



# Reviews

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## **Abstract Book**

2<sup>nd</sup> International Workshop on HIV & Women

*from Adolescence through Menopause*

*9 - 10 January 2012, Bethesda, MD, USA*

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9 - 10 January 2012, Bethesda, MD, USA

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**2<sup>nd</sup> International Workshop on HIV & Women**  
*from Adolescence through Menopause*

**9 – 10 January 2012, Bethesda, MD, USA**

**Abstracts**  
***Oral Presentations***



**Abstract: O\_1**

*Developing effective treatment programs: Issues in women*

## **The prevalence of a positive screen for anxiety and/or depression in HIV-1 infected women across Western Europe and Canada - The CRANlum Study**

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**Background:** The prevalence rate of depressive symptoms has previously been reported to be higher in HIV+ women compared with men, however a review of the literature revealed < 25% of studies reporting on depression in HIV+ patients included findings separated by gender, with few studies focusing solely on women. It has been reported that mortality is twice as high among HIV+ women with a history of depression when compared with HIV+ women without a history of depression. The primary objective of the CRANlum study was to describe and compare the prevalence of a positive screening for neurocognitive impairment and depression/anxiety in an HIV-1 infected population on Highly Active Antiretroviral Therapy (HAART) versus HAART-naïve patients. Here we present prevalence data on depressive and anxiety symptoms, providing a gender comparison.

**Methods:** HIV-1 infected patients > 18 y/o attending routine clinic visits were eligible for participation. Patients consecutively attending clinic were given the opportunity to enroll. The study team set an a priori enrollment target of

40% female subjects, of which approximately two thirds would be ARV-experienced. ARV-experienced patients had to be on the same regimen for  $\geq 9$  months. The Hospital Anxiety and Depression Scale was used to screen for anxiety (HADS-A) and depression (HADS-D). The HADS is a self-administered questionnaire, and consists of 14 items (7 HADS-A, 7 HADS-D) with 4 options each scored between 0 to 3. We utilized  $\geq 8$  cut-off as a positive screen for each condition.

**Results:** 2,863 evaluable subjects were included from 15 countries. 1,096 subjects (38.3%) were female, of which 78.6% were ARV-experienced. For the overall population, mean age was similar between genders at 43 years, 78.8% was Caucasian (female 67.2%, male 85.9%,  $p < 0.0001$ ) and mean duration of HIV-infection was 97.9 months (female 111.9 months, male 86.5 months,  $p < 0.0001$ ). 51.5% were single (female 44.2%, male 56.1%,  $p < 0.0001$ ), 39.3% had children (female 66.1%, male 22.7%,  $p < 0.0001$ ) and 33.1% were unemployed (female 41%, male 28.3%,  $P < 0.0001$ ). 82.1% reported secondary school or higher education levels (female 73.7%, male 87.3%,  $p < 0.0001$ ). Of the female subjects, 1,078 fully completed the HADS-A and 1,082 the HADS-D questionnaires. When using the  $\geq 8$  cut-off, 17.9% of females (ARV-naïve 20.8%, ARV-experienced 17.2%,  $p = 0.2$ ) had a positive screen for depression versus 14.3% for males ( $p = 0.01$ ). 35.3% of females (ARV-naïve 39.1%, ARV-experienced 34.3%,  $p = 0.18$ ) had a positive screen for anxiety versus 32.0% for males ( $p = 0.07$ ). 13.9% of female subjects (ARV-naïve 17.5%, ARV-experienced 12.9%,  $p = 0.07$ ) had a positive screen for both conditions versus 11.5% for males ( $p = 0.06$ ). An additional 4.0% of women (4.4% men) had a negative screen for depression, but was currently prescribed anti-depressive therapy.

**Conclusions:** In this large epidemiologic study, a high proportion of HIV-infected female subjects had a positive screen for anxiety and depressive symptoms, with no statistically significant difference between ARV-naïve and -experienced subjects. The overall prevalence of depressive symptoms was significantly higher in women compared with men. These results support a strategy of regular screening for, and clinical management of, anxiety and depression for all female HIV-infected patients.

**Abstract: O\_2**

*Developing effective treatment programs: Issues in women*

## **Self-reported utilization of women and HIV health care services for HIV-positive versus HIV-negative African-Caribbean women in Toronto, Ontario**

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**Background:** HIV-positive women require complicated care including important women's health care with regular cervical PAP testing. Limited research has been conducted in Canada assessing the access and quality of care of HIV-positive women living in Canada, a topic of great interest in recent years to optimize care for those living in Canada. We examined the proportion of African-Caribbean (AC) HIV-positive and HIV-negative women living in Toronto regularly seeing a family physician, who had received hepatitis B vaccination and PAP testing.

**Methods:** A cross-sectional study recruited HIV-positive and HIV-negative AC women from the Women's Health in Women's Hands Community Health Centre in Toronto, Ontario, Canada. Women completed a 110- detailed survey using ACASI. Sociodemographic, clinical and self-reported utilization of services outcomes were summarized for HIV-positive and -negative women separately using median and interquartile ranges (IQR) for continuous variables and frequencies and proportions for categorical variables; univariate comparisons were made for correlates of PAP testing <3 years vs. ≥3 years or never using Wilcoxon rank

sum test and chi-square test, respectively. Multivariable logistic regression was used to determine adjusted odds ratios for correlates of PAP testing for the entire cohort, HIV-positive women and HIV-negative women, separately.

**Results:** We analyzed results from 130 HIV-positive and 292 HIV-negative women with a median age of 40 (IQR=34-46) and 31 years (IQR=24-42) ( $p<0.0001$ ), respectively. Of HIV-positive and -negative women, 89.9% and 68.1% had a family doctor, respectively ( $p<0.0001$ ). Of HIV-positive women, 54.3% and 55.0% had seen their family doctor and HIV specialist, respectively, in the previous 6 months. While more HIV-positive women reported receiving hepatitis B vaccination (66.1%) vs. HIV-negative women (43.8%) ( $p<0.0001$ ), equal portions had received all three doses (41.7% vs. 40.0%,  $p=NS$ ). Of the HIV-positive women, more reported having PAP testing <3 years from the study visit (82.7%) (35.4% <6 months, 33.9% at 6 months to <1 year, 13.0% from 1 year to <3 years) vs. HIV-negative women (73.3%) (30.4% <6 months, 24.9% at 6 months to <1 year, 17.9% from 1 year to <3 years) ( $p=0.03$ ) (too many numbers). More HIV-negative women had never had a PAP test (20.9%) vs. HIV-positive women (10.2%). In the multivariable model for HIV-positive women, the significant correlates for PAP testing <3 years were duration in Canada >2 years ( $p=0.0008$ ), greater SF-12 health status ( $p=0.008$ ), and Christian religion ( $p=0.009$ ). In the multivariable model for HIV-negative women, the significant correlates for PAP testing <3 years were duration in Canada >2 years ( $p=0.002$ ) and having health insurance ( $p=0.03$ ).

**Conclusions:** Although HIV requires specialized care, fewer than 55% of the HIV-positive women in this study had seen their family doctor or HIV specialist in the previous 6 months. Assessing access to these kind of health care services using a clinic-based sampling could introduce to substantial biases. Similarly, only 41.7% reported receiving all 3 doses of hepatitis B vaccine. HIV-positive women reported more regular PAP testing than HIV-negative women; and in both groups, the most significant correlate was duration in Canada >2 years, suggesting targeting recent immigrant women for PAP testing.

**Abstract: O\_3**

*Developing effective treatment programs: Issues in women*

**Modulation of HIV replication by steroid hormones in monocyte derived macrophages (MDM)**

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**Background:** Genetic diversity has implications for global spread of HIV and for diagnostics and pathogenesis. Current observations suggest that there are significant gender differences in the progression of HIV/AIDS. Women appear to be more susceptible to HIV-1 infection than men. HIV replication is dependent on the host transcriptional machinery and many of these host factors are determinants of cell tropism and host range of HIV and could positively or negatively regulate HIV replication. Several studies have implicated female sex hormones in regulating host factor expression and modulating HIV transmission and replication. However, the exact mechanism exerted by steroid hormones estrogen and progesterone in the regulation of HIV-1 transmission and replication is still unclear. In our report, we have investigated the effects of HIV subtypes, gender and female hormones on the kinetics and level of HIV replication in macrophages isolated from male and female donors.

**Methods:** To determine the effects of gender and steroid hormones on the kinetics and level of HIV replication, monocyte-derived macrophages (MDMs) were infected with HIV-1 subtypes and cultured in the presence of steroid hormones estrogen, progesterone and testosterone. Culture supernatants were harvested 3 days, 6 days, and 9 days post infection and HIV-1 replication quantitated by p24 ELISA. After the supernatants were harvested, an equivalent volume of growth media containing appropriate concentrations of the steroid hormones was added to each well to maintain the effective concentration of the steroid hormones throughout the experiment.

**Results:** Experiments carried out with MDMs isolated from females and males that were treated with physiologically relevant concentrations of steroid hormones for females and males and infected with HIV-1 Ba-L and primary isolates representing different HIV-1 subtypes indicated that high concentrations of estrogen (1.75  $\mu$ M, 110 nM) and high concentration of progesterone (64 nM) down regulated HIV-1 replication and low concentrations of estrogen (140 pM, and 40 pM) and progesterone (32 nM, 1 pM, and 0.5 pM) up regulated HIV-1 replication. No significant effect was observed with testosterone treatment.

**Conclusion:** Our study suggests a strong correlation between the levels of steroid hormones estrogen and progesterone and the modulation of HIV-1 replication in MDMs. Our results indicate that low concentrations of estrogen and progesterone up regulated HIV-1 replication, while high concentrations of estrogen and progesterone down regulated HIV-1 replication, suggesting that these hormones exert a significant effect on HIV transmission and replication. This apparent modulation of HIV-1 replication was not gender specific. However, the MDMs isolated from females exhibited a more consistent pattern of response to estrogen and progesterone compared to MDMs isolated from males.

*The findings and conclusions in this abstract have not been formally disseminated by the Food and Drug Administration and should not be construed to represent any Agency determination or policy. This work was funded by the FDA's Office of Women's Health.*

**Abstract: O\_4**

*Developing effective treatment programs: Issues in women*

## **Expression of the CD14+ and CD68+ receptors in placenta of Russian HIV-infected women**

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**Introduction:** Immune parameters of the placenta of HIV-infected women during pregnancy have been linked to the mother-to-child transmission of HIV. The purpose of this study was to investigate the expression of the CD14+ and CD68+ receptors in macrophages of the placenta of Russian HIV-infected women, compare this with the expression of the immune receptors in placentas of women with DNA-virus infections, and use the placentas of healthy women as controls.

**Material and methods:** The study prospectively investigated placentas obtained from deliveries at two different (general and specialized in HIV-complicated deliveries) maternity wards in St. Petersburg. Data on maternal age and delivery outcome were collected. The placentas were collected from three groups of patients:

**Group Vir** – placentas from women with DNA-virus infections;

**Group HIV** – placentas from HIV-infected women; and

**Group C** – placentas from women without any infection.

Receptor expression was studied immunohistochemically with use of monoclonal antibodies CD14 (Novocastra) and CD68 (KP1 clone, Dako) and further morphometric analyses were performed using the program Leica QWin Standard v2.8. HSV was detected immunohistochemically with use of antibodies against HSV (I and II) and CMV (Diagnostic BioSystems). HIV-infection was confirmed immunohistochemically with use of p24 antibodies (Dako).

**Results:** 38 placentas from term deliveries were obtained for the study. Group Vir had 10 placentas (five with HSV-1, three with CMV, and two with combined HSV-1 + CMV), Group HIV had 12 placentas and Group C had 16 placentas.

The average mean age of women was comparable in all groups (Group Vir: 28.8±7.9 yr, Group HIV: 26.1±4.1 yr, and Group C: 24.6±1.6 yr). The average mean weight of newborns was lower in both groups of women with viral diseases (Group Vir: 2876±432 g and Group HIV: 2800±257 g) compared to women in Group C (3536±306 g). The average mean weight of placentas was lower in Groups Vir and HIV (434±48 g and 445±55 g, respectively) as compared to Group C (566±59 g).

DNA-virus affect (mononuclear infiltrates, giant-cell metamorphosis with hyperchromic nuclears and nuclear decay) was present in all placentas from Group V. HIV RNA effects were detected in chorionic villi of all placentas in Group HIV with positive p24 antigen. Expression of CD14+ in cytoplasm of chorionic villi cells and endothelial cells was the highest in Group Vir (14.14±1.11%), followed by Group HIV (10.04±1.37%), when compared with control Group C (3.21±0.43%,  $p<0.05$  for both comparisons). Similarly, the expression of CD68+ was the highest in Group Vir (13.07±0.83%), followed by Group HIV (7.21±0.89%) when compared to the control Group C (2.02±0.60%,  $p<0.05$  for both comparisons).

