CAHR/ACRV
2010

CAHR 2010
New Challenges, New Commitments
19th Annual Canadian Conference on HIV/AIDS Research

ACRV 2010
Nouveaux défis, nouveaux engagements
19e Congrès canadien annuel de recherche sur le VIH/sida

May 13–16, 2010 / 13 – 16 mai 2010
Saskatoon, Saskatchewan

# ABSTRACTS / RÉSUMÉS

# 19TH ANNUAL CANADIAN CONFERENCE ON HIV/AIDS RESEARCH
# 19e CONGRÈS CANADIEN ANNUEL SUR LA RECHERCHE SUR LE VIH/SIDA
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# MESSAGE FROM THE CAHR PRESIDENT / MESSAGE DU PRÉSIDENT DE L'ACRV

Welcome, and thank you for coming to the CAHR 2010 Conference in Saskatoon, Saskatchewan. Research in HIV is presented and discussed every year at our meeting, and year-to-year progress in any one field seems small. Even so, progress over the past three decades has been incredible. When have medical and health researchers ever witnessed – in their own generation – the emergence and pandemic spread of a lethal new disease, and then witnessed the discovery of its cause, development of treatments and refinement of therapy to the point that millions of people return to their daily lives rather than face disease and death? However, despite tremendous strides in science and medicine, HIV infection is still increasing in Canada and globally, and remains a death sentence to many.

The HIV pandemic has not 'burned itself out', but has become entrenched. The pandemic is the sum of many local epidemics, each with its own dynamics and opportunities for control. Many areas have generalized epidemics, even in some North American populations, while some seem mostly confined to high-risk groups – even now. The response to HIV and AIDS has taught us many things, but when both acceptance and commitment are actively sustained, we can make a significant impact for the greater and general good.

The greatest health care research needs persist: Ease of diagnosis, access to treatment and care, prevention of further HIV transmission and cure. As much as medical progress has been made, new HIV infections and new AIDS cases and deaths occur due to failure or delay of HIV diagnosis and timely treatment. Stigma remains an obstacle to overcome, even though treatment trumps stigma on most days. Stigmatization remains both for those personally and collectively affected by HIV/AIDS, and in those who may not yet be playing a part in the solution to 'someone else's problem'.

Primary HIV prevention through sociobehavioural and psychoeducational interventions remains as difficult as it is necessary. Innovative use of anti-HIV drug treatments in postexposure and pre-exposure prophylaxis, and generalized diagnosis and treatment programs are being investigated for potential impact to public health. Vaccines are back to the drawing board, and there are ongoing discussions on whether this should be driven by public or private means. More than money is needed, because money alone may not address the problems. High-profile harm reduction tactics generate simplistic, unhelpful and intransigent policy responses that might be skirted outside the political limelight. Even those who point to the social and economic determinants of health as interventions may learn by examples from the poorest of communities, where implementation of good public policies has led to improvements in general public health, as well as HIV incidence and prevalence.

The CAHR Conference should be an open forum for discussion of all aspects of HIV research, from all perspectives. We thank our public and government authorities for their presence and support, we thank our private and corporate supporters, and we invite researchers and stakeholder communities to speak.

Bienvenue et merci de votre présence à Saskatoon pour le congrès de l'Association canadienne de recherche sur le VIH/sida. Cet événement annuel nous permet de présenter les résultats des recherches qui ont été faites dans le domaine du VIH et d'en discuter. D'une année à l'autre, les avancées dans chacun des volets nous paraissent bien modestes, mais nous ne pouvons nier que les progrès accomplis en seulement trois décennies sont remarquables. En effet, jamais dans l'histoire de l'humanité une même génération de chercheurs du domaine de la santé n'avait été témoin de l'apparition d'une nouvelle maladie mortelle et de sa transformation en pandémie, pour ensuite réussir à en déterminer la cause, à développer des traitements et à perfectionner une thérapie grâce à laquelle des millions de gens ont pu reprendre le cours de leur vie au lieu de succomber à la maladie. Toutefois, malgré les grandes percées de la science et de la médecine, la prévalence du VIH continue de croître au Canada et dans le monde, et demeure une condamnation à mort pour un grand nombre de personnes.

Loin de s'essouffler avec le temps, la pandémie de VIH s'est au contraire bien établie. Elle est la somme de nombreuses épidémies locales, chacune ayant ses propres dynamiques et nécessitant des mesures de contrôle adaptées. Bien des régions sont aux prises avec une épidémie généralisée – ce qui s'avère une réalité même pour certaines populations de l'Amérique du Nord –, alors que dans d'autres cas, la maladie semble s'en prendre uniquement aux membres de certains groupes hautement à risque. Nous avons appris beaucoup de la façon dont nous avons réagi à la menace du VIH et du sida, mais nous avons surtout compris que c'est en combinant acceptation et engagement que nous pouvions faire une différence significative pour une majorité de personnes.

Il est crucial de poursuivre les recherches dans le domaine des soins de santé afin de mettre au point des méthodes de diagnostic plus simples, des traitements et des soins plus accessibles, des moyens de prévention de la transmission du VIH et des remèdes efficaces. Malgré les progrès médicaux qui ont été effectués, les infections au VIH se poursuivent et le sida continue de faire des victimes en raison de la difficulté de diagnostiquer la maladie adéquatement ou au bon moment. Le temps d'attente avant qu'un patient puisse recevoir les traitements appropriés fait également partie du problème. Le stigmate demeure un obstacle à surmonter, même si les traitements existants permettent de le contourner la plupart du temps. La stigmatisation continue d'être une réalité pour ceux qui sont personnellement touchés par le VIH/sida, pour ceux qui en sont affectés collectivement, comme pour ceux qui ne trouvent pas encore leur place dans les efforts de résolution d'un problème qui « appartient aux autres ».

La prévention du VIH par les interventions socio comportementales et psycho éducatives demeure aussi difficile à mettre en pratique que nécessaire. L'utilisation novatrice des médicaments anti-VIH dans les traitements prophylactiques pré et post-exposition et les programmes de diagnostic et de traitement généralisés sont actuellement à l'étude pour leurs effets bénéfiques potentiels sur la santé publique. Les vaccins sont de retour dans la mire des chercheurs et l'on ne se pose plus la question à savoir s'ils doivent être financés par le secteur public ou privé. L'argent n'est plus la préoccupation principale, car, à lui seul, il ne suffirait pas à résoudre le problème. Les tactiques de réduction des méfaits de grande envergure donnent souvent naissance à des mesures stratégiques simplistes, inutiles et intransigeantes susceptibles de disparaître de l'avant-scène politique. Même ceux qui misent sur les déterminants sociaux et économiques de la santé pour développer des moyens d'intervention devraient suivre l'exemple des collectivités les plus pauvres, où l'adoption de politiques publiques pertinentes a contribué à l'amélioration notable de la santé publique générale et à la réduction de l'incidence et de la prévalence du VIH.

Le congrès de l'ACRV offre aux participants une occasion de discuter ouvertement de tous les aspects de la recherche sur le VIH, en abordant le sujet de tous les points de vue. Nous tenons à remercier nos autorités publiques et gouvernementales pour leur présence et leur soutien, ainsi que nos partenaires privés et commerciaux, et nous invitons les chercheurs et les collectivités concernées à prendre la parole.

*Dr William Cameron*
*President / Président*
*Canadian Association for HIV Research (CAHR) / Association canadienne de recherche sur le VIH (ACRV)*

# MESSAGE FROM THE CHAIR OF CAHR 2010 / MESSAGE DU PRÉSIDENT DU CONGRÈS DE L'ACRV 2010

We would like to take the opportunity to welcome you all to Saskatoon and the 19th Annual Canadian Conference on HIV Research. CAHR is proud to be in Saskatchewan for the first time, at such a pivotal time in the HIV/AIDS epidemic in this part of the country. With more than 200 new cases diagnosed in 2009, the rate of transmission is the highest in Canada, a situation that has been widely described as a crisis. Whatever the solution to this horrible situation may be, one thing is certain: it will be evidence-based. The Canadian Association for HIV Research (CAHR) is uniquely positioned to be part of this solution. As a group of more than 600 men and women working in the fields of basic science, clinical science, public health and epidemiology, social science and community-based research, its members have faced similar problems in the past and have a strong track record of designing innovative and productive solutions.

*Dr Brian Conway*

*Dr Kurt Williams*

We have come to the 'Bridge City' to share our success stories – as well as our failures – of the past year, to be enlightened and energized by them, and to be able to return home as better, more productive researchers, to the great benefit of those most affected by the pandemic. Today, that benefit is most urgently needed in Saskatchewan. As our colleagues here work to formulate an effective, evidence-based, durable response to this epidemic, the sharing of experience and expertise is crucial to the process. So, here is our challenge to each and every one of you: attend as many Saskatchewan-based presentations as you can. Talk with the presenters. Let them know that you stand with them and, perhaps, that you have been there before. Provide the discussion that helps them to move forward.

The mission of CAHR is to promote excellence in HIV research. In this spirit, we wish you all a successful, productive…and excellent meeting.

Je vous souhaite la bienvenue à Saskatoon pour ce 19e Congrès canadien annuel de l'Association canadienne de recherche sur le VIH/sida. Nous sommes heureux de pouvoir tenir cet événement à Saskatoon pour la toute première fois en cette période sombre où l'épidémie de VIH/sida fait une percée dans cette région. En effet, plus de 200 nouveaux cas ont été diagnostiqués en 2009. Il s'agit du taux de transmission le plus élevé au Canada, et, de façon généralisée, on peut désormais parler d'une situation de crise. Peu importe la solution qui sera retenue pour remédier à cette triste situation, une chose demeure certaine : elle sera fondée sur des données probantes. L'Association canadienne de recherche sur le VIH occupe une place unique qui lui permettra de participer activement au développement de cette solution. L'Association regroupe plus de 600 hommes et femmes œuvrant dans le domaine des sciences fondamentales, des sciences cliniques, de la santé publique et de l'épidémiologie, des sciences sociales et de la recherche communautaire. Ses membres ont tous été confrontés à des problématiques semblables par le passé et possèdent une solide expérience en ce qui concerne le développement de solutions novatrices et productives.

Nous sommes venus dans la ville des ponts pour partager les réussites que nous avons connues au cours de la dernière année, mais également nos échecs, afin qu'ils puissent nous éclairer et nous motiver à reprendre nos recherches de façon plus efficace et productive lorsque nous rentrerons dans nos villes respectives, pour le plus grand bien des personnes les plus touchées par cette pandémie. Aujourd'hui, ce sont les gens de la Saskatchewan qui ont le plus besoin de notre aide. Nos collègues d'ici travaillent avec acharnement pour préparer une réponse à cette pandémie. La riposte se doit d'être efficace, durable et fondée sur des données probantes. La mise en commun de notre expérience et de notre expertise sera cruciale pour la réussite de ce processus. Voici donc l'appel que nous lançons à chacun de vous : participez à toutes les présentations possibles sur la situation en Saskatchewan. Allez discuter avec les présentateurs. Faites-leur savoir qu'ils peuvent compter sur votre appui et, le cas échéant, que vous êtes déjà passé par là. Les échanges qu'ils auront avec vous les aideront à progresser.

L'ACRV a pour mission de promouvoir l'excellence en recherche sur le VIH. Dans cet esprit, nous vous souhaitons un congrès empreint de réussite, de productivité et… d'excellence.

