education especially for female students. School students do take about sex among their peer on regular basis especially with the usage of slangs. Family Life and HIV/AIDS Education FLHE programme are now available in many schools where Teachers and students are being empowered on necessary skills to teach sex education, reproductive health and life skills. Students are now being trained as peer educators to talk on sexual health with their peers in schools and community. Teachers and parents are also being carried along as the programme got the support of Parents Teachers Association PTA. There is reduction in risky behaviour among the female students.

**Lessons learned:** There is strong desire to learn sexual and reproductive health. Sex education inform decision making and empower adolescent to adopt responsible lifestyle. Teachers and parents without sex education training and skills cannot be comfortable with sex education let alone the teaching. Students who benefitted from sex education training and life skills are of immense benefit to their peers within the school and even out of school youth who constitute the majority of the population.
**Recommendations:** There is urgent need for sex education training and refresher course for teachers and school management especially private schools and missionary schools. The existing peer education model should be extended and made compulsory for all schools both public and private. The module should also be produced in languages other than English with relevant graphic for better understanding considering the out of school adolescents.

*No conflict of interest*

**Abstract:**

**HIV prevention in women**

The Impact of Parity and Formal Education on PMTCT Knowledge among Women Accessing Antenatal Care in rural North-Central Nigeria

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**Background:** Mother-to-child transmission of HIV (MTCT) is the major route of child HIV infections. Nigeria, with over 50,000 babies born with HIV yearly, has the highest number of new child HIV infections worldwide. Prevention of mother-to-child transmission (PMTCT) strategies remains the most viable strategy for protecting infants and children against HIV infection. However, this requires maternal motivation, which is partly dependent on her level of HIV/PMTCT knowledge. This study assesses the level of knowledge relating to PMTCT among pregnant women in rural North-Central (NC) Nigeria.

**Methods:** This cross-sectional study was conducted among antenatal care (ANC) clients attending Primary Healthcare Centers (PHC) in the Federal Capital Territory and Nasarawa State, in NC Nigeria. Random proportionate sampling was used in selecting the number of pregnant women to be interviewed in each PHC. Due to high levels of stigma, respondents were not asked about their HIV status. A 41-item questionnaire was developed to evaluate knowledge on general HIV, HIV Counselling and Testing (HCT), and PMTCT. The questions were based on information provided by health-care workers to pregnant clients during ANC ‘health talks’. The questionnaire was pre-tested, validated and revised among 42 ANC clients at 2 non-study PHCs before implementation. Knowledge was assessed by awarding one point to every correct answer, and zero for incorrect or 'I don't know' answers. The resulting scores were grouped into ≤20/41 points and ≥21/40 points, indicating 'poor' and 'good' knowledge respectively. Chi-square and Logistic Regression were used to test associations.

**Results:** Among 422 pregnant women interviewed at 11 PHCs, 194 (46.0%) were Primigravidae and 228 (54.0%) multigravidae. Among multigravidas, median number of pregnancies was 3 (IQR 3-5); 18 (7.9%) had been pregnant 5 or more times. Mean age of respondents was 23.5±4.0 years (primigravidae) and 28.0±6.6 years (multigravidae). Participant age range was 15 to 55 years. Approximately 14.7% and 39.3% of all respondents had completed primary and secondary education, respectively; 23.7% had completed tertiary education and 22.3% had no formal education. Majority (73%) had 'good' HIV/PMTCT knowledge. There was no significant association between parity and HIV/PMTCT knowledge of all participants (p=0.75). Likewise, previous ANCs and knowledge among multigravidas (p=0.57). With increasing trend, pregnant women with completed secondary and tertiary education status were more likely to have 'good knowledge' than those without any formal education (p=0.004; OR= 2.31; 95%CI.= 1.31-4.08) ; (p=0.001; OR= 3.32; 95%CI.=1.63-6.79) respectively. Women ≥25 years old were more likely to have good HIV/PMTCT knowledge (p=0.013, OR=1.79; C.I. =1.13-2.85] than those <25 years old.
Conclusions: The majority of ANC attendees in our rural study were young women less than 30 years old with relatively high parity. Formal education appears to provide an advantage in HIV/AIDS knowledge rather than parity and exposure to 'health talks'. ANC 'health talks' should include more HIV-specific information and formal educational institutions, especially at the primary and secondary level, should be encouraged to provide HIV prevention education specifically for girls and young women. This is likely to impact on understanding, acceptance and compliance with PMTCT strategies for best maternal-child outcomes.

No conflict of interest

Abstract: 47

HIV prevention in women

Trend of utilization of HIV prevention services among Nigerian women

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Introduction: Information on utilization of various services geared towards prevention of HIV and other sexually transmitted infections is essential in monitoring the intervention programs for control of the HIV and AIDS especially among women who are disproportionately affected in comparison to their male counterpart. Nigeria is one of the countries with high burden of HIV infection and has over the years been implementing various HIV control programs. This study seeks to evaluate the trend of utilization of some of the HIV prevention services available to women in Nigeria.