**Conclusion:** The presence of viral infections (HSV and CMV) and HIV was accompanied by a significant increase of CD14+ and CD68+ macrophages in the placentas of Russian women at time of delivery. Further studies of the role of the immune factors of the placenta may help to better understand the mechanisms of the transmission of the HIV and HSV viruses to the infants of the infected women.

**Abstract: O\_5**

*Aging and co-morbidity of the HIV infected women*

**HIV suppression rates differ by race and gender among older (>50 years) HIV-infected adults in an inner city clinic**

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**Background:** Some studies have shown poorer adherence with highly active antiretroviral therapy (HAART) and inferior virologic outcomes among HIV-infected women compared to HIV-Infected men. Most of these studies have been primarily among younger adults. At the CORE Center Chicago, ~25% of our HIV-infected patients are  $\geq 50$  years old and all patients have access to and coverage for HAART regardless of insurance status. We sought to (1) describe virologic and immunologic outcomes among older (>50 years) adults at the CORE Center and (2) determine if there were gender differences in these outcomes in the entire cohort and among the subset where HAART was clinically indicated in 2009 (CD4 counts  $\leq 350$  cells/mm<sup>3</sup>).

**Methods:** Cross-sectional study of all HIV+ adults  $\geq 50$  yrs who had  $\geq 1$  clinic visit and  $\geq 1$  CD4 and HIVRNA measured in 2009 at the CORE Center, Chicago. Viral suppression was defined as HIVRNA < 75 copies/ml. Data analyzed in SAS v 9.2.

**Results:** 1081 HIV-infected adults with a median (IQR) age of 55 (51, 59) years were included. 263 (24%) were female. 67% were non-Hispanic black (NHB), 19% Hispanic and 12% non-Hispanic white (NHW). Compared with men, a higher proportion of women were NHB 78% vs 64% (p=0.0002). 59% of the population had public insurance (Medicaid/Medicare), 35% were uninsured, with only 6% having private insurance. Median CD4 count was 402 cells/mm<sup>3</sup> and women had higher median CD4 counts 461 cell/mm<sup>3</sup> vs 381 cells/mm<sup>3</sup> (p=0.0006). Overall there was no significant difference in viral suppression by gender; 74% in women vs 79%

in men (p=0.12), however, among the 444 patients with CD4 < 350, fewer women had viral suppression; 59% vs 68% (p=0.09). NHB patients were less likely to have viral suppression: OR 0.55 (0.40-0.77), p=0.0004 and among the subset with CD4 < 350; OR 0.65 (0.42-1.0), p=0.05 when compared with other races. These differences were driven by NHB men who had overall lower rates of viral suppression; OR 0.56 (0.38-0.81) p=0.002 when compared with men of other races (Hispanic and NHW). While not statistically significant, NHB women had lower rates of viral suppression; overall 72% vs. 81%; OR 0.59 (0.23-1.23) and in the subset with CD4 < 350; 56% vs. 68%; OR 0.58 (0.19-1.71) when compared with women of other races (Hispanic and NHW).

**Conclusions:** In this population of older, primarily minority, HIV-infected adults there were overall high rates of viral suppression comparable to those reported at other large HIV clinics. NHB patients had significantly lower rates of viral suppression than other races. Women with CD4 counts < 350 cells/mm<sup>3</sup> had marginally lower rates of viral suppression than men with CD4 < 350 and NHB women had marginally lower rates of viral suppression compared with women of other races. Continued efforts to improve adherence with medications and retention in care will be needed to eliminate racial and gender disparities in outcomes which are seen even among older HIV infected adults with access to HAART receiving care at a single site.

**Abstract: O\_7**

*Cervical cancer: HPV screening, treatment, vaccines*

## **HPV and cervical cancer prevention and control among financial disadvantaged women living with HIV/AIDS in South Carolina**

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**Background.** Women living with HIV/AIDS (WLWHA) have compromised immune systems increasing their susceptibility to human papillomavirus (HPV) infection. Infection with potentially oncogenic or high risk HPV (hrHPV) types increases risk for cervical dysplasia/neoplasia. Because of increased risk of cervical cancer (which is an AIDS-defining illness), annual Pap tests (after two repeat Pap tests in the initial year of diagnosis are negative) are recommended for WLWHA. Biological risk factors are further exacerbated by poor adherence to cervical cancer screening guidelines as detecting abnormal, precancerous cells early is critical to improving cervical health outcomes for WLWHA. These and other health system failures persist across the cancer care continuum for WLWHA.

**Materials and methods.** Our study describes Pap testing behaviors of HIV-positive women who were alive and enrolled in the South Carolina (SC) Medicaid program for at least nine of twelve months during a 5-year period between 2005-2009. Databases from the SC Medicaid and the HIV/AIDS Reporting System were linked, resulting in a sample of 1,543 HIV-positive females 18-64 years old. Frequencies and

proportions are reported for WLWHA who had at least one Pap test between 2005-2009 by year of diagnosis, age category, and county of residence.

**Results.** Most of our sample (n=1,543) was black (78.3%) and single (75.7%). More than half were between 25-44 years old (57.1%) and about one-third were 45-64 years old (31.0%). More than one-third did not have at least one Pap test between 2005-2009 (36.5%). By year of initial HIV-positive diagnosis, about two-thirds (64.7%) of the WLWHA in our study who had not had a Pap test between 2005-2009 had been diagnosed HIV-positive before 2005, whereas only about one-third (35.3%) of those who had not had a Pap test had been diagnosed HIV-positive more recently (between 2005-2009). These data are also depicted in county-level geographic maps which showed overall that WLWHA in the majority of counties in SC were not being screened for cervical cancer in accordance with current recommended guidelines for annual Pap testing. Of the counties below the Healthy People 2020 baseline of 84.5% of women being adherent to cervical cancer screening recommendations, counties in SC that did not meet this goal (n= 44 of 46) ranged from 33.3-83.3%.

**Conclusions.** Our study highlights failures across the cancer care continuum in the early detection of abnormal, precancerous cells among WLWHA despite the increased prevalence, incidence, and persistence of hrHPV infection and cervical dysplasia among this high risk group of women. The prevention and control of hrHPV infection and cervical dysplasia/neoplasia among WLWHA are likely associated with ongoing challenges in HIV prevention efforts to not only link but also retain WLWHA in HIV care. Multi-level cancer prevention and control efforts are needed that target both patients and providers. Additional analyses will be conducted to further explore what (if any) role that provider characteristics such as gender, race/ethnicity, and geographical location play in the poor adherence to recommended annual Pap testing among WLWHA.

**Abstract: O\_8**

*Cervical cancer: HPV screening, treatment, vaccines*

**Surgical excision of cervical intraepithelial neoplasia 2/3 is not associated with increased detection of genital HIV-1 among women on HAART**

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**Introduction:** HIV-infected women are at higher risk of developing precancerous cervical lesions known as cervical intraepithelial neoplasia (CIN). Little is known about how detection or treatment of CIN affects HIV-1 genital shedding. Increased levels of genital shedding may increase HIV transmission to male partners of women undergoing treatment for CIN.

**Methods:** In this prospective cohort study, we enrolled 32 HIV-infected women scheduled to undergo loop electrosurgical excision procedure (LEEP) for biopsy-proven CIN 2/3 at the Family Aids Care and Educations Services (FACES) clinic in Kisumu, Kenya. All participants were required to be stable on an antiretroviral therapy regimen for at least three months prior to enrollment, and have no clinical or laboratory evidence of sexually transmitted infections. Women underwent testing for genital HIV-1 secretions using tear-flo strips at baseline and at 1, 2, 4, 6, 10 and 14 weeks post-LEEP (LLOD 40 RNA copies/specimen, Abbott RealTime). Serum testing for HIV-1 viral load was performed at baseline, and clinical information, including CD4+ count, WHO Stage and type and duration of HAART regimen were obtained from clinic records.

**Results:** Among the 32 women enrolled, the average age was 31.8 years  $\pm$  1.0, baseline CD4+ count was 330 cells/uL  $\pm$  46.5, and mean

duration of HAART regimen was 54.6 months  $\pm$  37.7. At baseline, 28% (9/32) of women had detectable serum viral load (range 52-81231, median 137), while only 13% (4/30) of women had detectable HIV-1 RNA in their genital secretions (range 99-2389, median 730). Two of the women with detectable genital viral loads at baseline (1272 and 2389) continued to shed at all visits throughout the study with no significant change in magnitude in relation to the time since their LEEP. There was no change in detection or magnitude of shedding among the remaining women.

**Discussion:** LEEP was not associated with a post-procedure increase in HIV-1 genital shedding among this cohort of HIV-infected women on HAART. Previous studies have shown LEEP to be a safe and effective procedure among HIV-infected women; this data increases confidence that LEEP would be unlikely to increase the risk of HIV transmission.

**Abstract: O\_9**

*Cervical cancer: HPV screening, treatment, vaccines*

## **Incidence of anal HPV and HPV-related sequelae in HIV-infected and -uninfected adolescent women in the U.S.**

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**Introduction:** Immunocompromise related to human immunodeficiency virus (HIV) infection may place HIV-infected adolescent women at increased risk of human papillomavirus (HPV) infection and anal dysplasia. Our objective was to compare incidence of anal HPV infection and related sequelae, and factors associated with these outcomes, among adolescent women who are HIV-infected or -uninfected but at-risk.

**Materials and Methods:** We analyzed data from the Reaching for Excellence in Adolescent Care and Health Project. Adolescents age 12-18 years who were behaviorally HIV-infected (n=238) or -uninfected but at-risk (n=139) were recruited at 15 U.S. sites from 1996-1999. Incidence rates for anal HPV, high risk anal HPV, anogenital warts, and anal dysplasia were calculated using Poisson modeling. Factors associated with these outcomes were explored using Cox proportional hazards modeling, yielding hazard ratios (HR) and 95% confidence intervals.

**Results:** Mean age at entry was 16.7 years, and mean follow-up time for detection of anal HPV infection was 24.9 months (standard deviation [SD] 11.3). Most participants (74%) were black non-Hispanic. HIV-infected women (vs. -uninfected women) had higher incidence of anal HPV (30 vs. 14 per 100 person-years; p=0.002), high risk anal HPV (12 vs. 5.3 per 100 person-years; p=0.04), and anogenital warts (6.7 vs. 1.6 per 100 person-years; p=0.002) but not anal

dysplasia. Factors associated with HPV-related outcomes differed by HIV status and outcome. Among HIV-uninfected women, cervical HPV infection was associated with anal HPV infection (HR 2.45; 1.01-5.92). Among HIV-infected women, current smoking status (HR 3.46; 1.21-9.89) and late (vs. early) Centers for Disease Control and Prevention (CDC) disease stage (HR 2.80; 1.18, 6.67) were associated with high risk anal HPV infection; cervical HPV infection (HR 4.28; 1.29-14.19) and higher HIV viral load (HR 1.55; 1.12, 2.17) were associated with anogenital warts; and late (vs. early) CDC disease stage (HR 7.02; 2.18, 22.59) and history of high risk anal HPV infection (HR 3.72; 1.52, 9.12) were associated with anal dysplasia.

**Conclusions:** HIV-infected adolescent women, when compared to HIV-uninfected adolescent women, had higher rates of HPV and related sequelae. Because HIV-infected youth are at increased risk of HPV and related disease, enhanced HPV prevention efforts, such as vaccination, are warranted for this group. Among HIV-infected women, more advanced HIV disease and higher HIV viral load were associated with high risk anal HPV infection and HPV-related sequelae. Minimizing HIV disease progression may reduce the risk of high risk anal HPV and related outcomes in this vulnerable group.

*This abstract was previously presented at the 2011 International Society for STD Research in Quebec City, Quebec, Canada.*

**Abstract: O\_10**

*The social and economic roots of the HIV epidemic in African Americans*

## **Environmental factors associated with implementing a kiosk-based reproductive health and decision-making support program to HIV+ women in South Africa**

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**Background:** Many HIV clinics and pharmacies in South Africa are over burdened with high numbers of patients, crowded waiting areas, long waiting periods, lack of patient-to-provider communication (PTPC) and other resource limitations; therefore, cost effective strategies are needed to provide women living with HIV (WLH) reproductive health information and decision-making support. To make educated decisions about the best strategies WLH interested in reproducing need help understanding their options and risks associated with those options. WLH interested in pregnancy prevention need help determining making decisions about contraceptives. If found feasible, low-cost delivery of tailored reproductive health information could be disseminated through interactive computer kiosks. Kiosks could be placed in HIV clinics or pharmacy waiting areas where WLH could sit using headphones to follow along with an interactive program that tailors content based on their responses. Research is needed to establish the potential feasibility and acceptability of this approach given environmental factors.

**Material & Methods:** We explored facilitators of and barriers to using kiosks to provide reproductive health information to WLH by conducting environmental observations (n=3 clinics; n=2 pharmacies) in Johannesburg, Gauteng, South Africa over two months. Content

analysis was used to evaluate qualitative field notes.