*Dr Brian Conway, Dr Kurt Williams*
*CAHR 2010 Conference Co-Chairs*

## Molecular Epidemiology of HIV and the Influence of Host Factors on Drug Resistance, Immune Evasion and Viral Evolution

### O001

### REDUCED REPLICATION CAPACITY OF VIRUSES ENCODING ACUTE/EARLY GAG/PROTEASE SEQUENCES FROM INDIVIDUALS EXPRESSING PROTECTIVE HLA CLASS I ALLELES

**MA Brockman[2,3], T Miura[4], J Sela[3], T Markle[1], CJ Brumme[3], P Rosato[3], C Kadie[6], D Heckerman[6], BD Walker[3], TM Allen[3], Z Brumme[1]**

**[1]Burnaby; [2]Vancouver, BC; [3]Charlestown, USA; [4]Tokyo, Japan; [5]Chevy Chase; [6]Redmond, USA**

CD8 T-cells restricted by protective HLA class I alleles mount early and robust responses to the HIV Gag protein, and may select for escape mutations that impair Gag function and reduce viral replication capacity. However, the extent to which early immune responses drive alterations in viral fitness and the implications of this on disease progression remain incompletely understood. We used a recombinant viral method to investigate whether immune-associated fitness defects are detectable during acute/early infection. NL4-3 viruses encoding patient HIV RNA-derived Gag-Protease sequences were generated from a cohort of individuals (N=67) enrolled a median of 52 [IQR 31-72] days following estimated date of infection. Viral replication capacity (RC) was assessed using an established GFP reporter T-cell assay and normalized to wild-type NL4-3. Recombinant viruses derived from individuals expressing a protective HLA allele (defined as B13, 27, 57, 5801; N=20) displayed significantly lower RC compared to those from individuals lacking a protective allele (N=47) (mean RC 0.89 vs. 1.02, respectively, $p<0.0001$). No significant correlation was observed between RC and viral load or CD4 count during untreated clinical follow-up (median 24 months). Analysis of plasma HIV RNA Gag sequences revealed a significant inverse correlation between the total number of HLA-associated mutations and RC. This was most notable for HLA-B alleles, and suggests a dose-dependent effect of early escape mutations that compromised fitness. Results support the hypothesis that early CD8 responses restricted by protective HLA class I alleles select for escape mutations in Gag that compromise its function. Although the selection of compensatory mutations may partially rescue these effects, early "hits" to viral fitness may have long-lasting implications for attenuating the disease course.

### O002

### A PREDICTIVE MODEL OF NEUTRALIZATION SENSITIVITY FROM INDEL-RICH VARIABLE LOOP REGIONS IN HIV-1 ENVELOPE SEQUENCES USING A TREE-BASED KERNEL METHOD

**AF Poon[1], L Walker[2], D Smith[2], PR Harrigan[1], DD Richman[2], SD Frost[3], SL Kosakovsky Pond[2]**

**[1]Vancouver, BC; [2]La Jolla, USA; [3]Cambridge, United Kingdom**

HIV-1 Env contains five hypervariable regions (V1-V5) that facilitate escape from the neutralizing antibody response. Associations between V1-V5 and neutralization titre (NT) are difficult to identify, because of extensive sequence variability and high indel rates confounding the alignment of among-patient sequences. Consequently, previous work has been limited to basic summary statistics, such as amino acid length or number of N-linked glycosylation sites.

We adapted methods from natural language processing to extract biologically- and structurally-relevant features from a protein sequence, which were combined into a "parse tree" representation. V1/V2 and V4 were clipped from HIV-1 subtypes B and C sequences representing 1240 patients from the LANL HIV database. These data were used to train a custom stochastic grammar in HyPhy, which was then used to infer the most likely parse trees for 180 clonal sequences from 10 additional patients with neutralization titres for reference serum N16. To find associations between sequence features and NT, we obtained distances between parse trees in a vector space induced by a subset tree kernel (as implemented in SVMLight-TK) and analyzed this distance matrix in R kernlab.

Using a mixed-effects model, we found that NT by-patient was significantly ($P < 0.05$) associated with 3 of the first 5 principal components from a kernel PCA, jointly accounting for 46% of the variation. To illustrate the predictive power of parse trees, we trained an epsilon support vector regression model by "leave-one-out" cross-validation and tested the model on sequences from the remaining patient. Predicted and observed NT were significantly correlated in 7 of 10 samples (median Spearman's $\sigma = 0.77$; $P < 0.0005$).

Our model provides a robust starting point for developing an accurate predictive algorithm of NT from HIV-1 sequence variation.

### O003

### BAYESIAN ANALYSIS OF PRIMARY AND CHRONIC HIV INFECTIONS AMONG MONTREAL MSM

**R Pilon[1], J Cox[2], R Allard[2], S Law[2], C Tremblay[2], M Alary[3], G Lambert[2], P Leclerc[2], P Sandstrom[1]**

**[1]Ottawa, ON; [2]Montreal; [3]Quebec, QC**

**BACKGROUND:** Studies have found that primary HIV infection (PHI) is a driver of the HIV epidemic. This is because newly infected persons who have high levels of circulating HIV are often unaware of their infection and continue to undertake at-risk behaviours. Phylogenetic analysis can help elucidate the timing of infections in at-risk populations such as men who have sex with men (MSM), allowing us to explore the extent to which PHI facilitates onward transmission. We performed Bayesian phylogenetic analysis to evaluate most recent common ancestors (MRCA) and HIV population dynamics in a sample of Montreal MSM.

**METHODS:** We sequenced HIV protease and reverse transcriptase (RT) genes from specimens collected from Montreal MSM who participated in the Cohort Omega study (1996-2003): 29 PHI, 29 chronic infections; and in the Argus study (2005): 10 PHI, 103 chronic infections. Ontario sequences from 1982-1985 and 1998-2002 were used to calibrate the molecular clock. BEAST (v 1.5.2) was used to generate time-stamped trees and Bayesian Skyline plots.

**RESULTS:** Neighbor-joining analysis identified 19 clusters (30.2% PHI and 26.8% chronic infections). Among clustered sequences, the median time to MRCA was 5 and 8 years for the protease and RT, respectively. Time to MRCA was ≤5 years for 51.2% and 41% of protease and RT clustered sequences, respectively. Skyline plots for both protease and RT showed an exponentially expanding HIV population between 1977 and 1982, and relatively stable population from 1991 to 2005.

**CONCLUSIONS:** The small sample studied was sufficient to describe HIV population dynamics of the Montreal epidemic but likely contributed to the small proportion of clustering observed. Furthermore, the detection of PHI transmissions between participants was complicated by the time span over which the specimens were collected. Alternatively, the lack of clustering could be a reflection of the diversity of the Montreal HIV epidemic among MSM.

### O004

### DETECTING SELECTIVE SWEEPS IN HIV-1 WITHIN PATIENTS BY PHYLOGENETIC ANALYSIS OF NEXT-GENERATION SEQUENCING DATA

**AF Poon[1], R McGovern[1], PR Harrigan[1], T Mo[1], D Knapp[1], B Brenner[2], J-P Routy[2], MA Wainberg[2]**

**[1]Vancouver, BC; [2]Montréal, QC**

Next-generation sequencing (NGS) technologies offer detailed quantification of HIV-1 sequence variation within patients. Applications of NGS in HIV research have been focussed on detecting minority drug resistant variants. However, NGS data could potentially also be used to reconstruct the evolution of HIV-1 within patients.

To investigate this prospect, we employed a new method for detecting positive selection (directional random effects likelihood, DREL) that is better suited to characterizing within-patient evolution, where a sporadic burst of substitutions to a specific residue can indicate a selective sweep. Conversely, conventional "dN/dS" methods are better suited to population-level data in assuming diversifying selection (ongoing substitutions to any residue).
DREL estimates asymmetric substitution rates towards each of 20 residues at each site of an alignment. We generated longitudinal NGS data from baseline and followup samples for 19 treatment-naïve patients, separated by a mean of 307 days (range 176-469). Alignments had a mean depth of 1840 sequences and covered codons Nef 115-190; Gag 437-500; Pro 29-99; RT 36-120, 149-225; and Env 287-374 (HxB2 coordinates). Because DREL is computationally demanding, we analyzed 111 alignments in parallel on a Beowulf cluster.
On average, we found significant directional selection (Bayes factor > 20) affecting 10 sites per patient. Many of these sites coincided with CTL epitopes restricted by the patient's HLA repertoire, including the escape mutations Nef T133I (A24); Pro M46I (A2), I93L (B62), and reversion Nef H125Q in two patients lacking B35. In contrast, results in Env were more consistent with neutralization escape, e.g. P313R was flagged in 6 patients.
DREL analysis of NGS data provides efficient longitudinal validation of cross-sectional population-based correlations in HLA diversity and HIV-1 evolution, and offers early detection of patient-specific viral adaptations.

## O005

### SETTING UP MULTIPLE BARRICADES ALONG THE HIV INFECTION PATHWAY – LEARNING FROM GENETIC PATHWAY PROFILE OF HIV RESISTANT SEXWORKERS

**M Luo[1], M Songok[1], J Sainsbury[1], J Kimani[1], C Wachihi[2], B-H Liang[1], G Van Domselaar[1], T Bielawny[1], K Fowke[1], TB Ball[1], FA Plummer[1]**

**[1]Winnipeg, MB; [2]Nairobi, Kenya**

Despite repeated exposures, some individuals do not appear to become infected with HIV-1. A subset of women in the Pumwani Sexworker cohort, established in 1985 in Nairobi, Kenya, remain HIV-1 seronegative and PCR-negative despite repeated exposure to the virus through active sexwork. Hypotheses driving our GCGH project are that these highly HIV-1 exposed uninfected sex workers are immune to HIV-1 by innate and adaptive mechanisms and that they represent an extreme phenotype of resistance to HIV-1 infection. Understanding what is protecting these women from HIV-1 and why they are protected now seems increasingly essential to developing effective HIV prevention technologies.
Using a systems biology approach we analyzed whole blood gene expression (Affymetrix U133 plus 2.0 microarray), PBMC gene expression (Affymetrix Exon 1.0 Microarray), and genome-wide SNPs (Affymetrix Genechip 5.0) of these women. Combined pathway analysis, of genes differentially expressed/spliced in HIV-1 resistant women (compared with HIV-1 negative and HIV-1 positive controls) and genes containing/adjacent to the SNPs with genotypes significantly enriched in the HIV resistant women, showed that key genes involved in every step of HIV-1 infection pathway are down expressed, differentially alternatively spliced or with genetic polymorphisms/copy number variations that could potentially modify or enhance gene expression. It appears that these HIV-1 resistant women have set up multiple barricades along the HIV-1 infection pathway and make HIV-1 infection much more difficult. Elucidating the mechanisms of these barricades will identify novel targets for HIV-1 prevention and develop new prevention and treatment strategies.