Materials and methods: This cross-sectional, population-based study utilized secondary data from the 2008 and 2014 Nigerian Demographic and Health Surveys (NDHS) where data was extracted for female participants aged 15 to 49 years. The participants were interviewed about use condom during their last sexual intercourse among those with more than one sexual partner in the past 12 months; ever tested for HIV and received results; received counseling on HIV and an HIV test during antenatal care (ANC), and the results two years prior to the survey; and those whose last injection had syringe and needle taken from a new, unopened package. Ethical approval was sought from the Nigerian Federal Ministry of Health prior to the original surveys.

Results: More women who engaged in higher risk sexual intercourse used condom during their last sex in 2013 than in 2008; 31 (95% CI -8 to 70) compared to 20 (95% CI -11 to 51); p= 0.0398. In 2013 more women had been tested for HIV and received results; 2464 (95% CI 1202 to 3726) compared to 1220 (95% CI 452 to 1987); p= 0.0060. In 2013, 723 women (95% CI 53 to 1392) versus 442 (95% CI 10 to 874) received counseling on HIV and an HIV test during ANC, and the results; p= 0.0390. 9421 women (95% CI 4024 to 14819) in 2013 had their last injection with syringe and needle taken from a new, unopened package compared to 7995 women (95% CI 3327 to 12664) in 2008; p= 0.0098. In 2013, apart from the use of condom with high risk partners, age group 15-24 years participants had least utilization of all the other services. Urban women utilized all the services more than the rural women. More educated women utilized all the services better than the lesser educated ones.

Conclusions: HIV prevention services improved over the years in Nigeria however, there is still need to re-strategize the approach of reaching young women in order for them to access the available HIV prevention services. Efforts should also be geared towards girl child education by the Federal and State Ministries of Education and need for more campaign in the rural areas of Nigeria by the HIV prevention and control programs.

No conflict of interest

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Abstract: 48

HIV prevention in women

Access of Women with Disability to HIV Counseling and Testing (HCT) in Osun state Southwest, Nigeria

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Introduction: In recent years, HIV/AIDS has being recognized as a growing problem among people with disabilities (PWD) with higher risk of new infection due to their vulnerability. PWD in Nigeria are estimated to be over 12 million in 2011, (JONAPWD 2010) with high vulnerability to sexual violence, discrimination, abuse of all sorts and lacked access to HIV/AIDS prevention and treatment services. Women with disability are mostly affected. In the third decade of HIV/AIDS epidemics, this significant population is still denied HCT access, despite their rights to health care services.

Current policy for HCT in Nigeria does not include needs of PWD, while service centers are difficult to access by those with mobility problems. Attainment of MDG 6 of halting the spread of HIV/AIDS is very gloomy with the neglect of this population who has great potential to facilitate an explosion of new infection in the next decade.

Materials and methods: Cross sectional study conducted among purposively selected women with disabilities: deaf, blind and the physically disabled across 6 LGAs in Osun state, Southwest Nigeria using interviewer administered questionnaires. Twelve (12) key informant interviews stratified by gender was conducted with health workers in 6 health centers. STATA 13 and NVIVO 10 were used for data analysis. Inductive analysis was adopted for the interviews.

Results: 156 women with mean age of 37 years, 60% illiteracy and 12 health workers (M=8, F=4) responded. Only four health centers provide HCT with limited test kits. Poor HCT access was associated with inappropriate HCT information channel especially to reach the deaf and inaccessible infrastructure i.e. building without ramps for wheel chair. Only 26.7% of disabled women mostly blind have ever done HCT on recommendation by a health worker during sickness. Low uptake of HCT is linked with illiteracy, ignorance, inadequate facilities, poor information access and poor attitude of providers, stigma and discrimination.

Conclusion: Women with disabilities are a significant population at risk of HIV infection and a threat for the explosion of the next trend of epidemics. Policy and program response to promote inclusive HIV/AIDS prevention and treatment of persons with disability especially women require urgent attention.

No conflict of interest

Abstract: 49

HIV prevention in women

Evaluation of -"Addis Mela Le Hiwot HIV Interventions" – a locally adapted and structured program, to reduce HIV vulnerability among Female Sex Workers in Ethiopia

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Introduction: A combination of factors is known to affect individual risk and vulnerability to HIV. In the context of HIV prevention programs for Female Sex Workers (FSWs) in Ethiopia, Save the Children and its partners, implemented a locally adapted and structured peer education program guided by locally tailored cue cards.
The purpose of the interventions was to address in combination, context-specific biomedical, behavioral and structural factors contributing to HIV vulnerability among FSWs in Ethiopia.

**Materials & Methods:** An end line evaluation that involved a mix of quantitative and qualitative methods was used to determine the outcomes of the interventions. The quantitative method was designed to examine temporal changes in key outcome indicators between the baseline and end line. It was also designed to facilitate the assessment of the statistical significance of the exposure to the key outcomes. The qualitative methods facilitated insight into and in-depth understanding of the impact of the interventions.

**Results:** A total of 400 FSWs were interviewed across the program operational area of which 10% were considered not exposed; 50% moderately exposed and 40% were highly exposed to the ‘Addis Mela Le Hiwot HIV Interventions’. Statistical analysis was conducted to determine the relationship between the interventions and selected outcome indicators.