**Results:** Two clinic and two pharmacies were observed at the Johannesburg Charlotte Makeke Academic Hospital: The Maternal Health Clinic (MHC), Adult ARV Clinic and Pharmacy (AACP) and the hospital's main pharmacy. These clinics, which serve different populations, were all found suitable to implementing a kiosk-based program based on 4 factors:

- 1.) target population served;
- 2.) adequate space to house the kiosk;
- 3.) interaction with kiosks possible given day-to-day clinic/pharmacy operations; and
- 4.) staffing available to manage study equipment.

Patients for all clinics in Johannesburg do not have scheduled appointment times, instead they are instructed to arrive between certain hours on the day of their appointment and wait to see their doctor or nurse. The MHC was unique because it catered to the health needs of antenatal WLH and their babies while the AACP was for HIV positive men and women. The main pharmacy is available to the entire hospital patient population; therefore, this pharmacy was always overcrowded with patients, many of which were waiting all day to receive their medication because they could not afford to come back another day. Jeppe Street Clinic, located in downtown Johannesburg, was not found feasible for implementing a kiosk-based program due to its environmental conditions. Although this clinic served the most at-risk WLH in Johannesburg, it did not meet factors 2-4 because the building was in poor condition and there was a lack of staff to manage their daily operations.

**Conclusions:** There is a noteworthy dynamic among the relationship between clinic environments and potential for using computer kiosks to deliver health information. An interactive kiosk-based program is a potential method for disseminating tailored reproductive health information and decision-making support to WLH. Selecting waiting room environments conducive to effectively delivering information to WLH in low-resource settings is one of many important factors.

**Abstract: O\_11**

*The social and economic roots of the HIV epidemic in African Americans*

## **Sexual behavior and HIV prevalence among women sex workers in Rwanda**

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**Background:** The 2010 Female Sex Workers (FSWs) Behavior Surveillance Survey (BSS) in Rwanda was carried out in February 2010 as a follow up of previous FSW BSS 2000 and 2006. This was the first FSW BSS to include HIV biomarkers.

The main purpose of the third round BSS was to study trends in sexual behavior and HIV prevalence among FSWs.

**Methods:** Site mapping and time-location sampling (TLS) were used to recruit a nationally representative sample of 1,338 FSWs who accepted to participate in the BSS. Of these, 83% (1,112/1,338) gave their informed consent to take an HIV test. The analysis was done to evaluate sexual behavior and HIV prevalence.

**Results:** The reported mean and median age at first sex were 17 and for commercial sex were 20 and 19. 80% have used a condom at last sex with a client. This proportion varied according to age group and years of experience. 33% of FSWs reported the consistent use of condoms during sex work in the last 30 days preceding the survey. 37% less than one year and 39% of those who had between 1-2 years of experience reported having consistently used condoms in the past month compared with only 24% of those who had 8 or more years of experience as SWs. FSWs reported that the most frequent clients were married men in 66%, widowers in 21% and single client in 13%.

The overall prevalence of HIV infection among FSW was 51% (95% CIs: 48% - 54%). The HIV prevalence increased with age, 35% in the 15 to 19 compared to 63% in the 40 years of age or more. HIV prevalence was lower among FSWs having another type of employment or source of income compared to those who did not (47% vs.

52%, respectively). HIV prevalence among married FSWs living with their husband was only 33% compared to 59% among those who were separated but not cohabitating with a sexual partner. Those with HIV comprehensive knowledge had lower HIV prevalence compared to those who did not (43% vs. 53%). Similarly, FSW reported genital discharge in last 12 months was 50% and 45% among those who did not experienced it. FSWs who reported a genital lesion/wound in last 12 months had an HIV prevalence of 62% compared with 45% among those who did not.

**Conclusion:** Findings express high levels of HIV infection among FSWs in Rwanda. These data should raise an alarm call at the need to augment HIV prevention, care and treatment services for FSWs in Rwanda. In multivariate analysis, another employment/income source was protective against HIV infection. This should be explored further in qualitative research. Only one third of FSWs reported having consistently used condoms during sex work in the last 30 days preceding the survey. This finding is highly concerning. Reported consistent condom use seemed to decline with advancing age. This finding has obvious implications for the transmission of HIV in the general community as well.

**Abstract: O\_12**

*The social and economic roots of the HIV epidemic in African Americans*

## Quality of self-reported pre-conception care provided to HIV-positive women of reproductive age in Ontario, Canada

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**Background:** Improvement in life expectancy and quality of life for HIV-positive individuals coupled with reduced vertical transmission has led people living with HIV (PLWHIV) to consider conception and having a baby. Pregnancy in the context of HIV is becoming more acceptable to the medical community and counselling on the topic is increasingly incorporated into routine HIV care. However, we hypothesize that pre-conception counselling is not available for all HIV-positive women who require it. The purpose of our analysis was to determine the quality of pre-conception care given by family physicians (FPs), HIV specialists (HSs) and obstetrician/gynecologists (OB/Gyns) for HIV-positive women enrolled in the cross-sectional Ontario Fertility Survey in Ontario, Canada.

**Methods & Materials:** A cross-sectional study was carried out using a 189-item self-administered survey entitled "The HIV Pregnancy Planning Questionnaire" to study pregnancy desires and intentions of HIV-positive

women of reproductive age (18-52) living in Ontario. The current report is a secondary analysis on the quality of self-reported preconception care. Recruitment was carried out between October 2007 and April 2009 from 38 sites. The analysis focused on questions relating to whether the participants were cared for by a FP, HS, and/or OB/Gyn and whether these care providers discussed pregnancy planning with them. Logistic regression models were fit to calculate unadjusted and adjusted odds ratios for significant predictors of pre-conception discussion. Women who were taking efavirenz were asked if their doctors had discussed that efavirenz can be harmful to the baby when pregnant.

**Results:** Of the 443 participants of the main study who did not report a tubal ligation or hysterectomy, 439 had a medical service provider (91% FP, 95% HS, 45% OB/Gyn) and 431 had answered questions regarding preconception care and are included in this analysis. The median age of the 431 participants in this analysis was 38 (IQR=32-43). 62% were born outside of Canada, 54% were currently living in Toronto, 46% were of African ethnicity and 74% were currently on antiretroviral therapy. Of those with a FP, HS, or Ob/Gyn, 34%, 40%, and 37% had their care provider discuss pregnancy planning with them, respectively (50% had any care provider discuss pregnancy planning with them). In the multivariable model, the significant correlates of pre-conception care were: younger age ( $p < 0.01$ ), living in Toronto ( $p = 0.04$ ), being married/common law/living with partner ( $< 0.01$ ) and having younger children ( $p = 0.03$ ). 66 of 443 women reported to be taking efavirenz, only 27 (41%) reported having been informed that efavirenz could be harmful to the baby if taken when pregnant.

**Conclusions:** The quality of preconception care in our HIV-positive female cohort of reproductive age was not optimal with only half having any medical care provider (FP, HS, or OB/Gyn) having discussed pregnancy planning with them. Discussion and counselling on pregnancy and preconception should become part of routine HIV care and discussed with all HIV-positive women of reproductive age.

**Abstract: O\_13**

*The social and economic roots of the HIV epidemic in African Americans*

## **Hormonal contraceptive use is associated with a higher risk of non-AIDS-defining events in HIV-1-infected women**

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**Introduction:** Studies assessing the effect of hormonal contraceptives (HC) on HIV disease progression have yielded conflicting results. No studies have assessed this effect in resource-replete settings, nor the effect of HC on non-AIDS-defining events (NADE).

**Material and Methods:** We conducted a retrospective cohort study of HIV-infected women in care ( $\geq 1$  clinic visit) at the Comprehensive Care Center (Nashville, TN) 1998-2008. We assessed the association between HC (oral and implant methods used  $\geq 28$  days) and AIDS-defining events (ADE), NADE, and death. Cox proportional hazards models with propensity score for HC use compared rates of death, ADE, NADE (i.e., cardiovascular, renal, liver, and metabolic diseases, and non-AIDS associated malignancies), ADE/death, and NADE/death. Only HC-eligible women were included in the study:  $\leq 55$  years old; no history of pulmonary or deep venous thromboembolism, breast cancer, hysterectomy, or bilateral tubal ligation; not pregnant at 1st clinic visit. The study period started at the 1<sup>st</sup> clinic visit for women on no HC and at HC start among those who received HC. The propensity score for HC use was derived from a logistic regression analysis that included age, race, baseline CD4+ count,  $\log_{10}$  HIV-1 RNA, and hemoglobin, CD4+ count nadir, history of ADE, NADE, HCV, non-HAART ART and HAART use, smoking status, IV and non-IV drug use, year of study start, and year of HC start.

**Results:** Of 460 HC-eligible women, 111 (24%) were on HC at any point during the follow up. At baseline women on HC were younger, had

higher CD4+ counts and more likely to have a history of HAART use, and lower  $\log_{10}$  HIV-1 RNA levels. There were no differences in history of NADE (16%). A lower proportion of women on HC died (7% vs. 16%,  $p=0.01$ ) but a higher proportion had a NADE (52% vs. 32%,  $p<0.001$ ), or had either a NADE or died (57% vs. 42%,  $p=0.005$ ). In the propensity score-adjusted analyses, HC use was associated with a statistically significantly higher risk of NADE (hazard ratio [HR] 2.0, 95% confidence interval [CI] 1.28, 3.1,  $p=0.02$ ) and NADE/death (HR 1.89, 95% CI 1.25, 2.87,  $p=0.03$ ). Risks of ADE and ADE/death were also higher among HC users but did not reach statistical significance: HR 1.51 (95% CI 0.59, 3.85,  $p=0.39$ ) and 1.49 (95% CI 0.72, 3.11,  $p=0.29$ ), respectively. The risk of death did not differ between HC users and non-users: HR 1.07 (95% CI 0.39, 2.94,  $p=0.9$ ).

**Conclusion:** Hormonal contraceptive use was associated with a higher risk of non-ADE and non-ADE/death among HC-eligible HIV-infected women in care at our clinic. As the number of women with HIV infection who are of child-bearing age increases, it is important to better understand any negative effect of HC on patient health.

**Abstract: O\_14A**

*The impact of Drug Resistance in Women*

**Sustained efficacy & safety observed in women for RPV vs. EFV plus FTC/TDF & with few gender differences in pooled 96-week ECHO and THRIVE analysis**

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**Introduction:** RPV+FTC/TDF demonstrated non-inferior efficacy to EFV+FTC/TDF at Wks 48 and 96 in Phase III studies. Unlike EFV (pregnancy category-D), RPV did not show any teratogenic potential in animal studies (pregnancy category-B) and does not interact with the oral contraceptives norethindrone and ethinyl estradiol. Given potential advantages of RPV-based regimens for women of child-bearing potential, efficacy and safety data in women were assessed.

**Methods:** Pooled 96-week data from ECHO and THRIVE (randomized, double blinded phase III studies) analysis of the efficacy and safety outcomes in women specifically, and compared to men, for RPV+FTC/TDF(n=550) and EFV+FTC/TDF(n=546).

**Results:** The analysis included 236 women(W) and 860 men(M) of whom were 45%/18% Blacks, 33%/70% Whites, and 16%/28% Hispanics, respectively, with median baseline CD4 of 243/258 cells/mm<sup>3</sup> and HIV-1 RNA(VL) of 4.9/5.0 log<sub>10</sub> c/mL. Both genders responded similarly, demonstrating non-inferiority of RPV+FTC/TDF vs. EFV+FTC/TDF for VL<50c/mL (SNAPSHOT). RPV+FTC/TDF was non-inferior to EFV+FTC/TDF for all baseline VL strata, except >500,000c/mL.

Incidence	Female			Male		
	RPV n=121	EFV n=115	Delta and 95% CI	RPV n=429	EFV n=431	Delta and 95% CI
Virologic Response by SNAPSHOT(VL<50c/mL), %	77	74	2.9 (-8.1, 14)	77	78	-0.1 (-5.7, 5.5)
BL VL ≤100K c/mL, (n)	81 (60/74)	79 (48/61)	2.4(-11.3, 16.1)	84 (179/214)	81 (157/194)	2.7(-4.7, 10.1)
BL VL >100K- 500K c/mL, (n)	81 (30/38)	73 (29/40)	8.6(-10.6, 27.7)	72 (124/172)	73 (131/179)	-1.1(-10.5, 8.3)
BL VL >500K c/mL, (n)	30 (3/10)	57 (8/14)	-27.1(-68.4, 14.1)	67 (29/43)	79 (46/58)	-11.9(-29.2, 5.4)
Median CD4 cell count, cells/mm <sup>3</sup>	229	214	NS	225	224	NS

Similar rates of virologic failure(VF) for W and M, with higher VFs for RPV+FTC/TDF that was more pronounced at VL>100,000c/mL. Similar and low VFs in Yr2 (<3%). Similar mean CD4 increases observed.

Time of failure	Female				Male			
	RPV n=121		EFV n=115		RPV n=429		EFV n=431	
	Yr 1	Yr 2						
VF, %	11.6	2.5	3.5	2.6	11.4	2.8	5.6	2.6

Nausea occurred more commonly in W vs. M, but there were lower rates of any treatment-related psychiatric AEs, abnormal dreams/nightmares, and diarrhea observed with W vs. M.