# Lab to Lives

## O006

### DOSE ADJUSTMENTS OF EFAVIRENZ (EFV) BASED ON THERAPEUTIC DRUG MONITORING (TDM) IS SAFE AND MAINTAINS VIROLOGIC SUPPRESSION IN HIV-INFECTED CHILDREN AND ADOLESCENTS

**NL Sheehan, V Lamarre, H Soudeyns, NM Higgins, N Lapointe**

**Montréal, QC**

**BACKGROUND:** Therapeutic drug monitoring (TDM) is a useful tool in pediatrics due to important interpatient pharmacokinetic variability. Efavirenz (EFV) is commonly prescribed in pediatrics. Target EFV concentrations are 1-4 mg/L. EFV TDM is done every three months in pediatric patients followed at CHU Sainte-Justine. We describe TDM results for these patients and the virologic and immunologic impact of EFV dose adjustments.
**METHODS:** A retrospective study was conducted. HIV-infected patients less than 18 years old followed at CHU Sainte-Justine that had TDM done were included. Samples were taken during the 24-hour dosing interval. Virologic and immunologic data were available at the time of TDM. EFV concentrations were measured by a validated LC/MS/MS assay. Descriptive statistics are presented.
**RESULTS:** 31 patients provided 283 samples. Patients at first TDM were: 64.5% male; 11.8±3.1 (range: 3-17) years old; 83.8% black. At first TDM, 84% of patients had undetectable viral loads and the mean CD4+ count was 689.8±321.6 cell/mm$^3$. The mean±SD (range) EFV dose and concentration were 12.5±2.4 (8.2-18.5) mg/kg and 3.5±3.3 (0.05-30.7) mg/L. 37.1% of concentrations were suboptimal (11% subtherapeutic and 26.1% supratherapeutic). Four patients with subtherapeutic concentrations developed virologic failure. 29 dose adjustments were prescribed in 12 patients (13 decreases and 16 increases). 62.5% of dose increases and 92.3% of dose decreases were following therapeutic and supratherapeutic concentrations, respectively. Dose increases were prescribed with increasing body weight. Two patients required substantial dose decreases (38% and 58%). All patients with dose decreases maintained an undetectable viral load and were stable immunologically.
**CONCLUSIONS:** Suboptimal EFV concentrations are frequent in pediatrics. Over a quarter of patients exhibited supratherapeutic EFV levels increasing the risk of CNS adverse reactions. Dose decreases were safe as virologic response was maintained. We recommend routine EFV TDM in pediatrics to limit virologic failures and CNS adverse effects.

## O007

### EFFICACY AND SAFETY OF LOPINAVIR/RITONAVIR (LPV/R) MONOTHERAPY VS. STANDARD OF CARE IN HIV-INFECTED PATIENTS ON THEIR FIRST PROTEASE INHIBITOR-BASED REGIMEN: 48-WEEK FOLLOW UP

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**OBJECTIVES:** Simplified regimens have been shown to reduce pill burden and improve patient compliance. This is a 48-week, randomized, open-label, multi-center study comparing the efficacy and safety of switching from a standard anti-retroviral treatment (ART) consisting of a protease inhibitor and 2 nucleoside reverse-transcriptase inhibitors (NRTIs), to LPV/r monotherapy with re-intensification by 2 NRTIs if necessary, to that of continuing on ART.
**METHODS:** Eighty patients with mean (SD) HIV-1 disease duration of 3.3 (3.0) years were randomly assigned to receive LPV/r (400/100mg) BID (41 patients), or continue their ART (39 patients). Follow-up clinical assessments were performed at baseline and days 15, 30, 60, 90, 120, 150, 180, 240, 300, and 360.

**RESULTS:** At 48 weeks, 71 (39:LPV/r;32:ART) patients completed treatment. In an Intend-To-Treat analysis using the LOCF approach for discontinued patients, 40 (97.6%) patients on LPV/r and 37 (94.9%) patients on ART had viral load (VL)<200 copies/mL (P=0.611), while 39 (95.1%) and 36 (92.3%) patients in each group had VL<50 copies/mL (P=0.671), indicating no significant between-group changes. Time to virologic rebound and changes in Quality-of-Life, CD4-T cell counts and VL from baseline to final assessment, were also similar between groups.
The incidence and profile of adverse events (AEs) were comparable between the two groups with AEs reported by 32(82.1%) patients on LPV/r and 34 (82.9%) on ART, the most common being diarrhea (18.8%), headache (17.5%), and influenza (16.3%). There were 8 serious AEs reported by 5 patients, 2 on LPV/r and 3 on ART. Four (9.8%) patients on LPV/r were reinitiated with 2 NRTIs, all of which achieved VL<50 copies/mL after intensification.
**CONCLUSION:** After 48 weeks, virologic efficacy and safety of LPV/r appears comparable to that of a PI and 2 NRTIs standard treatment. This study adds further evidence for considering LPV/r monotherapy, with NRTI re-induction if necessary, as a more simplified and affordable strategy in virologically-suppressed patients.

## O008

### IMPACT OF DIFFERENT HIV VIRAL LOAD ASSAYS ON VIRAL LOAD "BLIP" RATES AND THEIR ASSOCIATION WITH VIROLOGIC FAILURE

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**BACKGROUND:** Virologic blips may occur when HIV replication bursts from stable reservoirs, ongoing cycles of replication, random statistical or biologic variation or laboratory error. This study was conducted to determine predictors of virologic 'blips' and to estimate risks of virologic rebound associated with virologic blips among antiretroviral therapy (ART)-naïve patients starting cART.
**METHODS:** 3530 ART-naive HIV-positive individuals in the Canadian Observational Cohort who had achieved virologic suppression (VL <50 copies/mL on 2 consecutive occasions >30 days apart) were included in the analysis (1183 in Ontario, 1469 in BC, 878 in Quebec). A virologic blip was defined as a VL ≥50 and <1000 copies/mL preceded and followed by VL <50 copies/mL. VL levels ≥50 copies/mL within 30 days were considered to be part of the same blip episode.
**RESULTS:** 15% of patients had a virologic blip with the Roche PCR Ultrasensitive assay and 24% with the Chiron bDNA assay (p<0.0001). The average rate of VL blip per year of follow-up during the first period of virologic suppression was 0.09 for the PCR assay and 0.14 for the bDNA assay (p<0.0001). In a negative binomial regression model, type of assay remained significantly associated with rate of virologic blip (rate ratio = 0.75, p<0.0001 for PCR vs. bDNA) after controlling for age, gender, baseline VL, AIDS defining illness, type of initial ART, and number of VL tests in a multivariable negative binomial regression model. The occurrence of a virologic blip <500 copies/mL was not associated with time to virologic rebound (HR=1.04, p=0.73) while a blip between 500-999 copies/mL was associated with increased risk of virologic rebound (HR=2.09, p=0.05) in a multivariable PH model, after controlling for age, gender, IDU, type and date of initial ART, baseline CD4 count, and AIDS defining illness.
**CONCLUSIONS:** The type of VL assay significantly impacted the rate of viral blips. Viral blips between 500-999 copies/mL were associated with a two-fold increase in risk of viral rebound, while viral blips <500 copies/mL were not associated with increased risk.

## O009

### DISCORDANCE IN PREVALENCE OF RALTEGRAVIR-RESISTANT HIV IN PLASMA VERSUS PBMC SAMPLES

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**BACKGROUND:** Three common mutational pathways are known to correlate with resistance to the integrase inhibitor raltegravir: Q148H/K/R, N155H and Y143C/H/R. These resistant viruses are detected commonly in the plasma of patients failing raltegravir therapy; however little is known about their prevalence within host cells. This study quantifies raltegravir resistant virus in plasma versus in Peripheral Blood Mononuclear Cell (PBMC).
**METHODS:** Longitudinal paired plasma/PBMC samples of patients with detectable HIV viral loads while prescribed raltegravir were obtained from the SCOPE cohort (San Francisco). Five of these patients developed raltegravir-resistant viruses in their plasma during the course of therapy and are the subject of the current study. HIV integrase sequences from both plasma and PBMCs from each patient are obtained using both regular Sanger sequencing and "deep" sequencing (454-based pyrosequencing).
**RESULTS:** Sanger sequencing showed that proviral HIV remained susceptible to raltegravir up to 10 months after resistant virus were detected in the plasma. Using pyrosequencing, we found a low percentage of resistant viruses in PBMC in 3 of the 5 patients, despite the plasma virus being nearly completely mutated (Table 1). This lower prevalence of resistant virus in PBMC was consistent over time. For example in patient 3501, resistant sequences remained around 5% of the virus PBMC population for about one year.
**CONCLUSION:** We observed a higher prevalence of resistant virus in the plasma than in PBMC, and this trend was consistent over time. This observation suggests that the majority of the plasma virus may be produced by a minority host cell population.

| Patient | Days post-therapy first detected with resistant virus | Pathway | %PBMC | %Plasma | Log viral load |
|---|---|---|---|---|---|
| 3180 | 177 | Q148H | 1.3% | 99.9% | 4.40 |
| 3242 | 224 | N155H | 35.8% | 99.7% | 4.00 |
| 3261 | 483 | N155H | 92.9% | 99.9% | 4.65 |
| 3501 | 54 | Q148H | 1.3% | 78.6% | 5.28 |

## O010

### SIMILAR TIMES TO VIROLOGIC SUPPRESSION AND SWITCHING OR STOPPING FOR ABACAVIR(ABC)/3TC AND TENOFOVIR(TDF)/FTC IN ANTIRETROVIRAL-NAÏVE HIV-POSITIVE PATIENTS STARTING THERAPY

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**BACKGROUND:** ABC/3TC is now an "alternative" NRTI option for treatment of ART-naïve patients in the DHSS guidelines due to results from several studies; but remains a "preferred" option in European guidelines. Our objectives are to compare 1) time to virologic suppression (two consecutive VL<50 copies/mL >1 month apart); and 2) time to switch or stop of ABC/3TC or TDF/FTC (not due to virologic failure) in ART-naïve patients who started cART.
**METHODS:** ART-naive individuals in the Canadian Observational Cohort who started cART containing ABC/3TC or TDF/FTC after 31/12/1999 with ≥1 follow-up VL measurement were analyzed. Multivariable Weibull proportional hazards regression was used to model the two outcomes of interest. The primary covariate of interest was use of ABC/3TC or TDF/FTC. Other covariates included age, gender, baseline VL and CD4 count, 3rd agent, IDU, hepatitis C, ADI, province and calendar year.
**RESULTS:** 783 individuals (ABC/3TC=491 and TDF/FTC=292) were analyzed. Median follow-up time was 12 months (IQR5,23) for ABC/3TC and 6 months (IQR4,12) for TDF/FTC. Virologic suppression rates at 6 (12) months were 69% (93%) for ABC/3TC and 63% (89%) for TDF/FTC. Use of ABC/3TC vs. TDF/FTC did not predict time to virologic suppression [adjusted (a)HR=0.96 (0.78,1.17); p=0.665], while IDU [aHR=0.56 (0.37,0.85); p=0.006], lopinavir-based cART [aHR=0.80 (0.64,0.99); p=0.041] and baseline VL per log10 [aHR=0.73 (0.66,0.82); p<0.001] did. There was no difference in virologic suppression rates in ABC/3TC or TDF/FTC groups when stratifying by baseline VL < and ≥100,000 copies/mL. Stop/switch rates at 6 (12) months were 23% (38%) for ABC/3TC and 20% (33%) for TDF/FTC. Use of ABC/3TC vs. TDF/FTC did not predict time to stop/switch [aHR=0.96 (0.73,1.28); p=0.795],

while lopinavir-based cART [aHR=1.70 (1.27,2.27); p<0.001], female sex [aHR=1.69 (1.27-2.27); p<0.001] and receiving treatment in BC [aHR=1.57 (1.15,2.15); p=0.005] did.