**Conclusion:** Globally HIV prevention interventions are a critical concern for FSWs. In this project, the uptake of HIV prevention interventions among the FSWs correlates with the level of exposure to the interventions. The evaluation demonstrates that it is possible to address behavioural, biomedical and structural factors as part of large-scale HIV prevention programming for FSWs. Addressing the broader behavioural, biomedical and structural factors contributes significantly to a reduction in the vulnerability of FSWs to HIV. These interventions are thus critical to enable these vulnerable women to become sufficiently empowered to adopt the safer sexual behaviours which are required to respond effectively to the HIV epidemic.

*No conflict of interest*

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**Table:** Adjusted multivariate prevalence ratio (PR) and p-value of key outcome indicators, February 2014 (n=400)

<table>
<thead>
<tr>
<th>Exposure to Addis Mela</th>
<th>Condom use</th>
<th>HCT</th>
<th>STI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>paying</td>
<td>HCT in the past</td>
<td>Partner HCT in the past 3 months</td>
</tr>
<tr>
<td>Baseline (ref)</td>
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<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Not exposed</td>
<td>0.99</td>
<td>0.87</td>
<td>0.63</td>
</tr>
<tr>
<td>Moderately exposed</td>
<td>1.03*</td>
<td>1.33***</td>
<td>0.91</td>
</tr>
<tr>
<td>Highly exposed</td>
<td>1.20*</td>
<td>1.32***</td>
<td>1.30*</td>
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</tbody>
</table>

*p<0.05; **p<0.001; ***p<0.0001; ref =reference category*
Abstract: 50

HIV prevention in women

Addressing HIV Risk among African-American Women College Students

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Background: African-American women’s HIV infection rates are more than 15 times those of white women and three times those of Latinas, second only to African-American men (CDC, 2011a; CDC, 2012). In 2010, African-American women comprised 13% of all U.S. women but 64% of all women diagnosed with AIDS (KFF, 2012b). They are most likely to be diagnosed with HIV between ages 20 and 24 (CDC, 2011c) and roughly 85% are infected through heterosexual contact (CDC, 2011a). College students have historically been considered ‘low risk’ for HIV infection due to the perception that education is a protective factor and the assumption that all college students are socioeconomically privileged. However, recent research suggests that young African-American women remain at elevated HIV risk even when attending college, and that the significant disparity in college attendance between young African-American men vs. women may actually exacerbate their risk (Alleyne & Gaston, 2010).

Materials & Methods: This study uses online surveys and open-ended individual interviews to assess levels of HIV knowledge, perceptions of HIV risk and actual HIV risk behaviors among African-American women college students at a comprehensive public university. Almost all students are commuters reliant on financial assistance, most are employed and many are parents or care givers for other family members.

Results: The data collected suggests that as these students work to improve their lives through higher education, most maintain family, work and social lives centered in communities colored by high levels of poverty and discrimination. Participants’ perceptions of their own HIV risk do not appear to consistently represent their stated levels of HIV knowledge or their actual HIV risk behaviors. Specifically, the risk for HIV infection among these women appears to be heightened by factors including high rates of incarceration among young African-American men, gender-based power imbalances in romantic relationships, men’s frequent conduct of concurrent relationships, and cultural taboos around open discussion of HIV/AIDS, female sexuality and LGBT issues.

Conclusions: The sustained failure to successfully engage African-American women in HIV prevention and treatment efforts has been fueled by initial failures to address the needs of women and people of color, later focus on ‘risk groups’ versus risk behaviors, and then exclusive focus on biomedical aspects of HIV/AIDS. As such, emerging research such as that presented here should be used to develop effective, engaging peer-driven HIV prevention tools for African-American women students. Such tools must use nuanced information about these young women’s knowledge, experiences and perspectives to address their needs, priorities and identities as social determinants of health.

No conflict of interest

Abstract: 51

HIV prevention in women

Reaching women through their HIV-positive male partners: The PRO Men Initiative

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Introduction: PRO Men (Positive Reproductive Outcomes for Men) is an initiative of BAPAC (Bay Area Perinatal AIDS Center) and based at
San Francisco General Hospital's (SFGH) Ward 86 HIV Clinic. PRO Men is aimed at the approximately 500 HIV-positive men who have sex with women receiving care at Ward 86 HIV Clinic. PRO Men aims to help men determine their reproductive health intentions and to support clinicians integrating reproductive health care into the primary care setting. The PRO Men initiative was launched in 2012 with the collaboration expanding in 2013 to include SFGH's Family HIV Clinic based in The Family Health Center, a federally qualified health center. Because of the close coordination between BAPAC, Ward 86 HIV Clinic and Family HIV Clinic, female partners of HIV-positive men are able receive prompt, expert clinical care around their sexual and reproductive health decisions including pre-exposure prophylaxis (PrEP) and contraception. Many HIV-positive men in the PRO Men initiative report a desire a family but also say they’ve never been asked by their providers whether they want to have a child. Their HIV-negative female partners report stigma from family, friends and medical providers around their goals to conceive.