Incidence, %	RPV			EFV		
	Female n=121	Men n=429	P-value	Female n=115	Men n=431	P-value
Nausea	19	11.2	<0.05	18.3	9.7	<0.05
Treatment-related psychiatric AEs	9.1	18.2	<0.05	16.5	29.5	<0.05
Abnormal dreams/nightmares	4.1	11.4	<0.05	8.7	17.4	<0.05
Diarrhea	13.2	16.3	NS	9.6	18.6	<0.05

Lower rates observed with RPV+FTC/TDF vs. EFV+FTC/TDF for all the parameters in table below.

Incidence, %	Female			Men		
	RPV n=121	EFV n=115	P-value	RPV n=429	EFV n=431	P-value
AEs leading to discontinuations	5.8	10.4	NS	3.3	8.1	NS
Grade 2-4 AEs treatment-related	15.7	34.8	<0.001	17.5	32.7	<0.001
Treatment-related neurologic AEs	17.4	33	<0.05	16.6	38.3	<0.001
Dizziness	12.4	27.8	<0.05	9.8	28.8	<0.0001
Treatment-related psychiatric AEs	9.1	16.5	NS	18.2	29.5	<0.001
Abnormal dreams/nightmares	4.1	8.7	NS	11.4	17.4	<0.001
Rash	5.8	16.5	<0.05	6.8	12.5	<0.05
Grade 1-3 LDL-cholesterol	19.9	49.6	<0.05	19.6	43.1	<0.001
Δ in SCr, mg/dL	0.10	0.04	-	0.13	0.05	-

W compared to M on RPV+FTC/TDF had more limb fat gain, but similar BMD decreases. Both genders has similar minimal serum creatinine changes with RPV+FTC/TDF and EFV+FTC/TDF. Outcomes not yet available for pregnancies (RPV=4, EFV=3).

**Conclusions:** In women, sustained 96-week, non-inferior virologic efficacy was observed with RPV+FTC/TDF vs. EFV+FTC/TDF. While RPV+FTC/TDF had a safety advantage there were more VFs (which were low in Yr2). No gender-related differences were observed for virologic/immunologic responses, however a few gender-related AE differences observed (diarrhea with EFV, nausea, abnormal dreams/nightmares, and any treatment-related psychiatric AEs).

### Abstract: O\_14B (presented as poster)

*The impact of Drug Resistance in Women*

## Week 96 safety and efficacy by gender and race subgroups in treatment-naïve HIV-1-infected patients in the phase III ECHO and THRIVE trials

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**Background:** ECHO and THRIVE were two Phase III, randomized, double-blind, double-dummy trials which showed non-inferior efficacy of rilpivirine (RPV; TMC278) 25mg qd vs efavirenz (EFV) 600mg qd in treatment-naïve, HIV-1-infected adults over 96 weeks. Analyses of pooled 96-week safety and efficacy data by gender and race subgroups are presented.

**Materials & Methods:** 1368 patients were randomized 1:1 to receive RPV or EFV plus TDF/FTC (ECHO) or plus TDF/FTC, AZT/3TC or ABC/3TC (THRIVE). Pooled 96 week safety and

efficacy were analyzed by gender (RPV: female, n=168; male, n=518; EFV: female, n=163; male, n=519) and race ([RPV: Asian, n=78; Black/African American [AA], n=165; Caucasian, n=420; EFV: Asian, n=97; Black/African American [AA], n=156; Caucasian, n=410]), other/not allowed to ask [n=40], missing [n=2]) subgroups.

**Results:** At Week 96, the proportion of patients who achieved HIV-1 RNA <50 copies/mL (intent to treat-time to loss of virologic response algorithm) were: RPV (female, 74%; male, 79%; Asian, 90%; AA, 64%; Caucasian, 80%) and EFV (female, 78%; male, 77%; Asian, 91%; AA, 71%; Caucasian, 77%). The mean increase in CD4 cell count (non-completer = failure algorithm; cells/mm<sup>3</sup>) from baseline were: RPV (female, 226; male, 228; Asian, 230; AA, 183; Caucasian, 241) and EFV (female, 229; male, 216; Asian, 242; AA, 192; Caucasian, 220). The rates of any serious adverse event regardless of causality or severity were: RPV (female, 8%; male, 10%; Asian, 3%; AA, 11%; Caucasian, 11%) and EFV (female, 7%; male, 11%; Asian, 9%; AA, 12%; Caucasian, 10%). The rates of any adverse event leading to permanent stop of medication regardless of causality or severity were: RPV (female, 7%; male, 3%; Asian, 0; AA, 5%; Caucasian, 5%) and EFV (female, 9%; male, 8%; Asian, 5%; AA, 10%; Caucasian, 9%). The rates of any grade 2-4 treatment-related adverse event were: RPV (female, 14%; male, 18%; Asian, 9%; AA, 14%; Caucasian, 20%) and EFV (female, 35%; male, 33%; Asian, 37%; AA, 28%; Caucasian, 34%). Further, rates of adverse events at least possibly treatment-related (any grade, occurring in ≥5% patients in either treatment group and in any subgroup, not including laboratory abnormalities reported as an AE) were generally similar across gender and race subgroups, with the exception of a higher incidence of nausea with female vs male patients. There was also more dizziness in Asians vs in other races, and more abnormal dreams/nightmares in male and Caucasian patients compared with in other subgroups.

**Conclusions:** Over 96 weeks, response rates were similar for RPV and EFV by gender and race subgroup. Lower responses to both NNRTIs were seen in Black/AA patients compared to Asian and Caucasian patients, regardless of treatment group. The safety advantages of RPV over EFV were similar across gender and race subgroups.

**Abstract: O\_15***The impact of Drug Resistance in Women***A meta-analysis of the effect of BMI on Efficacy, Safety, and Tolerability of Lopinavir/ritonavir in HIV-infected women in randomized clinical trials***A. Hermes<sup>1</sup>, L. Fredrick<sup>1</sup>, M. Pasley<sup>1</sup>, R. Trinh<sup>1</sup>, M. Martinez<sup>1</sup>, M. Norton<sup>1</sup>*<sup>1</sup>*Abbott, Global Pharmaceutical Research and Development, Abbott Park IL, USA*

**Background:** Body mass index (BMI) can influence drug distribution, thus affecting efficacy and risk for toxicities. Data regarding the relationship between BMI and clinical outcomes of antiretroviral treatment (ART) in women are limited. We performed this meta-analysis in women taking LPV/r-containing ART to evaluate the effect of BMI on efficacy, safety, and tolerability.

**Methods:** All prospective randomized clinical trials (RCTs) conducted by Abbott in adults receiving lopinavir/ritonavir (LPV/r) 3-drug ART, having BMI data, and baseline to week 48 efficacy, safety, and tolerability data were included. Women were categorized by baseline BMI (kg/m<sup>2</sup>) to <18.5, ≥18.5-< 25, ≥25-<30 and ≥30 categories; however, due to the small number of women with BMI <18.5 (N=28), categories of <25 (normal), ≥25-<30 (overweight) and ≥30 (obese) were ultimately selected for comparative analyses.

**Results:** A total of 485 women from 7 RCTs were included in the meta-analysis (258 normal BMI, 130 overweight women, and 97 obese women). There were statistically significant differences ( $P<0.05$ ) among the normal, overweight, and obese groups at baseline in 3 demographic characteristics: proportion of white women (53.9%, 36.9%, and 25.8%, respectively), proportion of Hispanic women (17.4%, 33.8%, and 20.6%, respectively), and rate of hepatitis C co-infection (17.2%, 10.8%, 6.2%, respectively). There were statistically significant differences ( $P<0.05$ ) among the

normal, overweight, and obese groups at baseline in disease characteristics: mean baseline plasma HIV-1 RNA levels (4.6, 4.4, and 4.3 log<sub>10</sub> copies/mL, respectively) and mean baseline CD4<sup>+</sup> T-cell counts (214, 244, and 278 cells/mm<sup>3</sup>, respectively).

The BMI groups were similar ( $P>0.05$ ) with respect to 48 week virologic and immunologic efficacy. Similar proportions of women in the normal, overweight, and obese groups were virologic responders (HIV-1 RNA level <50 copies/mL) using the noncompleter equals failure algorithm (65.1%, 57.7% and 57.7%, respectively). Mean increases in CD4<sup>+</sup> T-cell counts were also similar across the normal, overweight, and obese groups (+197, +158, and +172 cells/mm<sup>3</sup>, respectively).

The BMI groups were similar ( $P>0.05$ ) with respect to the proportion experiencing a grade 3+ laboratory abnormality or the proportion who prematurely discontinued. The overall incidence of moderate/severe treatment-related adverse events were numerically, but not statistically significantly, different among normal, overweight, and obese women (29.5%, 29.2%, and 41.2%, respectively,  $P=0.087$ ). Differences were identified when the normal, overweight, and obese women were compared with respect to the incidences of moderate/severe abdominal pain (0.8%, 0%, 7.2%, respectively) and diarrhea (9.3%, 10.8%, and 22.7%, respectively). Both of these adverse events were significantly higher ( $P<0.05$ ) in the obese women compared with the other 2 BMI groups. However, there was no significant difference in the incidences of nausea and vomiting among the 3 groups.

**Conclusions:** Despite differences in baseline demographics, there were no differences in efficacy across the BMI groups. Overall, safety was similar among the BMI groups, with the exception of the incidences of moderate/severe treatment-related abdominal pain and diarrhea, which were significantly higher in the obese women. This meta-analysis suggests LPV/r is similarly efficacious, safe, and tolerable in women across different BMI categories.

**Abstract: O\_16***The impact of Drug Resistance in Women***Association of serum leptin with insulin resistance and lipodystrophy***A. Kalyanasundaram<sup>1</sup>, S. Mini Jacob<sup>1</sup>, R. Hemalatha<sup>2</sup>, M.R. Sivakumar<sup>1</sup>**<sup>1</sup>The TN MGR Medical University, Dept. of Experimental Medicine & AIDS Research Center, Chennai, India; <sup>2</sup>Ragas Dental College, Dept. of Oral Pathology, Chennai, India*

**Introduction:** The adipocyte hormone leptin, known to have significant effects on metabolism, reproduction and immunity, is associated with increased adipose tissue mass, which in turn is associated with insulin resistance. The objective was to study the association of leptin levels with insulin resistance and lipodystrophy among HIV-infected individuals and compare the gender differences.

**Material and methods:** After informed consent, HIV-infected and non-infected men and women were recruited from Namakkal district, TamilNadu, India. Patients' self-perception of lipodystrophy was obtained using standardized questionnaires and clinically confirmed. Fasting blood samples were collected and anthropometric measurements obtained. Lipid profile, fasting glucose, leptin, insulin, and CD4 counts were measured. Insulin resistance was calculated. Statistical analysis: Chi-square, t-test, Pearson correlation, Multivariate regression analysis.

**Results:** Among 297 subjects (45.8% men, 54.2% women), 146 (41.1 % men, 58.9% women) were antiretroviral-naïve, 79 (46.8% men, 53.2%women) were on antiretroviral therapy (ART) and 72 (54.2% men, 45.8%women) were HIV- negative. Mean age was 33.5 ±6.5 years, mean BMI was 22.0 ±4.6 kg/m<sup>2</sup>. Serum leptin concentration was significantly higher in women compared to men in all the groups: (26.04± 41.05 vs 6.87± 6.19 ng/ml; p=0.002) in ART-naïve subjects, (13.12 ± 17.71 vs 4.15 ± 5.20 ng/ml; p=0.004) in subjects on ART and (74.35±77.06 vs 31.53± 55.36 ng/ml; p=0.001)in HIV-negative controls. By multivariate regression analysis, women had

21.0, 12.1 and 50.6 times leptin levels compared to men among ART-naïve, ART and HIV-negative controls respectively . Among these study subjects, serum leptin had a significant positive correlation with insulin(r= 0.328, p<0.01), and insulin resistance(r= 0.280, p<0.05). Even after controlling for BMI, sex and age, leptin was associated with insulin resistance levels (p=0.070). Moreover, HIV-infected women on ART when compared to men had higher insulin levels (8.23± 7.9 vs 6.01 ± 4.3 uIU/ml; p=0.039 ) and insulin resistance (2.53± 3.86 vs 1.7± 1.6 ; p=0.057). Also, women on ART had higher mean insulin (8.23 ± 7.86 vs 3.31± 3.55 uIU/ml; p=0.01) and higher mean insulin resistance (2.53 ± 2.53 vs 0.84± 1.24; p=0.069) compared to ART-naïve women. With regard to lipodystrophy pattern, there was a significant difference seen between men and women with women having a higher lipodystrophy prevalence (73.8% vs 45.9%; p=0.011). Prevalence of lipoatrophy was also higher among women (45.2% vs 18.9%; p=0.032). They had a 2.7 fold higher chance of developing lipodystrophy than men and a 1.8 fold chance of developing lipoatrophy. When correlation analysis was performed for lipoatrophy and leptin, lipoatrophy negatively correlated with leptin in men (r=-.329, p=0.050) and women(r=-.326, p=0.035) separately. Even after controlling for BMI, sex and age, lipoatrophy was significantly associated with decreased leptin levels (p=0.026).