**CONCLUSIONS:** In our naïve HIV-positive patients starting cART, there was no difference between the time to virologic suppression and stopping or switching first time use of ABC/3TC and TDF/FTC.

## O011

### SCREENING OF PATIENTS WITH ACUTE/EARLY HIV INFECTION TO CONSIDER RANDOMIZATION TO IMMEDIATE ANTIRETROVIRAL THERAPY (ART) VERSUS OBSERVATION

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**OBJECTIVES:** Current treatment guidelines suggest that patients diagnosed with acute/early HIV infection be considered for immediate ART. We evaluated the response of such patients to a request for participation in a randomized controlled trial (RCT) of immediate versus deferred ART.

**METHODS:** The RCT was conducted at seven Canadian sites in British Columbia, Manitoba, Ontario and Quebec and one US site (Baltimore, MD). From 4/05-9/09, patients with documented infection in the previous 12 months, a CD4 cell count >350/uL, and a plasma viral load (VL) >5,000 copies/mL were asked to participate in an RCT comparing 12 months of immediate ART to a period of observation, the endpoints being HAART-free years before clinically-indicated permanent initiation of ART, as well as immunologic and virologic status 2 and 3 years after enrollment. For this analysis, demographic, clinical and laboratory characteristics of subjects accepting and declining the study were compared.

**RESULTS:** A total of 126 patients were eligible to participate. Of the 111 (88%) who were randomized, 96 (86%) were male, 71 (64%) were Caucasian, and 73 (66%) were men having sex with men (MSM); their mean age was 37.1 years, median CD4 cell count was 563/uL, and median VL was 44,361 copies/mL. Among the 15 (12%) eligible patients who declined the study, 12/15 (80%) were male, 8/14 (57%) were Caucasian, 6/12 (50%) were MSM, mean age was 33 (n=14), median CD4 cell count was 458/uL, and median VL was 45,345 copies/mL (n=11). Patients declined the study for the following main reasons: lack of interest 7 (47%), wanting to start ART immediately 6 (40%) and not wanting to start ART 1 (7%).

**CONCLUSIONS:** Most eligible patients with acute/early HIV infection accepted randomization, with only a small minority having a definite preference for immediate treatment or non-treatment. These results suggest that most patients with acute/early HIV infection have not made up their minds with respect to the best approach to treatment, and that they may be receptive to public health strategies aimed at identifying and treating HIV infection.

# HIV and Co-Infections

## O012

### PREVALENCE AND ASSOCIATIONS OF INFECTION BY HERPES SIMPLEX VIRUS TYPE 2 (HSV-2) IN AFRICAN-CARIBBEAN WOMEN IN TORONTO

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**INTRODUCTION:** Infection by HSV-2 has been strongly associated with both incident and prevalent HIV infection, as well as with other genital co-infections. The population prevalence of HSV-2 infection is much higher in many HIV-endemic countries in sub-Saharan Africa and the Caribbean than in Canada. We examined the prevalence and associations of HSV-2 in HIV-infected and uninfected African-Caribbean (AC) women from Toronto, Canada.

**METHODS:** We are planning to enroll 600 participants, of whom half are HIV-infected, through the Women's Health in Women's Hands community health clinic. At a single study visit, a detailed socio-behavioural questionnaire is administered by ACASI. HSV-1/2, CMV, hepatitis, syphilis and HIV serology are performed and self-administered vaginal and anal swabs are collected for Gram stain, anal PAP and HPV testing.

**RESULTS:** This analysis included the first 324 women recruited for whom HIV, CMV and HSV serology results were available: 230 were HIV-uninfected and 94 HIV-infected. The prevalence of CMV and HSV-1 infection was high (97.2% and 89.4%, respectively), and did not vary with HIV infection status. HSV-2 infection was also common, and was more prevalent in HIV-infected women (83.5% vs 53.7%; p<0.0001). We observed a strong age effect in HIV-uninfected women, with the HSV-2 prevalence increasing from 26% in those 15-19 years old to 80% in those >60 years (p<0.001). However, no such trend was seen in the HIV-infected women. HSV-2 infection was strongly associated with bacterial vaginosis (p=0.007), and also with increased vaginal infection by high-risk HPV strains (p=0.023).

**CONCLUSIONS:** HSV-1 and CMV were highly prevalent in both HIV-infected and uninfected AC women living in Toronto. HSV-2 prevalence was higher than reported in previous North American studies. The strong association with HIV infection, regardless of age, suggests that HSV-2 infection may serve as an important risk factor for HIV acquisition in this community.

## O013

### VIRAL HEPATITIS B AND C INFECTION AND HEPATITIS B VACCINATION AMONG HIV-POSITIVE AND HIV-NEGATIVE AFRICAN-CARIBBEAN WOMEN IN TORONTO, ONTARIO

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**OBJECTIVE:** To determine the prevalence and correlates of hepatitis B (HBV) and hepatitis C (HCV) infection and history of HBV vaccination among African-Caribbean women in Toronto.

**METHODS:** We are recruiting HIV-positive and HIV-negative participants through Women's Health in Women's Hands, a Toronto community clinic. Women complete a questionnaire using ACASI, including questions about HBV vaccination history. We tested blood for HBsAg, anti-HBs, anti-HBc and anti-HCV. Prevalence was expressed as a proportion and compared using chi-square.

**RESULTS:** To date, 94 HIV-positive and 230 HIV-negative women have been recruited. The median age of participants is 40 (IQR 35-44) and 31 years (IQR 24-42), respectively (p<0.0001). 5.3% of HIV-positive compared to 0.4% of HIV-negative women had chronic HBV infection (HBsAg+) (p=0.009). 52.1% of HIV-positive compared to 23.0% of HIV-negative women had serologic evidence of past or present HBV infection (p<0.0001). HBV infection was about twice as frequent among women born in Africa than among those from the Caribbean. HBV infection was also more frequent among HIV-positive and HIV-negative women with less education and with lower income. 64.4% of HIV-positive compared to 44.5% of HIV-negative women reported having been vaccinated against HBV (p=0.003). Finally, 4.3% of HIV-positive compared to 2.2% of HIV-negative women had serologic evidence of HCV infection (p=0.30).

**CONCLUSIONS:** In this sample of African-Caribbean women, the prevalence of viral hepatitis infection was generally greater in HIV-positive than in HIV-negative participants. A significant proportion of women had evidence of past or present HBV infection many women had not been vaccinated against this preventable infection. It must be noted that the chronology of HBV infection in relation to vaccination is not known. HCV infection appears to be somewhat higher than the estimated 0.67% in Ontario women as a whole. We plan to further examine HCV prevalence, in particular, as a function of country of origin.

## O014

### INTERRUPTION OF ANTIRETROVIRAL THERAPY (ART) IS ASSOCIATED WITH PROGRESSION OF LIVER FIBROSIS IN HIV/HCV CO-INFECTED ADULTS

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**BACKGROUND:** Randomized trials have shown that ART interruption increases the risk of non-AIDS clinical (including liver-related) outcomes. We hypothesized that liver disease progression in ART treated co-infected patients may be due, in part, to the consequences of repeated treatment interruptions. Therefore, we examined the impact of ART interruption on fibrosis progression, using AST-to-platelet ratio index (APRI) >1.5 as a surrogate marker of liver fibrosis.

**METHODS:** Data were analyzed from a Canadian, multi-centre prospective cohort of HIV-infected adults who were HCV RNA positive (n=745) and receiving ART (n=668) between 2003-2009. Patients with fibrosis (n=148), defined as an APRI >1.5 at baseline, were excluded. ART interruption was included as a time-updated variable and defined as the cessation of all antiretrovirals for at least 14 days. To appropriately adjust for time-varying confounders that may also be affected by prior treatment interruption, inverse probability-of-treatment weighting was used in a marginal structural model estimated via pooled logistic regression.

**RESULTS:** 520 subjects were followed for a median of 12.2 months (6.0-22.4); 74% were male, 45 years old (40-49), 81% reported a history of injection drug use (IDU), and 12% interrupted ART. The median baseline APRI was 0.52 (0.37-0.80), CD4+ T-cells, 383 cells/ul (250-430) and HIV RNA, <50 copies/ml (<50-111); 49 (9.4%) progressed to an APRI >1.5 during follow-up. After accounting for age, gender, duration of HCV infection, baseline lnAPRI, time-updated CD4+ T-cell count, HIV RNA and active IDU via weighting, the odds ratio for ART interruption was 1.86 (95% CI, 1.01-3.42).

**CONCLUSIONS:** ART interruption was associated with an 86% increased risk of fibrosis progression in HIV/HCV co-infection and was only partially accounted for by HIV viral load and CD4 cell counts. Our findings suggest that liver disease progression observed in ART treated co-infected patients is partly due to repeated treatment interruptions.

## O015

### RELATIONSHIPS BETWEEN BODY ART PIERCING ACQUISITION, AVAILABILITY OF BODY ART FACILITIES, AND RISK OF HEPATITIS C ACQUISITION AMONG INJECTION DRUG USERS

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**BACKGROUND:** Body art piercing (BAP) is considered to be a risk factor for hepatitis C (HCV) infection on the basis of cross-sectional associations with HCV seropositivity among injection drug users. The temporal basis of the relationship has not been established.

**METHODS:** Associations between HCV seropositivity, HCV incidence, recent BAP and BAP facility availability were evaluated among IDUs in Montreal, Canada, followed biannually between 2004 and 2008. Interviewer-administered questionnaires were conducted and blood samples were tested for HCV antibodies. Kernel Density Estimation (KDE) provided measures of density of BAP facilities and neighbourhood characteristics were computed within a 500-meter buffer around place of residence, using a Geographic Information System. Statistical models included individual and neighbourhood covariates. Logistic regression was used for analysis of HCV seropositivity. Cox proportional hazards regression was used for analysis of HCV incidence.

**RESULTS:** Of 784 IDUs, 73% were seropositive for HCV. In multivariate logistic regression, HCV seropositivity was associated with BAP availability (OR: 1.32 95% Confidence Interval (CI): 1.1,1.6) but not recent BAP. Of 145 initially HCV-negative participants, 52 seroconverted to HCV for an incidence of 27.7/100 person-years (95%CI: 20.9,36.0). Crude Hazard Ratios (HR) for the association between HCV infection and BAP variables were: recent BAP, HR 0.98 (95%CI: 0.4,2.7) and BAP facilities availability, HR 1.43 (95%CI: 1.1,1.9). After accounting for individual and neighbourhood factors, crude associations between HCV infection and recent BAP and BAP facilities availability were: HR recent BAP, 0.96, 95%CI: 0.3,2.7; and HR BAP facilities availability, 1.21, 95%CI: 0.9,1.7.

**CONCLUSION:** BAP facility availability is a marker of neighbourhood disadvantage associated with HCV seropositivity. Longitudinal analyses accounting for behaviours risk factors and neighbourhood characteristics do not support a temporal association between BAP acquisition, BAP facility availability, and HCV infection among IDUs.

## O016

### HEPATITIS C TREATMENT USING AN INTENSIVE CASE MANAGEMENT MODEL IN VANCOUVER

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**BACKGROUND:** The Downtown Eastside of Vancouver experienced an explosive outbreak of new Hepatitis C virus (HCV) infections among injection drug users (IDUs) during the mid-1990s resulting in prevalence rates exceeding 90%. With marked reductions in HIV-associated mortality in this community, HCV related liver disease has become common. Despite a renewed interest in liver disease management, the uptake of HCV infection has been slow. This study describes a pilot program designed to engage patients in HCV care and treatment.