Methods: During the PRO MEN pilot year, we led focus groups with HIV-positive men who have sex with women to determine their experiences and beliefs about HIV prevention and transmission, family planning and safer conception options. Additionally, thought leader interviews were conducted with experts on safer conception, family planning, HIV transmission, adherence and disclosure. Calls to UCSFs National Perinatal HIV Hotline highlighted clinicians’ questions and consultation needs. From these experiences, we identified themes and developed a video script as well as patient and provider tools on contraception, safer conception options and lowering HIV sexual transmission. Monthly PRO Men support groups launched in 2013, additional videos were produced and in collaboration with the San Francisco AIDS Education and Training Center a three-hour provider education event was held. An unanticipated benefit of promoting the PRO Men support group is the increased one-on-one conversations with patients who reveal questions related to their own sexual or reproductive health.

Results: During 2014, 44 men sought a one-on-one visit with the PRO Men nurse yielding 73 total visits. Additionally, seven men brought their HIV-negative female partner for a couple visit. Another seven women attended clinic for a one-on-one partner visit with the PRO Men nurse. A total of 13 women were referred for HIV-testing and screening for pre-exposure prophylaxis. Forty providers sought 54 consultations.

Conclusions: We are at an incredible time of promise in the HIV epidemic with the knowledge needed to eliminate sexual HIV transmission. Supporting men living with HIV in achieving their sexual and reproductive health goals is an integrated treatment and prevention strategy. The PRO Men approach provides a unique opportunity to reach HIV-uninfected partners of HIV-positive men. The PRO Men model for integrating sexual and reproductive health care into the primary care setting an opportunity to reframe the story from one of risk reduction and permission to a story of possibility and hope.

No conflict of interest

Abstract: 52

HIV prevention in women

Sanitary Pads Access and Menstrual-Induced School Absenteeism: Experiences of Learners in a Rural High school in South Africa

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Background: In Sub-Saharan Africa, access to affordable and safe methods of dealing with menstruation for adolescent girls is a key consideration for better educational and health outcomes. According to UNESCO, 10% of girls in Africa miss school and or drop-out because of menstruation related issues. South Africa(SA) continues to face high levels of HIV prevalence,
poverty and violence against women, with young women most affected. Of the 9 million girls in SA aged between 13-19 years, 64% live in poverty. Although there is limited empirical data on sanitary pads access for girls in SA, it is estimated that girls are missing about 60 days per annum—representing >10% of a school year. This paper assesses sanitary pad access and menstrual hygiene education in a rural high-school in SA.

**Method:** Kheth’ Impilo(KI), a non-governmental organization that has been delivering HIV prevention, treatment, care and support services on behalf of the South African government for over a decade. KI implemented a school-based Sexual Reproductive Health and Rights(SRH&R)program in a rural high-school (n=1300). The program offered SRH&R education, screening, counseling and referral to youth-friendly SRH&R services. Baseline school evaluation highlighted that girls were less likely to complete high-school compared to boys, high teenage pregnancy rates, hunger and poor access to sanitary pads. In light of the baseline findings, KI initiated a sanitary pad intervention as part SRH&R program, in collaboration with a social entrepreneur who invented a reusable sanitary pad and private sector partners who sponsored the pads. A cross-sectional anonymous survey was implemented prior to the delivery of reusable pads and the educational sessions. Univariate and bivariate analysis was done for continuous and categorical variables.

**Results:** A total of 610 learners were recruited in the survey of whom 550 participated. 10% of learners were absent as the result of an unplanned pregnancy. The girls’ ages ranged from 14-26 years (µ 16, SD 1.43). Age of menstruation onset ranged from 10-17 years (µ 13.5; SD 1.4). A large proportion reported menstrual-related absenteeism(45.4%). Key reasons were unaffordability(77.5%), unavailability in shops(49.4%), pain(66%), no place to wash/change(40.3%), and/no place to dispose pads at school(29.6%). Forty-percent of the learners reported not ever being taught about menstruation. Girls reported menstruation made them stay indoors(27.5%); unable to walk far(40.8%); inability to do daily activities like cooking/fetching water(41.8%); avoid males(39.6%); unable to play with other children(45.4%) and fear of staining their clothes(40.4%). Majority used disposable sanitary pads(89.9%). Almost half(47%) reported to be on contraceptives.

**Discussion :** Adolescent girls faced poor access to sanitary pads, menstrual education and this impacted on their school attendance. This has implications on their SRH&R in terms of their physical, social, mental well-being and retention. Girls who miss or drop-out of school are more likely to be exposed to other risks such as unplanned pregnancy, HIV/AIDS, inter-generational or transactional sex. Further empirical evidence is needed to determine the scale of the problem in SA. This study suggests the provision of safe, affordable sanitary pads and menstrual hygiene education should be an essential element an Integrated School Health Plan, particularly in impoverished settings.