**Conclusions:** Among our rural population, the higher insulin levels and insulin resistance seen in HIV-infected women on ART when compared to men may be partly due to their higher leptin levels. The HIV-lipodystrophy, in particular lipoatrophy, associated with hypoleptinemia, may not only be due to absolute reduction in adipose tissue, but also due to a direct effect of antiretrovirals on leptin gene expression.

**Abstract: O\_17***The impact of Drug Resistance in Women***Adherence and retention rates: a comparison of women enrolled in an ART program during pregnancy and those who become pregnant after enrollment***A. Bell<sup>1</sup>, B. Musick<sup>1</sup>, J. Hogan<sup>2</sup>, K. Lane<sup>1</sup>, P. Akhaabi<sup>3</sup>, S. Washington<sup>1</sup>, E. Were<sup>4</sup>, K. Wools-Kaloustian<sup>1</sup>*

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**Background:** In 2008, 54% of pregnant women living with HIV in sub-Saharan Africa received some form of antiretroviral (ARV) prophylaxis (single dose nevirapine, an abbreviated ARV regimen, or combination antiretroviral therapy [cART]) to reduce the risk of HIV transmission to their infants. Access to ARVs, particularly cART, has resulted in dramatic decreases in perinatal HIV transmission rates and is a key component of all effective prevention-of-mother-to-child-transmission (pMTCT) strategies. There are concerns that women who are diagnosed with HIV during pregnancy have greater difficulty with cART adherence than those with previous knowledge of their status and that these difficulties may lead to higher rates of vertical transmission and the development of drug resistance.

**Materials and Methods:** This is a retrospective analysis of data collected from January 2006 to March 2009 in the United States Agency for International Development-Academic Model Providing Access To Healthcare (USAID-AMPATH) program in western Kenya. The analysis compares characteristics at enrollment and pregnancy identification, adherence rates, and pregnancy outcomes between HIV-infected pregnant women enrolled during pregnancy (EDP) and those who became pregnant after enrollment (PAE). All were ART-naïve at pregnancy identification. Pregnant women with CD4 < 200 cells/μl began cART immediately and

those with CD4 = 200 cells/μl started at 28 weeks gestation. The analysis was conducted using descriptive statistics, Kruskal-Wallis tests, and Chi-square analysis.

**Results:** 5840 pregnant women were eligible: 3967 with pregnancies at enrollment and 1873 with pregnancies after enrollment. The EDP were younger at pregnancy identification with a median age of 27.8 years [(Interquartile Range [IQR]: 23.5, 32.1) versus 30.2 (IQR: 26.5, 34.6; p<0.0001)], more likely to be legally married (69% vs. 54%; p<0.0001) at enrollment, and more likely to have a higher CD4 count at enrollment with a median of 359.5 cells/μl [(IQR: 205.5, 527.0) versus 281 cells/μl (IQR: 134, 472; p<0.0001)]. The EDP group initiated cART later: 30.0 weeks gestation (IQR: 28.0, 32.0) versus 28.0 (IQR: 26.5, 34.6; p< 0.0001); were less adherent to cART: 88.7% with perfect adherence versus 92.8% (p <0.0001); and were more likely to be lost to follow-up prior to delivery: 16.4% versus 2.9% (p<0.0001). Among those women retained in care post-delivery, there were no differences in early infant death rates: 2.1% [(95% CI: 1.4 – 3.1) (EDP) versus 1.6% (95% CI: 0.8 – 2.9) (PAE)]; or perinatal HIV transmission rates 5.3% [(95% CI: 4.0 – 6.9) (EDP) versus 7.1% (95% CI: 5.1 – 9.6) (PAE)].

**Conclusions:** Differences in characteristics at enrollment and pregnancy identification as well as adherence and retention rates were identified between the two groups. There were no differences in infant outcomes among those women retained in care post-delivery. However, since no outcome data were available for women not retained in care, there may be significant unmeasured MTCT transmission and early infant death in the group that was lost to follow-up. Interventions targeted at improving adherence and retention among women diagnosed with HIV during pregnancy are urgently needed.

**Abstract: O\_18**

*Research agenda; what are we doing, what more can/should be done*

## **Improving health service delivery for adolescents living with HIV (ALHIV)**

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**Background:** Worldwide, the number of HIV positive adolescents is increasing and comprises of those infected perinatally and through risky behavior. Data from 109 out of 336 sites in Rwanda shows that 3.8% (961/24933) of the pre ART population and 4.5 % (2016/44041) of the total population under ART are adolescents (10-19 years of age). Program reports reveal several challenges including inadequate skills among health workers, suboptimal adherence to treatment, risky sexual behavior and unmet psychosocial and economic needs like nutrition, education and family support. We report on two strategies to improve service delivery for ALHIV in Rwanda: (i) strengthen the national program for care and treatment of ALHIV and (ii) Implementation of a comprehensive adolescent friendly model of care in two health facilities.

**Methods:** Generation and dissemination of evidence on quality and environment of care for ALHIV was done. National program managers and clinical staff from key stakeholder institutions were trained. Provision of comprehensive services for about 600 HIV positive adolescents in TRAC Plus clinic and Ruhengeri district hospital was initiated in 2010 and 2011 respectively and is ongoing. The model involves ensuring adolescent friendly environment, staff training, revision and development of tools, provision of multidisciplinary health services including sexual and reproductive health, establishing peer education programs, reduction

of stigma and discrimination, enhancing family welfare and support and establishing linkages and partnerships for sustainable socio-economic empowerment. Evaluation of the model is expected to inform development of national standards of care for scaling up.

**Results:** Financial and technical support was obtained at national and international level. Evidence informed norms and standards of care were developed. 34 service providers including 10 from the two health facilities were trained as national trainers in adolescent health and development. Though still modest, integration of adolescent care is now integrated in national in-service HIV training and mentorship programs. Comprehensive services for 600 ALHIV; Multidisciplinary adolescent specific clinics for routine medical follow up and psychosocial support were implemented. Peer education tools for piloting at the two sites were developed. 25 peer educators including 10 girls received initial orientation. 50 elderly parents and guardians were sensitized on the care of children and adolescents living with HIV. Education support was obtained for all the 298 children in need from TRAC Plus clinic.

**Conclusion:** National HIV program is facing the current situation of inappropriate care of HIV adolescents by putting in place national initiatives to model quality and friendly care for adolescent which represent a giant step towards wide implementation of quality care for HIV + adolescents in Rwanda. Perspectives include a national scale up plan with a strong M&E framework and program evaluation.

**Abstract: O\_19**

*Research agenda; what are we doing, what more can/should be done*

## **Developing a coordinated research agenda for women and HIV/AIDS in Canada: creating spaces for collaborative multi-stakeholder dialogue**

*L. Binder<sup>1</sup>, J. Gahagan<sup>2</sup>, S. Wertheimer<sup>3</sup> and the Gathering of Spirits Research Collaborative*

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**Introduction:** In Canada, women now represent 26.2% of all positive HIV test results, a significant increase in comparison to the rate of 11.7% prior to 1999. While in recent years, a growing number of Canadian researchers, community members and other stakeholders have been examining the multifaceted issues that impact women's access to HIV diagnosis, care, treatment and support, women as a population remain under-represented in many types of research in Canada. Additionally, the HIV research response's tendency to work in knowledge, disciplinary and stakeholder silos has limited the development of a national coordinated approach to research with and for women and HIV/AIDS in Canada, thus hindering the identification of research gaps and of opportunities to work across disciplinary and stakeholder boundaries to begin addressing these gaps.

**Material & Methods:** Recognizing the importance of fostering a multi-stakeholder dialogue on research, partners from varied academic, community and government organizations and research institutions have been working collaboratively to develop a coordinated research agenda for women and HIV in Canada. This ongoing process has included the:

1. Organization of Multi-Stakeholder Meetings: Two events were held in conjunction with the Canadian Conferences on HIV/AIDS Research, to allow diverse stakeholders to

develop strategic directions and priorities for research. To ensure community representation at the events, scholarships were awarded to people living with HIV, members of marginalized populations, frontline service providers and students.

2. Creation of a National Network: The "Gathering of Spirits: Canadian Women, Transpeople and Girls' HIV Research Collaborative" was formed in May 2011. Through electronic updates, members of the collaborative are encouraged to share resources and findings, and to remain involved in a pan-Canadian dialogue on research.
3. Creation of Working Groups: Working groups in the areas of communications and knowledge translation and exchange; fundraising; research gaps and priorities; and ethics and capacity building, have been formed to develop tools and implement activities to further the work of the collaborative.

**Results:** While the development of the coordinated research agenda for women and HIV in Canada is still in its formative stages, this initiative has yielded some promising results. By creating spaces for dialogue between stakeholders of varied disciplinary and experiential backgrounds, this process has allowed for the identification of key issues and gaps in research with and for women and HIV in Canada. It has also fostered the development of new partnerships, including enhanced collaboration between researchers and community representatives.

**Conclusions:** Creating opportunities for multiple stakeholders from research, community and government sectors to work collaboratively can greatly enhance the research response with and for women and HIV/AIDS, by facilitating the identification of research gaps and the creation of new partnerships to help broaden access to and participation in research. Through this presentation, we will share some of the key points and lessons that are emerging from the development of the research agenda for women and HIV in Canada, while learning from our colleagues in other nations, including the United States.

**Abstract: O\_20**

*Research agenda; what are we doing, what more can/should be done*

## **Additional insights on GRACE (Gender, Race And Clinical Experience) from the patient's perspective: GRACE participant survey**

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**Background:** The GRACE study was conducted between October 2006 and December 2008 and investigated sex- and race-based differences in outcomes with darunavir/ritonavir-based therapy in 429 treatment-experienced patients. A higher proportion of women discontinued treatment than men (32.8% vs. 23.2%), and more women discontinued treatment for reasons other than virologic failure. Here, we present findings from a survey implemented to assess the impact of various factors on GRACE outcomes.

**Materials & Methods:** The GRACE Participant Survey was an IRB-approved, non-interventional, cross-sectional survey of former study participants, primarily from GRACE sites that enrolled 5 or more patients. The survey was conducted in 22 of 65 GRACE study sites between June 2010 and June 2011. Participants completed a questionnaire during a single study visit. The 40-item questionnaire included both multiple choice and open-ended questions that explored subjects' characteristics, experiences, and opinions about participating in GRACE. Descriptive statistics and univariate associations with study outcomes including study discontinuation, adherence, and virologic response were performed.

**Results:** The 243 GRACE subjects at the 22 participating sites were representative of the overall GRACE population and 151 (62%) completed the survey. Respondents were mostly female (64%), with a median age of 44 years; however, compared to non-respondents, fewer were black (55% vs. 62%), more had injected drugs (17% vs. 10%), and fewer had CDC class C disease (34% vs. 40%). Respondents had higher median baseline CD4 compared to non-respondents (221 vs. 187 cells/mm<sup>3</sup>, respectively). Fewer respondents had discontinued GRACE (27%) compared to non-respondents (40%), and respondents had higher virologic response rates at Week 48 (intent to treat-time to loss of virologic failure [ITT-TLOVR]: 61% vs. 46%; TLOVR-non virologic failure censored: 77% vs. 70%) compared to non-respondents, respectively. Twenty percent did not have health insurance during GRACE, and although 73% were high school graduates, 58% were not working when GRACE started. Fewer than 5% were homeless, lived in a shelter or spent any nights in jail while participating in GRACE. Seventy-seven percent noted that it was not difficult to arrange transportation to the study site. Access to treatment (41%), being part of 'something bigger' (18%), and feeling better (18%) were most frequently described as the "best parts of the GRACE experience". While 88% reported having completed GRACE, only 73% had actually done so; many noted that site (47%) and family (15%) support were the most important success factors. In univariate analyses, being the primary caregiver for children, not working, receiving Medicaid, transportation difficulties, and a history of medication or clinic visit non-adherence were associated with non-adherence, study discontinuation, and/or worse virologic response in GRACE.

**Conclusions:** Most survey respondents noted a positive GRACE experience. Factors associated with study completion included access to treatment, and site and family support. Patients with certain characteristics such as transportation difficulties, caring for children, not working, receiving Medicaid, or a history of non-adherence may be at risk for worse study outcomes and may benefit from additional adherence and retention efforts in future studies.

**Abstract: O\_21**

*Research agenda; what are we doing, what more can/should be done*

**The SHE programme: a European initiative to improve the care of women living with HIV**

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**Introduction:** In Europe, the number of women living with HIV is increasing. Despite improved long-term treatment and prognosis, HIV care remains complex, with unique challenges not only for women living with HIV, but also for their healthcare providers. Given the limited gender-specific data and the lack of clear guidelines, it is necessary to develop specific programmes aimed at improving the care of women living with HIV. SHE is a European programme addressing these specific challenges by providing new scientific and educational tools to be used in the clinical and community settings. Its objective is to improve the quality of life of women living with HIV.