**METHODS:** Participants for the program were selected from Vancouver Native Health, a full service community clinic. Patients who decided to receive therapy, and qualified for treatment based on provincial eligibility guidelines, were invited to attend weekly small group sessions led by the clinic nurse. All treated patients received weekly pegylated interferon injections administered by the nurse at the clinic.

**RESULTS:** This analysis includes 36 participants assessed for HCV infection between November 2008 and December 2009. All participants acquired HCV through injection drug use and 19 (53%) are HIV co-infected. The mean age is 47.1 years and 23 (64%) are males. The ethnic background includes 21 Caucasians, 14 Aboriginals and one African-Canadian. The distribution of HCV genotypes is 69% genotype 1 (n=25), 28% genotype 3 (n=10) and 3% genotype 2 (n=1). To date, 16 of the 36 recruited patients (39%) have initiated pegylated interferon and ribavirin treatment. Five patients have completed therapy and all have achieved an end of treatment response (ETR). Eleven patients are continuing therapy.

**CONCLUSIONS:** Despite the high prevalence of HCV among IDUs, treatment access is extremely limited. This pilot program demonstrates a model of intensive case management for HCV care and treatment that has shown initial success. The expansion and refinement of these programs using standardized outcome measurements are critical to reduce the increasing burden of liver-related morbidity and mortality.

## O017

### HIV AND HEPATITIS C PREVALENCE AND KNOWLEDGE OF SERO-STATUS AMONG MEN WHO HAVE SEX WITH MEN IN VANCOUVER, BRITISH COLUMBIA

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**OBJECTIVE:** To describe the socio-demographic characteristics, HIV and hepatitis C (HCV) prevalence, and knowledge of HIV and HCV seropositivity among BC participants in the ManCount study.

**METHODS:** Participants were recruited from August 1, 2008 to February 28, 2009, through community venues catering to men who have sex with men (MSM) in Vancouver. Men aged ≥ 18 years were asked to complete a self-administered questionnaire and provide a dried blood spot (DBS) for HIV and other STI testing. We performed descriptive statistics of key explanatory variables.

**RESULTS:** 1169 participants completed questionnaires and 1139 (97.4%) provided samples for DBS. The majority of men (75%) reported European/

North American ethnicity; 6.6% Asian, 3.5% Aboriginal and 15% other. Median age was 33 years (IQR 26 - 44). 93% had completed high school education. A total of 208 (18.1%) were HIV positive by DBS of whom 87% were previously aware they were positive. HIV sero-positivity increased with age; from 5.2% for men aged 18 – 25; 10% for men aged 26 – 35; 28% for men aged 36 – 45; and 34% for men aged >45 years. Of the 1132 participants who had HCV results, a total of 58 (5.1%) were positive by DBS, of whom 30 (52%) were aware of their HCV-positive status, and 36 (62%) were HIV-positive. Overall, 11 (19%) of HCV sero-positive participants had no history of injection drug use (IDU).

**CONCLUSION:** HIV prevalence is high and increases with age among MSM in Vancouver. Although awareness of HIV status is high, additional measures are needed to engage those who are unaware of their HIV-positive status. In contrast with HIV, the proportion of HCV-positive participants who are aware of their HCV-status is low. Sexual transmission may explain HCV sero-positivity among those without a history of IDU.

## Politics, Policy, and the Law

### O018

### HIV/AIDS IN THE WORKPLACE IN QUEBEC. IGNORANCE AND MISINFORMATION WREAK HAVOC

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**BACKGROUND:** Cases of discrimination in accessing and retaining employment of PLWHIV are increasingly numerous; it is difficult to have this issue acknowledged by elected representatives.

**OBJECTIVES:**

1) Survey the population and business decision makers in order to demonstrate that there is discrimination in accessing and retaining employment among PLWHIV;

2) Establish similarities and comparisons with persons living with another chronic and episodic illness (PLWCEI).

**METHODOLOGY:** Two surveys: 1) Telephone survey of 1054 Quebecers, margin of error ± 3.02% (19 times out of 20); 2) 111 business decision makers completed a questionnaire electronically, maximum margin of error ± 9.3% (19 times out of 20).

**RESULTS:** Results of the telephone survey: 1) 51.5% of respondents state that a PLWHIV was rejected by his/her colleagues, whereas this rate was 4% for PLWCEI; 2) 30.9% state that PLWHIV were victims of harassment, whereas this rate was 6% for PLWCEI; 3) 42.4% of respondents indicate they would be concerned if they were to learn that a colleague with whom they have frequent dealings at work was HIV positive.

Results of the electronic survey: 1) 40% of respondents would avoid hiring a PLWHIV; 2) 33% state having faced an increase in their group insurance premiums due to the presence of a PLWCEI or PLWHIV; 3) 45% state being aware of claims made by employees; and 4) 24% of cases know the name of persons taking medication within their team.

**CONCLUSION:** These results demonstrate that PLWHIV and PLWCEI can experience discrimination in accessing and retaining employment. However, this is more pronounced for PLWHIV than PLWCEI.

COCQ-SIDA plans to use these results to demand that elected representatives amend laws and practices contributing to this discrimination.

### O019

### LEGAL DEVELOPMENTS AND COMMUNITY RESPONSES TO CRIMINAL PROSECUTIONS FOR HIV NON-DISCLOSURE

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**OBJECTIVE:** To track criminal charges for non-disclosure of HIV-status; analyze legal developments; develop an effective community response for a limited, fair and evidence-based use of criminal law to HIV non-disclosure.

**METHODS:** Review of primary legal sources, legal literature and media reports. Tracking and analyzing new criminal cases. Interventions before several appellate courts (in BC, MB and QC). Development of accessible tools including information sheets and resource kits for lawyers, to inform and mobilize legal professionals and community members. Co-organizing training sessions to inform judges about HIV and provoke discussion of (in) appropriate use of criminal law. Collaboration with community stakeholders and members of the legal community for knowledge transfer, exchange and strategic advocacy.

**RESULTS:** The public debate about criminal prosecutions for HIV non-disclosure remains a topical issue. The number of PLWA who are charged for not disclosing their HIV status to sexual partners continues to increase as well as the severity of the charges. Despite new legal developments from trial and appellate courts regarding the relevance of viral load and condom use in recent trials, the application of the legal test for requiring disclosure – namely, a "significant risk" of transmission – remains unclear. Public policy is developing through the application of the criminal law by courts and prosecutors, largely in an evidentiary vacuum about the broader impacts. AIDS organizations are concerned that it could undermine HIV prevention efforts and lead to greater public misunderstanding of HIV. An informed community response is needed. Legal clarity through court decisions and prosecutorial guidance are also needed.

**CONCLUSION:** There remains a need for research and informed policy discussions about the impacts of criminal sanctions for non-disclosure on stigma and discrimination against PLWA and on HIV prevention efforts. Research and advocacy efforts towards limiting the scope of criminal law for non-disclosure must be maintained and further developed.

### O020

### SERVICE, SOLIDARITY, SPIRIT AND SURVIVAL: COMPLEX LINKAGES AND LOCALIZED REALITIES AMONG 'GRANDMOTHERS' RESPONDING TO HIV/AIDS IN CANADA AND SOUTH AFRICA

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**BACKGROUND:** In 2006, the Stephen Lewis Foundation launched its Grandmothers Campaign, bringing together Canadian grandmothers with grandmothers from AIDS-affected communities across southern Africa. Some 10,000 Canadians have now mobilized around fundraising, advocacy and public education. This paper examines the interface this Campaign and the everyday lives and associations of four affiliated groups of women in South Africa.

**METHODS:** The study is grounded in community-based research in South Africa, including in-depth interviews and repeated focus groups with approximately 100 grandmothers from four communities. The Canadian research has involved archival work, interviews, and a survey with 165 Canadian grandmothers.

**FINDINGS:** This paper highlights two important findings. The South African grandmothers are being affected, largely in positive ways, by the Canadian Campaign. Yet, dissonances were also noted. While the Canadian Campaign suggests that HIV is generating new and unprecedented stresses among African grandmothers and that grandmothers' groups are a response, many of the South African "grandmothers' groups" actually predated the HIV epidemic in South Africa (and certainly the launch of the Grandmothers Campaign in Canada). Also, the South African women are not organizing only in response to HIV, but rather in response to the combined stresses of violence, poverty, and illness. Furthermore, despite Canadian perceptions around building solidarity, many South African grandmothers do not see themselves as connected to this international network.

**CONCLUSIONS:** While the perspectives of South African grandmothers unsettle certain international assumptions, the "success" of this movement does not depend on a unified set of understandings. Given the positive impacts noted, this paper concludes that these disjunctures do not necessarily need to be "fixed," but rather the entire network may benefit from recognizing that international inputs are never neutral, and that dissonances can become productive sites for new dialogue.

## O021

### MEDICALLY UNINSURED PREGNANCIES IN TORONTO – THE CHALLENGES FACED BY AFRICAN/CARIBBEAN WOMEN

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**PLAIN LANGUAGE SUMMARY:** Medically uninsured and pregnant African/Caribbean and Black (ACB) women face significant challenges accessing care, particularly if they are diagnosed with HIV during their pregnancy. To better understanding these challenges, data from the Optimizing Prenatal HIV Testing In Ontario (OPHTIO) Study was analyzed. Being uninsured led to significant financial issues, sub-optimal access to prenatal care, HIV testing and medication, feelings of inferiority and reduced agency, and non-pregnancy related stressful experiences. Greater efforts to provide adequate prenatal care to these women are recommended.

**OBJECTIVE:** To highlight the prenatal care related challenges of medically uninsured pregnant ACB women in Toronto.

**METHODS:** Interviews were conducted with ACB women, as part of the OPHTIO Study. To participate, women had to have accessed prenatal care in Ontario since 1999 and be unaware of their HIV status prior to receiving prenatal care. Analysis consisted of a thematic review of interview transcripts.

**RESULTS:** All (n=13) were immigrants. Mean age (28.4yrs), range (17-39yrs). Most were born in the Caribbean (n=10, 77%), had high school education or less (n=10, 77%) had lived in Canada < 10yrs (n=10, 77%), had <$25,000 income (n=9, 69%), were not employed (n=10, 77%), and single (n=7, 54%). Four (31%) tested HIV positive during their pregnancy.

All reported being burdened by the financial costs of prenatal care. Being uninsured (1) impeded their access to prenatal care, including HIV testing and medication (n=11, 87%); (2) influenced their prenatal care decisions (n=4, 31%); (3) influenced their HIV testing (n=5, 38%) decisions; (4) made them feel inferior and less in control of their prenatal care decisions (n=6, 46%); (5) led to other stressful issues (i.e. immigration, housing, unemployment, partner abuse and loss of social support) (n=9, 69%). Sources of support included social networks, community health centers, AIDS Service Organizations and shelters.

**CONCLUSION:** Pregnant and uninsured ACB women in Toronto face significant challenges in accessing prenatal care. Being uninsured also impacts their mental health and access to HIV prevention services. We recommend the expansion of prenatal care services and support for these women, especially if they are HIV positive.

## O022

### REPRODUCTIVE RIGHTS AND CHOICE: ACCESS TO REPRODUCTIVE HEALTH SERVICES FOR MEXICAN WOMEN WITH HIV

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**BACKGROUND:** Globally the reproductive rights of women with HIV continue to be violated. As well as abuse of their right to bear children through coercive abortions, forced sterilization and misinformation, many women with HIV have an unmet need for family planning despite the fact that contraception is an effective measure for preventing perinatal HIV transmission and supports women's autonomy.