**No conflict of interest**

**Abstract: 53**

*Diagnosis and treatment of HIV infection*

*Betwixt and Between Telling and not Telling: HIV-infection Disclosure Dilemmas among Ghanaian Women*

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**Purpose:** The purpose of this article is to describe the experience of dilemmas in disclosure of HIV-positive diagnosis among Ghanaian women and the consequences of such disclosure. The aim of the article is to bring attention to the increasingly important issues and complexities involved in breaking the news of HIV-infection and to provide a framework for considering disclosure-related challenges in Ghana.
Methods: A phenomenological method was used and Parse Theory of Human Becoming guided discovery. This method includes elements of both descriptive and interpretive phenomenology. The sample was purposive and consisted of HIV-positive women receiving care and support from a nongovernmental organization. Eight data gathering questions guided the in-depth interview process. All the interviews were face-face and conducted in naturalistic settings chosen by the participants. Some of the interviews were conducted in the NGO premises under shady trees whilst some few were conducted in the secluded abbeys of the participants in homes. The interviews were audio-taped and transcribed verbatim. Data saturation occurred after 16 interviews (N=16). Data analysis followed Tesch in Creswell (2009:186) data analysis protocol. Eight themes and categories emerged from the data including experience of being diagnosed with HIV, fear of ostracism, refusal to disclose HIV-positive diagnosis, need for continued social participation, economic survival, myths about HIV infection transmission, and lack of privacy and confidentiality.

Results: The findings indicated that HIV/AIDS disclosure resulted in greater negative effects on the psychological well-being of women infected with the virus. Generally, Ghanaian women were unsure about whom to disclose their serostatus and that disclosure tends to be associated with negative outcomes.

Conclusion: The study concluded that the uncertainty about HIV/AIDS serostatus disclosure posed a great dilemma to women as they were usually torn between to tell or not due to the unknown adverse reaction from significant others, friends and society. The study recommended the need for acceptance and respect for HIV-positive women by family members.

No conflict of interest

Abstract: 54

Diagnosis and treatment of HIV infection

Enrollment in The Women's AntiretroViral Efficacy and Safety study (WAVES), a Phase 3 global study assessing antiretroviral regimen in treatment-naive women


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Background: Women account for approximately fifty percent of global HIV cases but continue to be underrepresented in HIV clinical studies. Consequently, data gaps exist relevant to optimal antiretroviral selection for women. Relative to men, women generally have a lower body mass, higher body-fat content and hormonal differences. Adverse effects and the ability to tolerate certain antiretroviral drugs may differ in women. Moreover, the possibility of pregnancy, and the need to take care of dependent children may affect their participation in clinical trials.

Description: WAVES is a global multicenter, randomized phase 3 study assessing the safety and efficacy of EVG/COBI/FTC/TDF versus ATV+RTV+FTC/TDF in treatment-naive women. A logo and special recruitment materials were created specifically for women, and recruitment efforts emphasized the critical need to assess antiretroviral drugs among women. In addition, women who become pregnant while on study have the option to continue receiving study drug.

Lesson Learned: It is possible to efficiently enroll a large, randomized study of antiretroviral
therapy among women with prudent study site selection and tailored recruitment. To enroll 580 participants, 814 women were screened. Median age at entry was 35 years with 66% of women working outside the home and 46% living with dependent children. Median CD4 count was 358 cells/μL, median HIV viral load was 5.41 log₁₀ c/mL (76% had <100,000 copies/mL), and 78% reported asymptomatic HIV disease status at baseline. Transmitted PI, NNRTI, or NRTI drug resistance mutations were present in 34% of the study population, higher than other reported studies.

Next steps: These data suggest that large numbers of women can be enrolled into clinical trials, however, trial sponsors, investigators, and study site staff must be committed to the goal of enrolling sufficient numbers of women.

Conflict of interest: J.S and H.C employees of Gilead Sciences, Inc

Abstract: 55

Diagnosis and treatment of HIV infection

New HIV cases and ARV retention in Pretoria: A gender project for high risk women

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Introduction: HIV testing and treatment programs run by the South African Government currently miss many drug using women and sex workers. Retention rates in antiretroviral therapy (ART) for women who test positive are poor. This presentation reports complete baseline data regarding the HIV treatment cascade from women enrolled in a gender-focused NIDA-funded cluster randomized study in Pretoria, South Africa to increase HIV testing, treatment and retention in ART.

Methods: We used natural boundaries (e.g. highways, rivers, etc.) to divide the city of Pretoria (635 sq. miles) into 14 zones. Outreach workers for the project recruited sex workers and other women who reported using alcohol or drugs at least weekly from all 14 zones. We enrolled 640 women who completed interviews, testing for HIV, pregnancy, and recent alcohol and drug use.

Results: The most common biologically confirmed drugs of abuse were marijuana 32%, opiates 18%, and cocaine 15%, and 14% had a positive alcohol breathalyzer. HIV prevalence was 55% overall, and 68% among sex workers. Eleven percent of women reported this was their first HIV test. Of these, 52% were newly diagnosed with HIV. Of the women who had been tested previously, 85 (15%) were newly diagnosed. Only 22% of HIV positive women were on ART. CD4 counts results were only available for 39%. Of women with a CD4 count, 36% had a count ≤350 which made them eligible for ART, but only 37% of them were on ART. The major barriers to ART were structural (e.g. clinics far away, clinics ran out of ARVs, no CD4 tests, etc.) and individual barriers (e.g. food insecurity, belief in traditional medicine, addiction).