**Material and Methods:** The SHE programme is being developed by two multidisciplinary faculties, including women personally affected by HIV and healthcare professionals involved in their care. In 2010, the SHE faculty reviewed available data pertaining to HIV in women and identified where data are lacking. These data gaps were validated and prioritised at a scientific meeting held in June 2011, attended by 80 invited delegates from 13 European countries. The SHE peer support programme aims to support women living with HIV to feel empowered to improve the quality of their lives, get the most out of their healthcare services, and to create an effective dialogue with healthcare professionals. Women living with HIV have developed a toolkit to facilitate peer support. In order to integrate the peer support and clinical components of the SHE programme, 'SHE units' could be developed at specific regional sites (clinics or hospitals): they will comprise

multidisciplinary teams of healthcare professionals and peer support representatives.

**Results:** Five key topics were identified by the SHE faculty: (i) the situation of women with HIV in Europe; (ii) the challenges of testing; (iii) antiretroviral treatment (ART); (iv) the choices available to women with HIV of childbearing age; and (v) long-term. The gaps identified as the highest priorities pertained to ART in women, either generally or in pregnancy. Three of the top ten data gaps call for additional guidance on management of women, including pregnant women and the use of contraceptives. The national picture is diverse, with different priorities noted across Europe. The SHE peer support toolkit has been developed as a resource for women living with HIV who wish to facilitate peer support sessions for women with HIV. This toolkit is available online at <http://www.shetoshe.org>. SHE units are in development and will be piloted in several European countries. Each SHE unit will be a multidisciplinary team based in a specific clinic that can draw on expertise from SHE medical education and peer support activities to improve and promote best clinical practice in their region.

**Conclusions:** There is an urgent need for specific programmes for women living with HIV. An integrated approach is required to take into consideration both patient and physician perspectives. The SHE programme is a successful and ongoing initiative providing medical education in both clinic and community settings to improve the care of women living with HIV.

**2<sup>nd</sup> International Workshop on HIV & Women**  
*from Adolescence through Menopause*

**9 – 10 January 2012, Bethesda, MD, USA**

**Abstracts**  
***Poster Presentations***



**Abstract: P\_1**

*ARV therapy for women -- efficacy, toxicity, pharmacokinetics*

## **Association of lipodystrophy and aging among HIV positive individuals on ART in rural South India**

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**Background:** Lipodystrophy occurs in HIV infected individuals on Antiretroviral Therapy (ART). Many of the body changes occurs with age but being HIV positive and on ART accelerates these problems at early ages. The objective of this study was to compare the prevalence of lipodystrophy in different age groups among individuals on ART in South India.

**Material and Methods:** In this cross sectional study, consenting HIV-infected patients on ART, visiting Namakkal District Head Quarters Hospital, Tamil Nadu, India, were recruited from February-April 2009. They were on generic first-line fixed dose combinations of ART, provided free of charge under the national program. Sociodemographics, anthropometric measurement, details of ART regimens and duration of treatment were recorded. Patients' self-perception of lipodystrophy was obtained using standardized questionnaires and clinically confirmed by the physician at the ART center. An overnight fasting blood was drawn to determine serum lipids levels. Total cholesterol, high-density lipoprotein (HDL) cholesterol, and triglycerides were analyzed by colorimetric enzymatic methods using Stat Fax 3300 chemistry analyzer (Awareness Technology, USA). Low-density lipoprotein (LDL) cholesterol and Very-density lipoprotein (VLDL) was calculated using the Friedewald formula. Statistical analysis included chi-squared test and t-test.

**Results:** There were 145 HIV-infected subjects (46.9% males, 53.1 % females) receiving ART for a mean 29.4 months with 40.6% on zidovudine based regimen and 59.4% on stavudine regimen. Mean age of the subjects was 33.92 ±7.23 years and mean body mass index was 22.26± 4.46 kg/m<sup>2</sup>. Women were younger than men with a higher percentage in the 24-35 age range (p=0.00). There was also a higher percentage of women with BMI lesser than 18.5 kg/m<sup>2</sup> compared to men (p=0.167). Among the different age groups, 6.9% (n=10) were <25 years, 41.4% (n=60) were in the 26-35 age range, and 51.7% (n=75) were more than 35 years old. The prevalence of lipodystrophy was 30.0% in the < 25 group, 70.0% in the 26-35 group, and 57.3% in the >35 group (p=0.039). Lipoatrophy prevalence was significantly higher in the 26-35 group (p= 0.040). Prevalence of lipohypertrophy was higher among those older than 35 years (p= 0.040). Among women, prevalence of lipodystrophy (<25 = 20.0%, 26-35 =70.2%, >35 = 84.0%; p= 0.015) and lipoatrophy (<25 = 20.0%, 26-35 = 41.3%, >35 = 44.0% ; p= 0.046) significantly increased with increase in age. Similarly, prevalence of facial fat loss (p= 0.047) increased with age. Moreover, prevalence of fat loss in legs (p=0.037) was higher among women <40 years. However, prevalence of abnormal total cholesterol (p=0.146), abnormal HDL-cholesterol (p=0.397), abnormal LDL-cholesterol (p= 0.899) and abnormal triglycerides (p=0.366) did not significantly increase with increase in age among these women.

**Conclusions:** Older HIV-infected women on generic ART in a rural setting reported increased lipodystrophy prevalence including lipoatrophy prevalence compared to younger women. However, there were no significant changes in prevalence of abnormal lipid values with different age groups among these women.

**Abstract: P\_2**

*Cervical cancer: HPV screening, treatment, vaccines*

**Prevalence of Human Papillomavirus in women living with HIV/AIDS attending an AIDS clinic in Amazonas, Brazil**

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**Background:** Screening HIV-infected populations are an important public health service. Women living with HIV/AIDS present with a higher prevalence of human papillomavirus (HPV) infection, higher rates of squamous intraepithelial lesions, and are more susceptible to invasive cervical carcinoma progression. Our goal was to evaluate the prevalence of Human Papillomavirus (HPV) infection in women with HIV/AIDS attending an AIDS clinic in Manaus, Amazonas, Brazil.

**Material & Methods:** Cross-sectional study. Women attending an AIDS clinic in Manaus between March and December 2010 for gynecological examination were invited to participate. Enrolled patients answer a face-to-face interview including demographic, behavioral and clinical data. They also underwent a gynecological evaluation and cervical scrape samples were collected for cytological analysis and high risk HPV hybrid capture. A blood sample was obtained to determine CD4 and viral load.

**Results:** A total of 310 women were included. High-risk HPV was detected in 191 (61.6%) cases; 24 (13.5%) had a low-grade squamous intraepithelial lesion (SIL) and 4 (2.2%) high-grade SIL. Median age was 32 (interquartile range (IQR): 27-38) years and median of education was 8.5 (IQR 4-11) years of schooling and 56.1% had a monthly income up to US\$180. Regarding behaviors, 64 (20.6%) were tobacco users, 49 (15.8%) illicit drug abusers, 38 (12.3%) reported having more than one partner last year, 198 (63.9%) used condoms regularly and 49

(15.8%) were commercial sex workers. CD4 counts were >200 cells/mm<sup>3</sup> in 21% and viral load undetectable in 31%. In multivariate analyses, having less than 30 years old [OR=2.3 (CI95%1,3-3.9, p=0.003)], an high-grade SIL cytology [OR=7.7 (CI95%1.8-32.2, p=0.006)], and CD4 counts <200 cells/mm<sup>3</sup> [OR=3.0 (CI95%1,4-6.6, p=0.007)] were associated with high risk HPV infection.

**Conclusions:** We report a high prevalence of high risk HPV in women living with HIV in Manaus. These results show the importance of gynecologic examinations in routine care and follow-up required by those who present with cervical lesions. Sensitive detection methods may have important impact for the management of immunocompromised patients.

**Abstract: P\_3**

*Cervical cancer: HPV screening, treatment, vaccines*

## **The association between immune and virologic parameters with the prevalence of the different subtypes of HPV among Russian HIV-infected women**

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**Introduction:** Human Papillomavirus (HPV) infection is highly prevalent among HIV-infected women and is strongly associated with the development of cervical dysplasia and cancer. HIV-related immune suppression has been linked to persistent and rapidly progressive HPV infection and recurrent cervical cancer. Currently, there are no data on the prevalence and subtypes of HPV among Russian women with HIV infection. The aim of this study was to evaluate the relationship between the immune and virologic suppression and the prevalence of different subtypes of HPV among Russian women in St. Petersburg.

**Methods:** This was a prospective cohort study of HIV-infected women receiving their care at the Center for Infectious Diseases and Prophylaxis, Saint-Petersburg, Russia between 2009 and 2011. Women had HPV PCR test from cervical canal and surface of the cervix. HIV viral load and CD4 cell count were accessed as standard of care. Medical records were reviewed to collect the data on HIV diagnosis, HIV RNA viral load (VL) and use of antiretroviral therapy.

**Results:** The study enrolled 113 HIV-infected women. The median age was 27.3 yrs (20-40 yrs). One third of HIV-infected women (35.4%; n=40) were on antiretroviral therapy. High-risk

oncogenic HPV types (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59) were detected in 80.5% (n=91) of all women, with 59.3% of women (n=54) having simultaneous presence of the several oncogenic types. HPV types 16 and/or 18 were identified in 44% (n=40) of all HPV cases. All women were divided in three subgroups based on the VL: HIV RNA >100,000 copies/mL (n=9), HIV RNA 10,000-100,000 copies/mL (n=39) and HIV RNA <10,000 copies/mL (n=65). The prevalence of HPV was the highest (84.6%; n=33) among women with HIV RNA 10,000-100,000 copies/mL, followed by the women with lowest VL (78.5%; n=51; p<0.01) and intermediate VL (77.8%; n=7; p<0.01). Among women with low CD4 cell count (<200 cells/mm<sup>3</sup>) oncogenic HPV was identified in highest proportion of the patients (88.9%; n=8), followed by women with CD4 cell counts 200-500 cells/mm<sup>3</sup> (87.9%; n=58). As expected, the women with highest CD4 cell counts (>500 cells/mm<sup>3</sup>) had the lowest prevalence of the oncogenic HPV (65.8%; n=25; p<0.01).

**Conclusions:** The prevalence of HPV was significantly higher in our cohort of HIV-infected women compared to the regional and national prevalence among non-HIV infected women in Russia. The presence of oncogenic types of HPV was significantly associated with lower CD4 cell counts (<500 cells/mm<sup>3</sup>). There was, however, no significant difference in HPV prevalence between the women with severe immunosuppression (CD4<200 cells/mm<sup>3</sup>) and women with mild to moderate immune-suppression (CD4 200-500 cells/mm<sup>3</sup>). HIV RNA viral load was not associated with the prevalence of HPV. Further investigation of the prevalence of HPV in Russian women is warranted in order to implement vigorous HPV screening and preventive HPV vaccination.

**Abstract: P\_4**

*Contraception, pregnancy and MTCT*

**Mother-to-child transmission of HIV infection in Manaus, State of Amazonas, Brazil**

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**Introduction:** Reduction in the Mother-to-child transmission of HIV infection is possible when prophylactic measures are implemented. Our objective was to determine demographic characteristics of HIV-infected pregnant women and the rate of mother-to-child transmission of HIV in Manaus, Amazonas, Brazil.

**Material & Methods:** A descriptive study was conducted using notification and investigating data from the Notifiable Diseases Data System (SINAN) in the Brazilian State of Amazonas were used to analyze data from Manaus and medical charts in the municipal maternity hospitals related to HIV-positive pregnant women, between 2007 and 2009. The following data was extracted from the database of HIV-positive pregnant women: age, race, education level, time at which HIV was diagnosed, whether the patient had had prenatal care, type of delivery, prophylaxis with antiretroviral during pregnancy and delivery, prophylaxis for the newborn infant, length of time and starting date of antiretroviral use by the newborn infant and diagnosis of HIV infection in the child. The frequency of the diagnosis in question was estimated, together with the respective 95% confidence intervals. In order to estimate associations with vertical HIV transmission, the odds ratio was used as a measure of association, estimated with a 95% confidence interval. Multivariate analysis was performed to estimate joint effects of independent variables, through the use of logistic regression models.

**Results:** During the study period, notification was received of 509 HIV-positive pregnant women. The vertical transmission rate in this period was 9.9% (95%CI: 7.2-12.6%). Calculation of the vertical transmission rate was based on 48 cases of HIV-positive infants in the 487 pregnant women delivered and the remaining 22 cases, the pregnancy resulted in miscarriage. The majority (478 women; 94%) lived in urban areas, while 21 (4%) lived in rural areas and only 3 women resided in suburban areas. The mean age of women was 27 years (SD: 5.7) and the majority (54.8%) had not completed elementary school (eighth grade). Diagnosis of HIV positivity was made prior to pregnancy in 115 (22.6%) women, during prenatal care in 302(59.3%), during delivery in 70(13.8%) and following delivery in 22(4.3%). Four hundred and four of these women (79.4%) had had prenatal care, with (79.4%) of patients receiving antiretroviral during pregnancy and 61.9% of the newborn infants receiving prophylaxis. In the final multivariate logistic regression model, living in urban area [OR=0.7 (95%CI: 0.35-0.89)] and having had prenatal care [OR=0.1 (95%CI: 0.04-0.24)] remained as protective factors against vertical HIV transmission in this population.