**METHODS:** In-depth interviews (total =71) with Mexican women with HIV of reproductive age (n=31), HIV health care providers (n=20) and decision-makers and activists (n=20) during 2009. Interviews explore policy and practice of perinatal HIV prevention and sexual and reproductive health service delivery to women with HIV, as well as knowledge, attitudes and experiences of the different stakeholders.

**RESULTS:** Both providers and women with HIV report that sexual and reproductive health counselling tends to be narrowly defined as promotion and provision of the male condom. Even when reproductive desires are discussed, physicians often fail to act (by modifying antiretroviral treatment regimens or prescribing effective contraception). Most women (70.96%) did not want another child; the majority of these (54.5%) have an unmet need for family planning and 30.0% of this group did not use a condom at last sex. The study identified unplanned and unwanted pregnancies. More experienced providers are more knowledgeable about and supportive of dual protection (condom + another contraceptive). Access to assisted reproduction and female condoms is negligible.

**CONCLUSION:** In this setting, integrating reproductive health services into HIV care through training of providers, increasing access to a range of services, and including contraceptive coverage as an indicator for evaluating the quality of services would serve both human rights and public health by supporting healthy conception and pregnancy for the minority of women with HIV who desire another child, and by increasing access to contraceptives for those who do not.

## O023

### NOT A MEANS TO AN END: KNOWLEDGE TRANSLATION AND EXCHANGE OF CRITICAL COMMUNITY BASED RESEARCH

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**BACKGROUND:** Dominant KTE strategies derived from traditional health research theories tend to focus more on generation and dissemination of 'new knowledge' rather than actual strategies for change. It emphasizes impact on government institutions and undervalues changes in affected communities or service users. This theoretical framework of KTE does not adequately address the reality of many community based research (CBR) initiatives with community centered KTE priorities.

**METHOD:** Recognizing the limitations of traditional research KTE strategies, CAAT developed a series of innovative activities to translate the findings of our research study on "improving mental health service access for immigrant/refugee PHAs" into community relevant policies and programs. These include a PHA driven knowledge transfer strategy that maximizes PHA leadership and involvement in research dissemination. The program engages and trains 25 target group PHAs to be knowledge transfer exchange ambassadors (KTEA). The KTEAs and research team members work closely together to identify key messages and outreach strategies for different target audiences of the study, and develop audience specific knowledge transfer tools in different formats and languages. A system was set up to facilitate ongoing deployment of the KTEAs for dissemination activities from the study.

**FINDINGS:** KTE is an interactive and transformative process within the research-policy-practice cycle that can further enrich the knowledge generated from the research findings. The meaningful involvement of affected target groups in the KTE processes enabled the blending of research-based knowledge with experiential knowledge and contextual appreciation that enhanced relevance and applicability. The CAAT KTE program enables transformative team work to translate our study's recommendations to generate 3 meaningful initiatives targeting different sectors to further drive programmatic and policy changes.

**CONCLUSIONS:** Traditional KTE strategies derived from health research theories may not be appropriate for community-based research. Multiple theoretical perspectives are more powerful than an overarching theory for guiding knowledge-translation processes. It is critical to find a fit between the theoretical perspective and the context in which it is to be applied. More work is needed to facilitate theoretical framework to evaluate knowledge translation interventions.

# Innate and Adaptive Immune Responses to HIV Infection and Co-Infection

## O024

### PROMPT SILENCING OF IRF1 RESPONSE, INVOLVING EPIGENETIC CONTROLS VIA RECRUITMENT OF HDAC2, IS IMPLICATED IN THE RESISTANCE TO HIV-INFECTION IN KENYAN WOMEN

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Interferon regulatory factor-1 (IRF1) mediates anti-viral immunity as well as the trans-activation of HIV-1 LTR. The IRF1 genotype associated with HIV-resistance was correlated with less IRF1 expression and responsiveness to stimulation. However, whether IRF-1 expression and its regulation had a functional role in resistance to HIV-1 infection remained unknown.

This study examined the basal expression of IRF1, the kinetics and regulatory mechanisms of IRF1 responses to exogenous IFN-γ stimulation in ex vivo PBMC from individuals who were epidemiologically resistant to HIV-1 infection (HIV-R) versus susceptible (HIV-S). We found increased basal histone deacetylase 2 (HDAC2) binding to IRF1 promoter in HIV-R, compared to that in HIV-S, suggesting that the IRF1 promoter in HIV-R was primed for silencing. When the kinetics of IRF1 responses to IFN-γ stimulation was examined, there was a robust but transient increase in IRF1 mRNA and protein expression in HIV-R, compared to continual responses in HIV-S. It suggests that IRF1 response in HIV-R is strictly regulated for silencing and that the timely down-regulation of IRF1 expression may be critical in resistance to HIV-1 infection. We further found increased HDAC2 recruitment to IRF1 gene loci in HIV-R post-stimulation, and that levels of acetylated histone H4 at the IRF1 promoter correlated strongly with the IRF1 RNA expression, thus, implicating a mechanism for silencing IRF1 responses in HIV-R. Moreover, we found that the robust, transient increase in IRF1 expression was sufficient for IRF1 to trans-regulate its immune target genes. Increased IRF1 binding to Il12p35 and Il4 promoters were observed, accompanied by increases of Il12p35 mRNA and silencing of Il4 gene in both HIV-R and HIV-S individuals. Altogether, these data suggest that timely regulation of IRF1 expression may allow the activation of immune response without assisting in HIV-1 trans-activation. Hence, this study establishes a strong foundation for better understanding the functional role of IRF1 regulation in resistance to HIV-1 infection.

## O025

### IL-21 ENHANCES NK CELL SURVIVAL AND FUNCTIONALITY IN HIV-INFECTED PATIENTS WITH MINIMAL ENHANCEMENT OF VIRAL REPLICATION: IMPLICATIONS FOR ITS USE IN IMMUNOTHERAPY

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**INTRODUCTION:** Interleukin-21 (IL-21) is a recently discovered cytokine with many immunoregulatory and immune-enhancing properties and acts as a key factor for controlling chronic viral infections. Recently, we reported its decreased serum concentrations and their immunological consequences in HIV-infected persons. Due to the vey fact that Natural Killer (NK) cells are associated with protection from HIV-1 infection as well as with delayed progression to AIDS, we have now investigated how exogenous IL-21 enhances NK cell responses in these persons.

**METHODS:** We measured the expression levels of IL-21R on NK cells in HIV-infected patients by flow-cytometry and compared them with those in healthy donors. We investigated effects of IL-21 treatment on NK cell cytotoxic and secretory activities, survival and proliferation. Finally, we measured the impact of the cytokine on viral replication in in vitro infections as well as in autologous T and NK cell co-culture assays.

**RESULTS:** We show that the cytokine receptors are expressed equally on all NK cell subsets. We demonstrate that the cytokine activates STAT-3, MAPK and Akt to enhance NK cell functions and that STAT-3 activation plays a key role in the constitutive and IL-21-mediated enhancement of NK cell functions. IL-21 increases expression of anti-apoptotic proteins Bcl-2 and Bcl-XL, and enhances viability of NK cells, but has no effect on their proliferation. We further show that the cytokine enhances HIV-specific ADCC, secretory and cytotoxic functions as well as viability of NK cells from HIV-infected persons. Furthermore, it exerts its biological effects on NK cells with minimal enhancement of HIV-1 replication, and the cytokine-activated NK cells inhibit viral replication in co-cultured HIV-infected autologous $CD4^+$ T cells in perforin- and LFA-1-dependent manner.

**CONCLUSIONS:** These data suggest the potential usefulness of this cytokine as an immunotherapeutic tool for enhancing antiviral NK cell responses in HIV-infected persons.

## O026

### LYMPHOCYTE ACTIVATION GENE 3: EXPRESSION AND SECRETION DURING IMMUNE ACTIVATION AND HIV INFECTION

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**INTRODUCTION:** Immune activation plays an important role in HIV progression. Lymphocyte activation gene 3 (LAG-3) is a negative regulator of T cell activation that shares homology with CD4. Mouse studies have identified LAG-3 as a mediator of Treg function, while human studies have shown that soluble LAG-3 (sLAG-3) is associated with a Th1 immune response. Little is known about the expression of human LAG-3 during immune activation/HIV infection and the relationship between soluble and membrane LAG-3. This study will characterize LAG-3 expression during immune activation and HIV infection.

**METHODS:** Eight colour flow cytometry is used to investigate LAG-3 expression with the markers CD4, CD8, CD25, Foxp3, CD56, CD16, CD69, HLA DR, PD-1 and IFNg. PBMC were obtained from healthy and HIV-infected Winnipeg donors. Plasma was obtained from healthy and HIV-infected donors to measure sLAG-3 by ELISA.

**RESULTS:** As expected, negligible LAG-3 is expressed ex vivo, and interestingly is not observed on Tregs. Following PHA stimulation, LAG-3 is strongly expressed on CD56brightCD16− immunoregulatory NK cells and NKT cells, but not CD56dimCD16$^+$ NK cells. LAG-3 is upregulated more rapidly on $CD4^+$ than $CD8^+$ T cells and is strongest on $CD69^+$ T cells. After 6 days of PHA stimulation, most PD-$1^+$ cells co-express LAG-3. Preliminary results suggest that LAG-3 expression is higher in $HIV^+$ patients than healthy controls. sLAG-3 concentrations are higher in African patients than Caucasians, correlating with overall immune activation.

**CONCLUSIONS:** LAG-3 is an immune regulator whose role remains undefined in HIV infection. Eight-colour flow cytometry has shown, for the first time, which NK cell subsets express LAG-3 and that Tregs do not express detectible levels of LAG-3. It also suggests differences in LAG-3/PD-1 co-expression in humans and mice, suggesting implications for immune exhaustion during HIV pathogenesis. Additionally, ELISAs show that populations with higher immune activation express more sLAG-3.

## O027

### MAINTENANCE OF REGULATORY T CELL POPULATIONS IS ASSOCIATED WITH LOW LEVELS OF T CELL ACTIVATION IN HIV-CONTROLLERS FROM MANITOBA

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**INTRODUCTION:** Challenges in HIV vaccine development have led to a renewed emphasis on determining natural correlates of protection to HIV. HIV-infected patients who control HIV replication in the absence of antiretroviral therapy (HIV-Controllers) provide a useful model for elucidating these natural mechanisms of protection. Previous studies on HIV-Controllers have identified multiple host and viral factors associated with protection, but no single mechanism accounts for all cases of viral control. Given that HIV preferentially replicates in activated T cells and the role of regulatory T cells (Tregs) in controlling activation, the present study

sought to examine the relationship between levels of T cell activation, Tregs and viral control in HIV-Controllers from the Manitoba Elite Controller Cohort (MECC).
**METHODS:** Cryopreserved peripheral blood mononuclear cells (PBMC) from HIV-Controllers (HIV-C), HIV-infected non-controllers (HIV-NC) and uninfected negative controls (HIV-neg) were thawed and analyzed for markers of T cell lineage (CD3, CD4, CD8), activation (CD69, CD38, HLA DR) and Tregs (CD25, FOXP3) using multicolour flow cytometry.
**RESULTS:** Activated $CD4^+$ and $CD8^+$ T cells ($CD38^+$ $HLADR^+$) were found at higher frequencies in HIV-C ($p<0.05$) and HIV-NC ($p<0.0001$) compared to HIV-neg. HIV-NC had higher frequencies of activated $CD4^+$ ($CD38^+$ $HLADR^+$; $p<0.05$) and $CD8^+$ ($CD38^+$; $p<0.01$) T cells compared to HIV-C. When Tregs were represented as a percentage of $CD3^+$ T cells, HIV-NC were found to have depleted Tregs compared to HIV-C ($p<0.05$). A negative correlation was observed between Treg frequency and activated ($HLADR^+$) $CD8^+$ T cells ($p<0.01$, $r=-0.57$).
**CONCLUSIONS:** These data suggest that maintenance of Treg populations is associated with low levels of T cell activation and viral control. A progressive loss of Tregs may be a driving factor in the elevated immune activation observed in chronic HIV disease.