Conclusions: More people live with HIV in South Africa than anywhere else in the world. Yet, there is still an unmet need for reaching, testing, treating and retaining high risk HIV positive women. South Africa must increase focused efforts for high risk groups to help them progress successfully through the HIV treatment cascade. This project is testing a woman-focused intervention to help HIV positive women progress through the treatment cascade and achieve suppressed viral loads.

No conflict of interest
Abstract: 56

Diagnosis and treatment of HIV infection

Barriers to access of HIV services due Ethno Religious Crises in Jos, Nigeria - Muslim Health Initiative in Nigeria
Strategy to scale up HIV Services To affected Communities


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Background: Plateau is a 12+1 high HIV-burden state in Nigeria with 7.7% prevalence. In 2001, Jos began to experience ethno-religious crises, followed by progressive partitioning of the town across ethno-religious lines, leading to distrust. There exists in Jos Metropolis areas where Christians reside and access health and people of Islamic Faith cannot and vice-versa.

Healthcare is therefore necessarily sought where people reside and residents in disadvantaged communities utilize health facilities discovered to lack HIV/AIDS prevention/treatment services. The conceptualization and selection, in 2013, of Muslim HIV service providers to inaugurate Muslim Health Initiative in Nigeria, a faith-based/Community Based Organization was to eliminate this barrier to access and use the HIV Program to strengthen Maternal/Child Services.

Methods: The all Muslim MUHIN team consisting HIV Clinician, Doctor/Community leader, Laboratory scientist, data officer and Islamic cleric was constituted. They have experience working with community groups, Islamic women, youths, clerics and community NGOs/CBOs. The Ministry of Health, AIDS Control agency and other stakeholders were involved, the group was registered as non-governmental, nonprofit/faith-based organization aimed at preventing spread of HIV/AIDS/improving maternal/child health. Their Mission is support health of the Muslim community by providing promotive, preventive, curative HIV/AIDS and reproductive health services

A stakeholders meeting was convened and 29 well utilized Private Health facilities in fifteen Islamic communities lacking HCT/PMTCT/HIV services were identified and needs assessed with an adapted facility-assessment tool. Technical support/funding was provided by AIDS prevention Initiative in Nigeria.

Objectives included scaling-up HIV services using acceptable/accessible strategies/methods, integrate HIV/MNCH, leverage HIV support for strengthening healthcare and reduce maternal/child mortality rates and build capacity and systems of MUHIN and its sites

Results: All facilities provide Maternity/delivery services and were well utilized. Doctors headed eleven facilities, Nurses six, Community health officers three, Community Health Extension workers eight and one by laboratory scientist. MNCH Record keeping was poor across all facilities; HCT in ANC was erratic and non-compliant with national algorithm was done in Doctor-headed facilities but none provided pre/posttest counselling or had HIV register. The staff lacked HIV training and Test-kits were bought in open-markets. Waste disposal is mainly by open burning while 24 facilities have small functional laboratories.

This assessment revealed gaps and informed health systems strengthening needs, following which MUHIN team received trainings, office support, funding, HIV Commodities and technical assistance. Health personnel from twenty eight clinics received Injection safety/infection control, HCT, PMTCT, care/support and ART trainings. Clinics were provided RTKs, consumables, safety equipment like boots, aprons, sharp
disposal materials, delivery/MNCH/HIV National M/E tools. They received support visits. All facilities were supported to provide HCT in all settings, refer positives using the hub/ spoke model, but provide women testing positive in Labor with ARVs/PMTCT. The eight Doctor-headed facilities commenced PMTCT using triple-ARVs. Three facilities were activated/supported for comprehensive HIV services and provide CD4 testing to PMTCT sites. Viral load/Early Infant diagnoses were at Jos University Teaching Hospital. Site mentorship/Supportive supervision was provided MUHIN/APIN teams. MUHIN provides community/HCT outreaches for demand creation/identify HIV-positives.

Achievements from March 2013- August 2013
- Individuals counselled, tested/received results -7193
- Pregnant women with known HIV status - 3201
- HIV-positive pregnant women receiving ARV prophylaxis for PMTCT - 17
- HIV-infected patients enrolled into clinical care-69
- HIV infected patients commenced ART- 33

Conclusion: Barriers to accessing HIV/PMTCT services differ in different areas and strategies to close the gaps must be tailored towards existing circumstances

No conflict of interest

Abstract: 57

Diagnosis and treatment of HIV infection

Using Narrative Data to Assess the Relationship between Perceived Risk and Factors Associated with Disclosure among HIV Positive Women

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Introduction: Perceived risk for contracting HIV should assess the perception if the likelihood one has for contracting the virus that causes AIDS. Perceived risk is often low for some HIV positive women and may impact access to care and treatment, and rates of disclosure after diagnosis. This study analyzed qualitative data in the form of narratives collected from HIV positive, Black women living in the south to determine if perceived risk impact rate of status disclosure and accessing treatment.