**Conclusions:** Adequate prenatal care in pregnancy and accesses to HIV testing are crucial measures to achieving a reduction in MTCT rates. Based on our findings, established effective measures in guaranteeing the reduction in HIV transmission within the maternal and infant population in Manaus should be emphasized.

**Abstract: P\_5**

*Contraception, pregnancy and MTCT*

**Perinatal transmission of HIV among Russian women receiving care at a large metropolitan HIV clinical center.**

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**Introduction:** The rates of mother-to-child transmission (MTCT) of HIV in Russian Federation are elevated (9.6%) compared to European countries. In recent years the St. Petersburg metropolitan area achieved higher levels of MTCT prevention with only 4.2% and 2.8% transmission rates (2008 and 2009, respectively) among a selected cohort of women with centralized access to care and antiretroviral prophylaxis. This study was aimed at the assessment of the outcomes of pregnancies of HIV positive women receiving care at a large HIV clinical center in St. Petersburg.

**Methods:** We conducted a prospective analysis of clinical characteristics (time of the HIV diagnosis, time under medical observation, use of antiretroviral therapy (ART), CD cell counts and HIV RNA viral load at delivery) and outcomes (delivery mode, transmission of HIV) of HIV infected women who have given birth to children in St. Petersburg in the first 10 months of 2011. The study was approved by the ethics committee of the center.

**Results:** The data were collected in 447 HIV-infected pregnant women with a median age of 27.9 yrs (17-43 yrs). Almost half of these women (47.4%; n=212) had their HIV infection diagnosed as part of the screening during pregnancy. Almost half of all infected women (48.1%; n=215) reported being infected through sexual contact, with another half (51.9%) through

intravenous drug use. The majority (87.5%; n=391) of women remained under medical care following their HIV diagnosis with an average length of observation of 16.3 weeks (16–38 weeks) until delivery. One fifth (19.4%; n=87) of women received ART during pregnancy for maternal indication according to clinical stage of HIV disease. Overall, the majority of women (79.9%; n=357) received antiretroviral prophylaxis during pregnancy and delivery with postpartum prophylaxis administered to the newborns. Median gestational age at the time of birth was 37.9 weeks (25-41 weeks). Laboratory data at delivery were available in 79.2 % (n=354) of women. The median CD4 cell count was 564 cells/mm<sup>3</sup>(109-1578 cells/mm<sup>3</sup>). The majority of women with laboratory evaluation at delivery (82.8%; n=293) had HIV RNA <1000 copies/ml. Caesarian section was performed in one third (27.3%; n=122) of women. The pregnancies resulted in 451 live births (4 twins). Positive HIV status was confirmed in 8 children (1.8%) within the cohort. All infected children are on treatment and under observation.

**Conclusions:** The rates of MTCT of HIV continued to decline among Russian women in St. Petersburg metropolitan area reaching 1.8% in our cohort. Almost half of the women had their HIV status established during pregnancy and reported acquiring HIV infection through sexual contact. The majority of women had a relatively short time of follow up during pregnancy (<20 weeks). Early identification of HIV and linkage to care will allow for more timely medical, social and behavioral interventions to prevent MTCT, highlighting the need for expanded HIV screening of women of childbearing age in Russia.

**Abstract: P\_6**

*Research agenda; what are we doing, what more can/should be done*

## **Programming for adolescents living with HIV (ALHIV) in Rwanda**

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**Background:** Access to quality comprehensive care for the growing number of adolescents living with HIV is still inadequate especially in resource constrained settings where the majority of this population lives. In Rwanda, the issue is now among the priorities in the national HIV response.

**Methods:** A systemic approach to strengthening national capacity for service delivery for ALHIV is unfolding in Rwanda through national ownership of the program, advocacy and leveraging partnerships for a multidisciplinary and multisectoral response.

**Results:** Institutionalization of the program was done through the designation of a desk in RBC/IHDPC in charge of ALHIV care and treatment. Financial and technical support was obtained from the UN, PEPFAR and US government for ongoing modeling of adolescent friendly service delivery, evidence generation, development of normative tools to guide service scale up and training and supervision of health workers in adolescent health and development. National policies on adolescent sexual and reproductive health and Standards of Care for Adolescents living with HIV/AIDS tools was developed and have a clear focus on adolescents with special needs including ALHIV. Collaboration with other sectors for sustainable provision of essential non-health needs, though still modest, has been initiated and some of the

neediest ALHIV now receive education support. Partnership with the association of young people living with HIV has been initiated as a strategy to reduce stigma and to enhance psychosocial and peer support. As well staff capacity building was strengthened.

**Conclusion:** Programming for ALHIV is an equity issue in the national HIV response. Given the highlighted trend of interventions, achieving universal access to quality care for ALHIV may be feasible in Rwanda in the medium term.

**Abstract: P\_7**

*Social Aspects --- Mental Health*

**An Exploratory Model for Understanding the Experiences of Lebanese Women Living with HIV/AIDS**

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**Introduction:** The Middle East and North Africa (MENA) is one of the only regions throughout the world that has seen an increase in new infections from 2001 to 2009 (UNAIDS, 2010). Although UNAIDS estimates that 460,000 individuals are currently living with HIV in MENA (2010), the exact number of women living with HIV/AIDS (WLWHA) in the region is unknown. In the cultural context of defining sexual activity within the confines of marriage in the region, both married and single women living with HIV/AIDS have a unique set of experiences and perceptions that have not yet been comprehensively examined.

The purpose of this study was to examine the meaning of living with HIV/AIDS among women in Lebanon and to understand the cultural contexts that frame their perceptions. The main research question that this study sought to answer was: What is the meaning of living with HIV for Lebanese women? A secondary research question was: What are the contexts in which women's meanings are formed about living with HIV/AIDS?

**Methods:** Constructivist Grounded Theory and Symbolic Interactionism were employed for study design, data collection, and data analysis. In-depth interviews with ten WLWHA in Lebanon were conducted; data were triangulated via interviews with ten men living with HIV/AIDS and ten stakeholders of the local HIV/AIDS community. The study's focal convenience sample population was comprised of both single and married women ranging in age from 30 to 64 years and of both Muslim and Christian women in order to ensure that the multiple and complex Lebanese contexts are best represented and understood.

**Results:** WLWHA in Lebanon experience a process of accepting their diagnosis and forming new meaning in life that includes six non-temporal and overlapping elements: (1) Receiving the news; (2) Accessing care; (3) Starting treatment; (4) Navigating disclosure decisions; (5) Negotiating stigma; and (6) Maintaining stability. Women described the need to have someone "stand by my side" as the motivation to overcome stigma and disclose their status to gain emotional support. They resisted internalizing HIV/AIDS-related stigma and instead focused on feeling "normal" rather than being "sick". Describing plans for the future seemed to indicate a high level of sero-status acceptance, however, WLWHA tended to focus on the present and live "day by day" in an effort to maintain stability and a sense of normalcy within a context that not only stigmatizes people living with HIV/AIDS but is even more stigmatizing toward WLWHA.

**Conclusions and Implications:** This study was the first of its kind to examine the lived experiences of WLWHA in Lebanon. It contributes to the existing literature on the meaning of living with HIV/AIDS among women in the global context. Practice implications center on context-specific opportunities for improvement in service delivery and follow up. Policy implications suggest the need for ensuring post-test counseling for all individuals testing positive for HIV in Lebanon and the greater MENA region. Implications for future research include feasibility studies for HIV/AIDS awareness campaigns to address societal-level stigma and prospective research that follows WLWHA over time.

**Abstract: P\_8**

*Social Aspects --- Mental Health*

**Alcohol use among HIV-positive Latinas and African American Women**

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**Introduction:** African-American and Latina women are disproportionately impacted by HIV/AIDS and by many contextual issues that complicate their experiences living with this disease. One of these issues, alcohol misuse, has been linked to accelerated disease progression, impaired medication efficacy, lower levels of treatment adherence and greater likelihood of engaging in risky sexual behaviors. However, little comprehensive research has examined alcohol misuse among HIV-positive African-American women and Latinas, or the specific issues that underlie this phenomenon.

**Materials & Methods:** This exploratory study used a series of focus groups to explore (1) the issues that influence alcohol misuse, (2) the mechanisms of that influence, and (3) features critical to successful alcohol treatment for HIV-positive Latinas and African American women. This analysis examines dialogue articulated in four focus groups, comprised of 19 HIV-positive African-American women, HIV-positive Latinas, service providers working with HIV-positive Latinas around alcohol-related issues and service providers working with HIV-positive African-American women around alcohol-related issues. Participants were selected on the basis of personal experience with HIV/AIDS and alcohol use and were asked open-ended questions about the intersection of HIV/AIDS, alcohol use and racial/ethnic identity in their lives and communities. Transcripts of recorded focus group conversations were analyzed using the constant comparison method of content analysis.

**Results:** Findings highlight participants' observations of the social-structural influences of gender, race/ethnicity and poverty and the interpersonal influences of strained familial

relationships, troubled romantic partnerships and motherhood on alcohol misuse in the context of living with HIV/AIDS. All participants identified initial diagnosis, ongoing HIV stigma and related depression as precursors to alcohol misuse among HIV-positive women and identified family, social support, social networks and religion/spirituality as potentially supportive influences for the reduction or avoidance of alcohol misuse. Analysis revealed congruence between the perspectives of service consumers and providers within each ethnic group in relation to factors influencing alcohol use. However, analysis revealed less congruence between service consumers' and service providers' perspectives regarding the best ways to intervene in alcohol issues. Providers in both ethnic groups emphasized the need for systemic change around issues of gender and social inequality and consumers in both groups emphasized the need for concrete assistance, interpersonal support and opportunities for consumer-driven participation in recovery and treatment services. Analysis also revealed some culturally specific perceptions and experiences dividing the experiences of African-American and Latina service consumers, particularly in relation to the impact of domestic violence on alcohol use and the impact of alcohol use on childrearing and family functioning.

**Conclusions:** Discussion highlights participants' suggestions for gender-specific elements of alcohol treatment for HIV-positive Latinas and African American women. It is recommended that HIV/AIDS treatment attend more directly to the impact of alcohol misuse on female service consumers and that awareness of the themes and dynamics identified through this analysis be incorporated into service delivery efforts targeting alcohol misuse among these women.

**Abstract: P\_9***Social Aspects --- Mental Health***Pregnancy, prenatal care, and mental health among women in medical care for HIV in Texas***S. Chintapalli<sup>1</sup>, S.L. Odem<sup>1</sup>, P.R. Pannala<sup>1</sup>, S.K. Melville<sup>1</sup>, D. Shehan<sup>2</sup>, L. Armas-Kolostroubis<sup>3</sup>*

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**Introduction:** Previous studies estimated that people living with HIV (PLWH) are twice as likely to be depressed compared to the general population. The Texas Medical Monitoring Project (MMP) 2009 weighted interview and medical chart abstraction datasets were analyzed to access anxiety and depression, mental health counseling, and depression among HIV positive women receiving medical care in Texas. Incidence of perinatal transmission has decreased dramatically in Texas, but continued prevention efforts are needed to further reduce incidence. The 2007-2011 Texas MMP local questionnaire datasets were analyzed to gather prenatal information among HIV positive women in care.

**Methods:** The MMP is designed to provide prevalence estimates for unmet need, risk behaviors, and other variables of interest among people in care for HIV infection. Sites, facilities, and patients are randomly selected using a three stage cluster-sampling method. In 2009, a random sample of 400 HIV positive patients were drawn from 29 Texas facilities: 237 patient interviews and 359 medical chart reviews were completed. From 2007-2011, 730 interviews were completed from a supplemental locally developed questionnaire.

**Results:** Among participants interviewed in 2009, 19% reported accessing mental health counseling in the past 12 months. From the medical charts, 22% (n=79) of patients had a diagnosis of depression by a physician in the past 12 months; women represented 37%. Seventy percent (n=40) of women who participated in the interview did not have a

clinical diagnosis of depression in their medical chart. A third of these women self-reported feeling down, depressed, and hopeless ranging from several days to nearly every day in the two weeks prior to the interview (33%, n=14) (Rao-Scott  $\chi^2 = 19.33$ , p=0.0002) when compared to similar women who did not report these feelings. Nearly half of interviewed women without diagnosed depression reported sleep issues (49%, n=20) (Rao-Scott  $\chi^2 = 9.73$ , p=0.0210) as well as feeling tired with little energy (50%, n=21) (Rao-Scott  $\chi^2 = 8.65$ , p=0.0343) ranging from several days to nearly every day in the two weeks prior to the interview when compared to similar women who did not report these issues. Of participants who completed a local questionnaire, 23% were women and 26% (n=44) had been pregnant at least once after testing HIV positive. The majority of women received prenatal care during their first pregnancy (86%, n=38) and were on ART (77%, n=34) throughout pregnancy and labor/delivery. The majority resulted in a live birth (82%, n=36). The majority of babies were given ART after birth, formula fed, and are HIV negative (75%, n=27); results from additional pregnancies similar to the first.