## O028

### POLYFUNCTIONAL HIV-SPECIFIC CD8+ T CELL RESPONSES HAVE UNIQUE MEMORY PHENOTYPES COMPARED TO OTHER CHRONIC VIRAL INFECTIONS

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**BACKGROUND:** Virus-specific CD8+ T cells are phenotypically and functionally heterogeneous, and a better understanding of which are critical for protective immunity in HIV infection is needed for optimal rationale vaccine design. However, whether surface phenotypes of HIV-specific CD8+ T cells reliably represent various functional attributes seen in other viral infections remains uncertain.
**METHODS:** We assessed the surface phenotype and functionality of HIV- and CEF-specific CD8+ T cell responses by multiparametric flow cytometry, measuring six CD8+ T cell functions (CD107α, IFN-γ, MIP-1β, TNF-α, IL-2 and proliferative capacity) and phenotypic markers CCR7, CD45RA, and CD27, in 24 chronically HIV-infected individuals
**RESULTS:** Of the 8 possible phenotypic categories, overnight HIV- and CEF-specific responsive cells were primarily in 5 of these categories, including 3 that have not had functions attributed to them. Overnight responding CEF-specific CD8+ T cells were more likely to be effector memory (CD45RA-CCR7-CD27−) compared to HIV-specific cells, and were less likely to be CD45RA+CCR7+CD27− ($p<0.05$). IFN-&γ+ cells were phenotypically distinct from other overnight functions in several categories; IFN-γ+ cells were the least likely to be effector memory cells and most likely to be CD45RA-CCR7+CD27−. Proliferating cells, measured after six days, typically had an effector memory phenotype followed by CD45Ra-CCR7+CD27− and CD45Ra+CCR7+CD27−. HIV-specific proliferating CD8+ T cells were more likely to be transitional memory cells (CD45Ra-CCR7-CD27+) than CEF proliferating CD8+ T cells ($p<0.05$).
**CONCLUSIONS:** These data suggest that the definitions of CD8+ T cells based on phenotypic markers after stimulation is depended on the virus and may not represent the immunological functions to which they have been prescribed. A major implication of these data are that surrogate cell surface markers that have been used to define memory phenotypes in other infections may not represent the same cell types in HIV infection and disease progression.

## O029

### THE MODULATION OF TOLL-LIKE RECEPTOR-AGONIST INDUCED IL-23 AND IL-27 EXPRESSION DURING IN VITRO HIV INFECTION

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**OBJECTIVE:** HIV employs many different mechanisms to undermine the host immune system including deregulation of Th1 cytokines such as IL-23 and IL-27. In order to understand the molecular mechanisms underlying the loss of Th1 cell-mediated immunity during HIV infection, it is imperative to investigate the regulation of these IL-12 family cytokines. Our hypothesis is that HIV infection will inhibit IL-23 and IL-27 expression by modulating intracellular signalling pathways known to be involved in IL-12 family cytokine production. In this study, we examine the effect of TLR agonists on IL-23 and IL-27 production by THP-1 cells, a human promonocytic cell line.
**RESULTS:** Cells were stimulated with agonists to TLR1 (Pam3CSK4), TLR2 (LTA), TLR3 (PolyI:C), TLR4 (LPS), TLR5 (flagellin), TLR6 (FSL1), TLR7 (Imiquimod), TLR8 (ssRNA40) or TLR9 (CpG olignucleotides) followed by quantification of IL-23 and IL-27 by ELISA. The data show that TLR1, TLR2, TLR4, TLR5 and TLR6 agonists increased IL-23 and IL-27 production in a dose-dependent manner. In contrast, TLR3, TLR7, TLR8 and TLR9 agonists had no effect on cytokine production. These data are consistent with previous work from our laboratory showing that LPS significantly stimulates IL-23 and IL-27 expression in monocytes. Next to LPS, LTA (TLR2 agonist) induced the greatest production of IL-23 and IL-27. Therefore, the effect of LTA on IL-23 and IL-27 production was further evaluated. The role of MAPK signalling in regulating LTA-induced IL-23 and IL-27 production was characterized using inhibitors for JNK, p38 and ERK MAPKs. Inhibitors of all three MAPK pathways significantly reduced LTA-mediated IL-23 production.
**CONCLUSIONS:** In addition to LPS, the TLR2 agonist LTA can significantly induce monocyte IL-23 and IL-27 expression. The regulation and production of these cytokines is important in initiating an appropriate immune response. Future experiments determine the effect of in vitro HIV infection on TLR-agonist induced IL-23 and IL-27 production.

## O030

### DEFINING BACTERIAL VAGINOSIS THROUGH IN-DEPTH CULTURE-BASED AND MOLECULAR CHARACTERIZATION OF THE VAGINAL MICROBIOTA IN EXPOSED SERONEGATIVE COMMERCIAL SEX WORKERS FROM NAIROBI, KENYA

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**RATIONALE:** Although the mucosal immune micro-environment underlying HIV susceptibility is well-known to be influenced by concurrent sexually transmitted infections, the role of commensal bacterial communities in the vagina ("vaginal microbiota") is not defined. Bacterial vaginosis (BV), characterized by a shift in the dominant members of the vaginal microbiota, is well-established as a risk factor for HIV acquisition in studies from around the world. However, the etiology and dynamics of BV remain poorly characterized, and the precise mechanisms by which BV increases HIV vulnerability have not been defined.
**METHODS:** Longitudinal, retrospective analysis of BV diagnosis by Nugent score in 3500 samples from 1000 commercial sex workers (CSW), in each of 3 serogroups: HIV-positive (HIV+), HIV-negative (HIV-N) and exposed seronegative (ESN), as well as identification of cultured isolates/clones and in-depth 454 pyrosequencing based on the chaperonin-60 universal target, for a cross-section of CSW in each serogroup.
**RESULTS:** HIV-+ individuals were more likely to be diagnosed with BV, while those who seroconverted during the study period had increased BV morphotypes on Gram stain compared to both HIV-N and HIV+ individuals. ESN individuals were just as likely to have BV compared to HIV-N individuals. In a cross-section of CSW, ESN individuals with BV were less likely to have leukocytes on Gram stain compared to HIV-N individuals with BV. Each individual was found to have an idiosyncratic microbiota, however striking differences were observed between those with and without BV. The distribution of several taxa were different among the three groups of CSW.
**CONCLUSIONS:** To our knowledge, this is the first report to address BV longitudinally in ESN individuals. We present what is arguably the most in-depth analysis of the vaginal microbiota undertaken to date, enhancing current concepts of BV and revealing previously unseen bacterial richness and diversity in vaginal specimens.

## Conquering Co-Infections

### O031

### EFFICACY OF ARGON PLASMA COAGULATION TO TREAT ANAL INTRAEPITHELIAL NEOPLASIA GRADE 2 OR 3 IN HIV-SEROPOSITIVE MSM

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Anal cancer precursor lesions (Anal Intraepithelial Neoplasia, AIN) can now be identified before the development of anal cancer, but few treatment options have demonstrated convincing efficacy in HIV-seropositive men having sex with other men (MSM).

**OBJECTIVE:** To assess the efficacy, safety and tolerability of Argon Plasma Coagulation (APC) to treat AIN 2/3 in HIV-positive MSM.

**METHOD:** A prospective pilot study was performed to evaluate Argon Plasma Coagulation (APC) to treat AIN 2/3 in HIV-positive MSM with persistent AIN 2/3 as identified by High Resolution Anoscopy (HRA). Patients were offered up to 3 sessions of treatment if lesions persisted or recurred over a follow-up of 2 years.

**RESULTS:** Seventeen of the 20 recruited participants completed the study, 3 participants are awaiting their 24 month visit. All of the 20 patients received the first treatment, 16 received two treatments and 9 received three treatments. On a per participant analysis according to their last HRA, 11 of 17 patients (65%) were successfully treated by APC. Only one participant never responded to APC. Six participants had a stable response after one to three treatments, but twelve had AIN 2/3 recurrence after showing initial response to APC. Most patients reported some pain during the procedure, lasting few seconds. Some local pain persisted in the following days, with the majority of patients being free of pain one week after the treatment. The pain was adequately relieved by oral Empracet using a median total number of 4 tabs per patient. No serious adverse event related to the procedure occurred.

**CONCLUSIONS:** APC is a potentially effective, safe and well tolerated treatment method for AIN 2/3 in HIV-positive MSM, but recurrences are common. The final results of this study will be available in the summer 2010.

### O032

### IMMUNOGENICITY OF THREE SEASONAL INFLUENZA VACCINE DOSING STRATEGIES IN HIV-INFECTED ADULTS

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**INTRODUCTION:** Influenza disease burden and poor vaccine efficacy in HIV necessitate improved immunization strategies to maximize efficacy.

**METHODS:** A phase III, randomized, vaccine trial was conducted at 12 CTN sites. Three dosing strategies were assessed in HIV-infected adults (18-60 years) prior to the 2008-09 influenza season. A seasonal, trivalent killed split non-adjuvanted influenza vaccine (Fluviral) was administered at baseline ± at 28 days as follows: SD→SDB: two standard doses; DD→DDB: two double doses; SD: single standard dose. Immunogenicity was assessed by hemagglutinin inhibition (HAI) titre measurement.

**RESULTS:** 297 participants received at least one injection. Baseline parameters were similar between groups: 90% male, 89% on ART, median CD4 = 470 cells/mm3, median nadir CD4=189 cells/mm$^3$, HIV RNA < 50 copies/mL=76%. 84% received Fluviral the previous year.

| | | Doubling of HAI | Titres from Baseline | (SD-reference) |
|---|---|---|---|---|
| Influenza Strain | Randomized Study Arm | Week 4 | Week 8 | Week 20 |
| A/Brisbane | SD-SDB | 41% (p=0.51) | 55% (p=0.11) | 35% (p=0.54) |
| | DD-DDB | 58% (p=0.09) | 61% (p=0.02) | 47% (p=0.02) |
| | SD | 43% | 44% | 31% |
| A/Uruguay | SD-SDB | 57% (p=0.41) | 62% (p=0.62) | 41% (p=0.49) |
| | DD-DDB | 62% (p=0.86) | 61% (p=0.77) | 44% (p=0.25) |
| | SD | 63% | 59% | 36% |
| B/Florida | SD-SDB | 40% (p=0.42) | 50% (p=0.04) | 38% (p=0.03) |
| | DD-DDB | 51% (p=0.46) | 50% (p=0.03) | 32% (p=0.19) |
| | SD | 46% | 35% | 23% |

As described in the Table, SD→SDB increased immunogenicity for A/Brisbane and B/Florida at week 8 compared to SD. DD→DDB increased immunogenicity for A/Brisbane and B/Florida at week 4, 8 and 20 compared to SD.