Materials and methods: Approximately 30 HIV positive women living in the southern portion of the US were interviewed to assess their lived experience of being HIV positive. The overall goal of the study was to examine aspects of day to day live before and after an HIV diagnosis based on two primary interview questions; (1) how did you find out you were HIV positive?; and (2) what has live been like since diagnosis? Participants were recruited using snowball sampling in which a small number of women were recruited based on the study criteria, and additional potential participants were informed about the study through social support networks. All Interviews were recorded and conducted at a location determined by the participant. At the conclusion of the data collection process, interviews were transcribed, and analysis was done using NVivo. Thematic analysis was done deductively (predetermined based on literature) and inductively (discovered within the context of the interviews) and comparative content analysis was used to group liked data based on thematic identification to determine primary relationships.

Results: Based on the data analysis, the degree of perceived risk prior to acquiring the virus that causes AIDS was associated with status disclose to friends and family members. Lower perceived risk was also associated with negative views of HIV and personal experiences of stigma, delayed acceptance of an HIV diagnosis, and delays in accessing treatment and care. Subsequently, the perception of risky behavior was associated with perceived negative reaction to disclosing one's status. Additional themes identified in the data included a relationship between perceived risk and fear of isolation and
discrimination, and perceived lack of emotional support.

**Conclusion:** Although most studies and interventions efforts address risk factors associated with HIV transmission, perceived risk is often overlooked. Perceived risk examines a person's susceptibility, or one's perception of experiencing a negative health outcome, along with the perceived severity of the health outcome. One may engage in risky health behaviors associated with an increased risk of HIV transmission. However, if one does not perceive their risk as high, then intervention efforts may not target those most at risk. Consequently, lower rates of perceived risk may lead to stigma and disassociation between risky sexual behavior and those diagnosed with HIV. Increased efforts should be made to assess actual perceived risk based on sexual behavior to reduce HIV transmission among groups at an increased risk for acquiring the virus that causes AIDS.

No conflict of interest

**Abstract: 58**

*Epidemiology of HIV in women and girls*

**Curbing Intergenerational HIV Transmission in Rwanda**

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**Background:** Eradicating intergenerational transmission from older men to younger girls could help eradicate HIV, curb early pregnancies and potentially mitigate transactional sex. We propose an in-school program evaluated in Kenya, where it reduced teenage childbearing, a proxy for HIV risk, by 61% with older men (Dupas 2011).

**Methods:** To determine if the program will be effective in Rwanda, our team surveyed 1,765 students from twelve secondary schools in six randomly selected districts across the country.

**Results:** Most schoolgirls know older men have higher HIV rates: 62% of girls knew that boys 15-19 were the age group least likely to have HIV. When asked who was most likely to have HIV, 43% of girls said men 25-29, 40% said men 20-24, and 19% said boys 15-19. Furthermore, adolescents vastly overestimate HIV risk: 44% of girls estimate the rate is over 20% for men ages 20-29. Nonetheless, intergenerational relationships are common. More than a fifth of girls report having a partner five or more years older. One in ten girls report having been offered cash or gifts for sex.

**Conclusion:** We consider adjusting the program in light of these results or starting a new program. The latter could include targeting the older men; giving girls in-kind gifts, similar to an effective Malawi cash transfers program; or providing free school uniforms, based on an evidence-based program from Kenya (Baird et al 2011, Baird et al 2012, Duflo et al 2006).

No conflict of interest

**Abstract: 59**

*Epidemiology of HIV in women and girls*

**HIV Testing among Adolescents at a large PMTCT Center in North-Central Nigeria**

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Introduction: At 122 births per 1000, Nigeria has one of the highest adolescent birth rates in the world. In Nigeria, pregnant 15-19 year-olds account for 9.7% of births to women seeking antenatal care (ANC), and HIV prevalence in these young women is 3%. Similar data for adolescents in North-Central (NC) Nigeria are 7.9% and 5.4% respectively. Access to Prevention of Mother-to-Child Transmission of HIV (PMTCT) services by adolescent females remains significantly lower than for adult women. Studies show that adolescent girls have higher MTCT rates than older women. Data on Nigerian adolescents (10-19 years) and their participation in PMTCT is lacking. This study evaluated access to HIV testing among pregnant adolescents at a large health facility in North-Central (NC) Nigeria.

Material and Methods: This retrospective study was conducted at the ANC clinic of the Federal Medical Center Keffi, a tertiary facility in NC Nigeria that tests >3,000 pregnant women for HIV annually. Data from all pregnant women tested between June 2013 and May 2014 were reviewed from PMTCT registers. Demographic and HIV testing/result data were extracted. Chi square test was used to compare proportions.

Results: A total of 3,279 HIV test results from the PMTCT Program were reviewed; 295 (9.0%) were HIV+. Age range of tested pregnant women was 15-55 years with median age of 28 years. A total of 131 adolescents were tested (3.9% of 3,279 results). Median adolescent age was 18 years (range 15-19 year). HIV prevalence among adolescents and non-adolescents was 2.3% and 9.3% respectively (p=0.006).