**Conclusions:** Texas MMP data suggests that a significant percentage of HIV positive women, not clinically diagnosed with depression, still reported negative emotions, sleep issues, and low energy in the two weeks prior to the interview. Future analysis should be done to assess potential barriers to receiving mental health counseling among HIV positive women. The majority of participants who had been pregnant since testing positive took preventative measures. Prevention efforts should continue to support perinatal transmission prevention programs and prenatal education.

**Abstract: P\_10**

*Treatment program for HIV infected women  
(design and implementation)*

**By female PLWHA Pokhara  
Declaration in Nepal**

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**Introduction:** Building leadership and advocacy skills of the Female PLWHA community to enable them to participate meaningfully in policymaking.

**Methods:** A brief overview was given on the qualities required to become a leader or facilitator. Participants were encouraged to draw out important experiences from the past and present that might be utilized in the future to help themselves and others. The priority skills that participants pointed out they needed to bring about a change for PLWHA were speaking/writing in English, problem solving; supervision/direction skill, administration skill, management training, counseling, fund raising ability; mass mobilization skills and advocacy skill as most needed.

**Results:** The training created opportunity for everyone involved to gain and learn from new experiences, interactions, relationships and knowledge but most importantly, a generation of PLHA leaders emerged. After the training, a total of 20 replication leadership trainings were led by AG members across five regions of Nepal. Altogether 250 PLWHA.

**Conclusions:** The training came to an end with the Pokhara Declaration; a petition inviting and encouraging the PLWHA community to stay unified and committed to create change. The commitment and dedication that went into the development and implementation of this first National Leadership Training by and for PLWHA in Nepal cannot be measured, but must be recognized and applauded.

**Abstract: P\_11**

*Treatment program for HIV infected women (design and implementation)*

## **Assessment of the quality of care by women living with HIV/AIDS and their perception of stigmatisation in a secondary health care system**

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**Background:** Women constitute a higher percentage of people living with HIV/AIDS. Poor quality of service and stigmatisation may discourage women from taking advantage of the free ART drugs commonly provided. Do the health care workers give good quality of care to women living with HIV/AIDS? Are there cases of discrimination?

**Materials & Methods:** Semi structured set of questionnaires were administered to women attending a secondary care facility. These document their biography, quality of care they receive at the different parts of the hospital like the clinics, theatre, pharmacy etc. The questionnaires also assessed possible stigmatization by the health workers. Analysis were done using SPSS Version 16.

**Results:** A total of 212 women living with HIV/AIDS were interviewed. Their ages range between 20 to 60 years with a mean age of 33.40±7.76 and a median of 32.0 years. 172 (56.6%) of them were married, 28 (9.2%) single, 8(2.6%) widowed, and 4(1.3%) divorced. Spouses were negative in 116 (38.2%) and positive in 60 (19.7%) of the patients . Only 196 (92.4%) of the patients were on ART drugs. All (100%) of them had accessed care at the clinic, laboratory and pharmacy while only 24 (11.3%) had been admitted, 56 (26.4%) had delivered babies, and 8(3.8%) had surgery in the hospital. 176 (83%) stated that they have been treated with utmost respect in the hospital while 16(5.3%) have been treated with utmost

disrespect. Attitude of the doctors were said to be good to excellent by 204 (96.2%) of the patients, of nurses and counsellors respectively, 200 (94.3%), of records officers, 196 (92.4%), pharmacists, 184 (86.8%), lab scientists, 204 (96.2%), and cleaners, 192 (90.6%). Only 8 (3.8%) had surgery in the hospital and they all reported excellent attitude of the surgeons, nurses, anesthetists and cleaners. Of the 52 who had deliveries, all (100%) were given excellent to good treatment by the doctors, other ancillary staff while 4 (7.7%) nurses showed very poor attitude towards them. Only 8 (3.8%) reported behaviours suggestive of stigmatization from doctors, 4 (1.9%) from nurses, and 16 (7.6%) from pharmacists. Health workers' disposition discouraged 21 (9.9%) of the patients from continuing treatment, while majority (189 or 89.2%) rated the general services rendered to them as excellent to good, and 177 (83.5%) of them claimed the services rendered to them have assisted them to live positively with the diseases.

**Conclusions:** Most of the patients living with HIV/AIDS in this study have good perception of the care given to them in the hospital. Education of the health workers must have assisted in this regards. Training and re-training of the health workers is suggested to perfect the care for these patients and reduce stigmatization. This will lead to improvement in the care as well as the prognosis of the disease.

**Abstract: P\_12**

*Treatment program for HIV infected women  
(design and implementation)*

**Implementing an HIV Clinic for women care in a middle income country**

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**Background:** Although the majority of new HIV infections in Chile occur in men, the incidence of HIV in women is on the rise. Numerous studies focusing on gender differences, in clinical care, highlight the specific needs of women. The AIDS Care Unit of San Juan de Dios Hospital provides medical care, pharmacy service, adherence program to antiretroviral therapy, evaluation of adverse events by a pharmacist, psychological counseling, and hospitalization in the different inpatient units, as needed. We have currently 1900 HIV-infected patients under care, 1140 of whom are on HAART, and 294 are women. The main challenge in the clinical care for women is the coordination of care, as family planning and regular PAP smears are provided elsewhere by primary care clinics. We therefore decided to implement an HIV clinic exclusively for women that offers all the medical services in a single location.

**Material and Methods:** On May, 2011 we interviewed the representative of International Community of Women Living with HIV/AIDS - ICW Latina to help us identify their unique needs. The main problems identified revolved around reproductive medicine, including birth control, contraceptive counseling, gynecological examination, and menopause control. Subsequently, we facilitated a meeting with the Hospital leadership to earmark the necessary funds to carry out the project. Then we secured the commitment of the Service Chief of the Gynecology Unit to be part of the clinical management of the patients and of ICW Latina to participate in various workshops to address their needs. On July, 2011 we started the recruitment of women attending our HIV main

clinic and administered a questionnaire to each woman willing to participate in this project.

**Results:** After demonstrating the cost-effectiveness of the proposal, the Hospital Director endorsed the project. As of 28 October 2011, 102 women have been approached by project staff. The clinic for women has been universally welcomed, and no one has refused to enroll. Twenty women have already participated in a workshop about the use of Implanon and other contraceptive methods. Five women chose to undergo a tubal ligation and 6 opted for Implanon. We have already detected 1 case of cervical cancer.

**Conclusions:** The main challenge difficulty to the project was to show the hospital leadership the impact of this project. Offering an integrated, interprofessional clinical care will contribute to reduce unintended pregnancies and prevent cervical cancer. Participation in group activities will increase their well-being. We are also planning to apply for a grant to provide bone densitometry and other tests currently not available in our Hospital. Contraceptive counselling and provision of effective and acceptable contraception as well as menopause and PAP smear management should become an integral part of care provided to HIV-infected women.

**Abstract: P\_13**

*Treatment program for HIV infected women  
(design and implementation)*

## Can women living with HIV feel connected in a video-group intervention

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**Introduction:** Behavioral interventions are traditionally designed for in-person delivery, which is not always feasible due to lack of critical mass for specialized group-based programs, funding and overall lack of access for individuals living in remote and/or rural areas. Using video-phone technology is a novel and innovative method for delivering group-based interventions. However, very little information regarding participants' experiences with video-group interventions is available. Research has demonstrated the importance of group cohesion for successful group-based interventions, but it is not clear that such cohesion can be achieved through video-groups, which eliminates the possibility of physical reassurance and affirmation (e.g., hugs). We adapted a Center for Disease Control (CDC) approved Effective Behavioral Intervention (EBI), *Healthy Relationships (HR)*, for delivery via video-phones to women living with HIV (WLH). The adapted six-session program was delivered as part of an ongoing feasibility randomized controlled trial (RCT). This presentation focuses on participants' experiences with the video-groups, as assessed immediately following the last video-group session.

**Methods:** WLH (n=28) were recruited from 4 different counties in Florida. Groups consisted of 3-7 participants. Each group met via video-phone twice a week for three weeks. Participants completed a computerized post-intervention survey immediately following the sixth session.

**Results:** Group participants (*M* age = 42.1.5; *SD* = 8.076; 57% African-American/Black; 29% Caucasian; 14% Hispanic) reported being mostly

satisfied or very satisfied (95.14%) with their overall experience with the intervention. Participants reported that group members respected the agreement of confidentiality (92.9%), there was a positive relationship among the group members (96.5%) and they felt comfortable expressing disagreements within the group (92.9%). Participants also reported there was a feeling of unity and togetherness among group members (96.4%) and they felt free to share information (96.4%). Open-ended responses also indicated high group cohesiveness and comfort level within the groups.

**Conclusion:** While video-group interventions do not allow for physical reassurance and affirmation, preliminary findings indicate women felt connected and felt comfortable in a video-group intervention. Video-groups are promising strategy for delivering behavioral interventions for WLH.

**Abstract: P\_14****Childhood Sexual Abuse, Traditional Gender Roles, and Coronary Heart Disease Risk among Women with HIV**

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**Background:** A history of childhood sexual abuse (CSA) is prevalent among HIV infected women and among women CSA has been linked to cardiovascular disease in adulthood. The present study investigated whether gender roles moderated or mediated relationships between CSA and coronary heart disease (CHD) risk in women with HIV.

**Methods:** Participants were 94 HIV+ women at the Chicago site of the Women's Interagency HIV Study (WIHS). 91.8 % self-identified as African American. Mean age was 44.8 years and median income was \$6001-\$12,000. CSA below age 18 was assessed by self-report; gender roles were measured by three scales: the Unmitigated Communion Scale (focus on caring for others rather than the self), the Sexual Relationship Power Scale (Relationship Control and Decision making Dominance) and the Silencing the Self Scale (with four subscales - externalized self-perception, silencing the self, divided self, and care as self-sacrifice). CHD risk was measured using the Framingham Coronary Heart Disease Risk score, a composite measure of variables such as cholesterol and blood pressure.

**Results:** Of the 94 women, 25 reported CSA and 69 did not. Hierarchical multiple regressions controlling for age, education, and employment were conducted with CSA, gender roles, and interaction terms of CSA and gender roles as predictors and CHD risk score as the outcome. CSA was a significant predictor of CHD risk ( $\beta=.21$ ,  $p=.003$ ), self-silencing total ( $\beta= -.34$ ,  $p=.003$ ), externalized self ( $\beta= -.30$ ,  $p=.01$ ), self-silencing subscale ( $\beta= -.37$ ,  $p=.001$ ), care as self-sacrifice ( $\beta= -.32$ ,  $p=.005$ ) and sexual relationship power ( $\beta=.23$ ,  $p=.04$ ). In all cases

CSA was related to less traditional gender roles and higher sexual relationship power. Higher care as self-sacrifice significantly predicted lower CHD risk ( $\beta=-.13$ ,  $p=.045$ ), but did not significantly mediate the relationship between CSA and CHD risk (Sobel test statistic=.12,  $p=.92$ ). CSA significantly interacted with women's scores on all the gender role measures to predict CHD risk - sexual relationship power scale ( $F=28.05$ ,  $p<.001$ ), relationship control subscale ( $F=28.28$ ,  $p<.001$ ), decision making dominance subscale ( $F=29.05$ ,  $p<.001$ ), unmitigated communion scale ( $F=28.12$ ,  $p<.001$ ), self-silencing scale ( $F=28.02$ ,  $p<.001$ ), externalized self-subscale ( $F=28.26$ ,  $p<.001$ ), self-silencing subscale ( $F=28.34$ ,  $p<.001$ ), care as self-sacrifice subscale ( $F=29.38$ ,  $p<.001$ ) and divided self-subscale ( $F=29.03$ ,  $p<.001$ ). Traditional gender roles tended to predict lower CHD risk for women who did not experience CSA (decision making dominance subscale ( $\beta=.14$ ,  $p=.08$ ) and care as self-sacrifice subscale ( $\beta=-.14$ ,  $p=.07$ )) but did not do so for women with CSA.

**Conclusion:** Our finding that CSA predicts increased CHD risk in women with HIV is consistent with previous studies. A history of CSA also predicted more nontraditional gender roles that perhaps women adapt as protective in response to victimization. Traditional gender roles, especially caring for others and lower levels of dominance, are protective for women with HIV against CHD risk, but not for those with CSA. This finding is consistent with literature showing that stereotypic male gender roles, especially aggression and dominance, are risk factors for CHD and that some stereotypically feminine behaviors may promote health.

**2<sup>nd</sup> International Workshop on HIV & Women**  
*from Adolescence through Menopause*

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