Conclusions: The lower-than-expected proportion of pregnant adolescents tested (3.9% vs regional 7.9% and national 9.7%) may be due to difficulty in independent access to HIV testing for girls less than the legal age of 18 years. Additional factors may include overall poor health-seeking behavior, the stigma of teen pregnancy and lack of awareness on the need for HIV testing in pregnancy. HIV prevalence in our cohort (2.3%) was similar to regional (5.4%, p=0.14) and national (3%) adolescent figures; however it was significantly lower compared to older women at the facility. Although results show relatively low HIV prevalence in adolescent females, MTCT rates may ultimately be high due to lower access to PMTCT services and education. Given the high birth rate, more infants from future pregnancies may be at risk of acquiring HIV from a young, undiagnosed mother. Due to small numbers of HIV+ adolescent mothers, we were unable to assess and analyze MTCT rates. We strongly recommend facility and community-based strategies to identify pregnant adolescents for early HIV testing and comprehensive PMTCT services. This should include easier and wider access to testing and treatment, non-judgmental confidential testing, and supportive care.

Abstract: 60
Epidemiology of HIV in women and girls
HIV epidemiology, prevalence and knowledge among female commercial sex workers and migrating women in Nepal

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Introduction: Female commercial sex workers (FCSWs) in Nepal are mobile on highway routes and there are no registered brothels. This study is to review information on HIV epidemiology and on sexual behaviour of these FCSWs. This study discusses on how migration and lack of access to education have an impact on HIV/STI vulnerability among FCSWs and their clients.

Method: The study was of descriptive cross-sectional quantitative design. Data was collected through face-to-face interviews. Systematic review using web-based information was done.
Results: The total of 150 FCSWs were included in the study. The median age of FCSWs was 18.0 years. In the commonest highway routes the average clients per day were 2.6. About 66.6% (n=100/150) of them also had non-commercial sex. About 31.33% (n=47/150) reported using condoms for non-commercial sex. 58.6% (n=88/150) reported using condom for their last client. According to the FCSW, most clients 74.66% (n=112/150) are married. The regular use of a condom with their wives could not be assessed. HIV-1 seroprevalence has been rising rapidly in association with high-risk behaviours with 36.9% amongst FCSWs. Many girls from Nepal are trafficked every year to India to involve in the Indian sex trade. 43.54% FCSWs (n=27/62) returned to Nepal when found to be infected with HIV but continue to undertake sex work.

Conclusion: There is lack of knowledge on sexual behaviour among the FCHWs and in the general population. However research on sexual networking is essential to guide HIV control in Nepal. It is important to focus on risk-taking behaviour and risk-generating situations to address HIV/STI vulnerability among FCHWs and in migrating population. The lack of access to health care and education in rural areas and the social and economic factors forcing women to migrate and seek employment affects the widespread growth of the sex industry and the trafficking of girls and young women. Thus the economic, legal and social circumstances forcing women and men to migrate for sex work should be addressed.

No conflict of interest

Abstract: 61

Comorbidities in HIV infected women

Utilization of Cervical Cancer Screening Among HIV Infected Women in Nairobi, Kenya

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Introduction: Cervical cancer is the commonest cause of cancer-related morbidity and mortality among women in developing countries in Sub Saharan Africa. Screening for cervical cancer in all women regardless of HIV status is crucial for the early detection of cancer of the cervix when treatment is most effective in curing the disease. It is particularly more important to screen HIV infected women as they are more at risk of developing the disease and progressing faster once infected with HPV (Human Papilloma Virus). We aimed to determine the factors affecting the utilization of cervical cancer screenings among HIV infected women above 18 years of age at Kenyatta National Hospital (KNH) Comprehensive Care Center (CCC).

Materials and Methods: A cross-sectional mixed quantitative and qualitative study involving randomly and purposefully selected HIV positive female respectively was conducted. Qualitative data collection involved 4 focus group discussions of eligible female participants while quantitative data were acquired by one to one interviewer administered structured questionnaires. The outcome variable was the utilization of cervical cancer screening. Data were entered into Access data base and analyzed using Stata version 11.1. Qualitative data were analyzed after coding for significant clauses and transcribing to determine themes arising.

Results: We enrolled a total of 387 patients, mean age (IQ range) 40 years (36-44). Cervical
cancer screening utilization was 46% despite a health care provider recommendation of 85%. The screening results were reported as normal in 72 of 81 (88.9%) and abnormal in 7 of 81 (8.6%) of the cases. Those who did not know their result were 2 of 81 (2.5%). Patients were less likely to utilize the service with increasing number of years attending the clinic (OR 0.9, 95% CI 0.86-0.99, p-value 0.02), but more likely to utilize the service if recommendation by a staff was made (OR 10, 95% CI 4.2-23.9, p<0.001), and if cervical screening had been done before joining KNH CCC (OR 2.9, 95% CI 1.7-4.9, p<0.001). Similarly, they were more likely to rate the services on cervical cancer screening as good (OR 5.0, 95% CI 1.7-3.4, p <0.001) and very good (OR 8.1, 95% CI 2.5-6.1, p<0.001) if they had utilized the service.

The main barrier themes emerging from qualitative data included fear of screening due to excessive pain or bleeding, lack of proper communication on screening procedures and increased waiting time.

**Conclusions:** Utilization of cervical cancer screening services was low despite health care recommendation. Patient sociodemographic characteristics did not influence whether or not they utilized the services, indicating the important role of the health care provider in the referral and provision the service.

No conflict of interest
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