For those with baseline HAI titres ≤ 10, DD→DDB consistently demonstrated trends toward improved seroprotective HAI titres ≥ 40 at weeks 4, 8 and 20 for each antigen compared to SD. This trend was observed for high seroprotective HAI titres (≥ 80) for A/Uruguay (week 4: 31% vs 19%, p=0.12; week 8: 27% vs 11%, p=0.02).

**CONCLUSION:** Increased antigen dose and booster dosing may improve vaccine immunogenicity to circulating influenza strains in vaccine hyporesponsive HIV patients.

### O033

### PATTERNS OF HPV INFECTION AMONG A COHORT OF HIV POSITIVE WOMEN

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**BACKGROUND:** Although high rates of HPV infection has been described in HIV positive women, patterns and type of HPV infection are not well understood.

**METHODS:** As part of a longitudinal study, conducted by the Canadian HPV/HIV study group, of the immunogenicity and safety of a quadravalent HPV vaccine in HIV positive women, preliminary data on HPV infection were collected 3 months prior to and at the time of initial vaccination, in 95 and 41 women respectively.

**RESULTS:** Participant characteristics included: median (IQR) age of 37 (31-43), median (IQR) CD4 count of 484 cells/mm$^3$ (338-600), median (IQR) years of HIV infection of 8 (4-12). Fifty-nine percent had a VL <50 copies/ml and 50% were Caucasian. HIV risk factors were 29% IDU and 76% heterosexual contact. Infection with HPV was seen in 73 (77%) of women with median number of HPV types at 3 (IQR 1, 4). HPV types detected in >10 samples were: 16, 44, 53, 56, 61, 62, 66, 70 and 84. Oncogenic HPV was found in 47/95 (49%) of women with 27/47 (57%) infected by one type and 20 with multiple infections (N=2-7). In the 41 women with sequential sampling (3 mo apart), 10 were negative at both times, 10 had persistent infection with the same type and 8 showed evidence of new infections, 10 cleared some HPV, 3 had the same number, but different types. Overall, 26 women (63%) had ≥1 persistent HPV type with 56 and 70 (n=5 for both) and 16 most common (n=6).

**CONCLUSIONS:** Among this cohort of HIV positive women, almost all women had ≥1 HPV type detected and almost half of them had at ≥1 oncogenic HPV type detected, with two-thirds having ≥1 persistent HPV type. More HPV types and more oncogenic types were detected in those with cervical dysplasia compared to no dysplasia.

## O034

### HEPATITIS C VIRUS CO-INFECTION DIMINISHES THE LIKELIHOOD OF ANTIRETROVIRAL-INDUCED HYPERLIPIDEMIA

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**INTRODUCTION:** Hyperlipidemia is a recognized complication of HIV antiretroviral therapy. The interactions between HIV, hepatitis C virus (HCV), antiretroviral agents and lipids are not well understood.

**METHODS:** OCS participants with at least one lipid level after HAART therapy were included in the analysis. Hepatitis B and Hepatitis C co-infected patients were identified by antibody test results, adverse events and diagnoses. Use of HCV antiviral therapy prior to or during HAART (n=95), patients diagnosed with diabetes prior to HAART (n=16) and patients with lipid lowering drug use at baseline (n=21) were excluded.

**RESULTS:** 634 HIV mono-infected, 69 HIV-HBV and 98 HIV-HCV co-infected patients were included in the analyses. 91% of HIV, 97% of HIV-HBV and 89% of HIV-HCV were male. The median (IQR) age at HAART initiation was 46 (41-52) in HIV, 47 (43-51) in HIV-HBV and 47 (44-54) in HIV-HCV. The median (IQR) CD4 at HAART initiation was 270 (160-380) in HIV, 290 (210-383) in HIV-HBV and 287 (198-417) in HIV-HCV. Multivariate logistic regression analysis showed that factors associated with increased risk of ever Grade 3 or 4 total cholesterol or LLD use were age (OR=2.20, 95% CI (1.78, 2.71) per 10 years, $p < 0.0001$) and male gender (OR=2.49, 95% CI (1.22, 5.07), p=0.01). Factors associated with decreased risk were HCV-HIV co-infection (OR=0.39, 95% CI (0.23, 0.66), $p < 0.001$) and initiation of HAART after 2004 vs. ≤ 1997 (OR=0.29, 95% CI (0.19, 0.44), $p < 0.0001$). Year of starting HAART between 1998 and 2003 vs. ≤ 1997 and HBV-HIV were not associated with the outcome (OR=0.70, 95% CI (0.48, 1.02), p=0.07 and OR=0.60 (95% CI (0.34, 1.04), p=0.07, respectively).

**CONCLUSIONS:** HCV-HIV co-infection is significantly protective against elevated cholesterol or use of LLD, after adjusting for age, male gender and calendar year of initiation of HAART.

## O035

### HEPATITIS C VIRUS (HCV) INFECTION AND RE-INFECTION IN ILLICIT DRUG USERS (IDUS)

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**OBJECTIVES:** The possibility of re-infection is often cited as a reason for not initiating treatment in IDUs, although recent observational data suggest that the rate of re-infection may be reduced following spontaneous or treatment-induced virologic clearance. With this in mind, we have undertaken a systematic, prospective study to evaluate the incidence of HCV viremia in IDUs at risk of new infection.

**METHODS:** We indentified a cohort of IDUs receiving care at the Pender Community Health Centre on Vancouver's Downtown East Side. Potential subjects were identified as either never having been infected with HCV (non-infected arm), having spontaneously cleared the virus (spontaneous arm), or having achieved a sustained virologic response on antiviral treatment (SVR arm). A questionnaire to identify demographics, health status, risk behavior and drug use was administered at baseline and every 6 months, along with blood tests to identify their HCV status.

**RESULTS:** A total of 518 subjects were screened (12/07 – 02/09), with 245 (47%) being viremic and 69 (13 %) meeting criteria for inclusion in the study: 18 in the non-infected, 29 in the spontaneous and 22 in the SVR arms, respectively. There were no significant differences among the 3 groups with respect to age, ethnicity, source of income, unstable housing, and being on opiate maintenance program. Over 5-18 months follow-up, 20% of the non-infected group became viremic, as compared to 0% of the other two groups (p=0.04). Injecting drugs in past 30 days (p=0.004), sharing non injection equipment (p=0.015), heroin, amphetamines, and combined drug use was significantly higher in the non-infected arm compared to SVR arm (p=0.02, 0.04 and 0.02 respectively). There were no significant differences in drug use and risk behavior between non-infected and spontaneous arms.

**CONCLUSIONS:** HCV infection is more likely to occur in those who have never been previously infected. This susceptibility to infection cannot be completely explained by an increase in risk behavior, at least as compared to individuals who have cleared their viremia spontaneously.

## O036

### SHEDDING OF HERPES SIMPLEX VIRUS IN HIV-1-INFECTED INDIVIDUALS RECEIVING SUPPRESSIVE ANTIRETROVIRAL THERAPY

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**OBJECTIVE:** Individuals infected with herpes simplex virus type 1 (HSV-1) and/or type 2 (HSV-2) may exhibit asymptomatic HSV shedding at skin and mucosal surfaces. Shedding is increased in HIV-1 co-infection, may exacerbate HIV disease, and facilitates sexual transmission of both infections, but has been inadequately described during successful combination antiretroviral therapy (cART). We sought to quantify asymptomatic HSV shedding among co-infected individuals receiving suppressive cART.

**METHODS:** HSV status was determined using type-specific serology (HerpeSelect ELISA, Focus Technologies). Asymptomatic HSV, HIV-1 co-infected individuals on suppressive cART (HIV viral load <50 copies/mL) self-collected specimens from four anatomic sites (1 oral, 2 sex-specific genital, 1 anal) daily for 28 days. Refrigerated specimens were dropped off weekly for HSV-1 and HSV-2 testing by polymerase chain reaction. Type-specific shedding rates were calculated as the proportion of days on which HSV PCR was positive among seropositive participants.

**RESULTS:** 40 patients have been enrolled; 36 have complete data available. 30 (83%) were male, mean age (SD) was 49.5 (8.9) years, and mean duration of cART was 8.6 (3.8) years. 78% were seropositive for HSV-1, 78% for HSV-2, and 56% for both. 44% had no history of herpes symptoms. HSV-1 shedding occurred in 8/28 HSV-1 seropositive participants (29%), compared with 14/28 HSV-2 seropositive participants (50%). Median shedding rate (IQR) was 0% (0, 3.6%) for HSV-1, 3.6% (0, 12.5%) for HSV-2, and 7.1% (0, 16.1%) for either type. Among those with any type-specific shedding, median shedding rate for HSV-1 was 7.1% (7.1, 10.7%), compared with 12.5% (10.7, 21.4%) for HSV-2. Sex, HIV risk factor, duration of cART and baseline CD4 count were not associated with HSV shedding rate.

**CONCLUSION:** Asymptomatic shedding of HSV-1 and HSV-2 occurs among HIV-1 co-infected persons despite suppressive cART. Further research is warranted to determine implications of this shedding for HSV transmission and HIV pathogenesis.

## O037

### CIHR CTN I S243 STUDY: SIMULTANEOUS TIMED TRIPLE SCREENING (SITTS) FOR HIV, HEPATITIS B, AND SYPHILIS WITH RAPID POINT-OF-CARE TESTS IN RURAL PREGNANT WOMEN IN INDIA

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**OBJECTIVE:** In many resource-limited settings (RLS) globally, triple infections (i.e., HIV, Syphilis and Hepatitis B) contribute majorly to maternal and infant morbidity. These could be prevented by a timely diagnosis and early treatment initiation in pregnancy. However, inconsistent screening, inadequate laboratory facilities and inadequate use of resources delay diagnosis hampering care. In this context, to all rural pregnant women presenting for ante-natal care at Mahatma Gandhi Institute of Medical Sciences (MGIMS), Sevagram, India, we offered a Simultaneous timed triple screening (SiTTS) strategy prospectively. We evaluated its feasibility, acceptability, preference and impact.

**METHODS:** SiTTS consisted of: i) combined pre/post test pre-counseling; ii) timed (<15minutes) simultaneous triple screening with blood-based Determine® POC tests; iii) confirmatory testing and triage of positive women to early treatment; and, lastly iv) diagnosis and prophylaxis/treatment of delivered infants.

**RESULTS:** Of 1066 women participants approached, 1003 (94%) completed SiTTS. Only 90 (9%) were ever screened for triple infections. Of 1003, 902 (90%) were married, 973 (97%) literate, 652 (65%) in first and second trimester. SiTTS identified 13 preliminary positive and 990 preliminary negative participants at POC. SiTTS was accepted by 1003 (100%) and preferred by 812 (80.6%) study participants. SiTTS was feasible-median time 15 minutes (range: 11-15); sample collection with 1 finger stick possible in 857 (86%) participants. All 13 positives women (breakup HIV (6), HBV (5) Syphilis (2)) were confirmed and initiated early on treatment. Infants were prophylaxed for Hepatitis B and confirmed negative for Syphilis and HIV at 2 months and 4 months.
**CONCLUSION:** SiTTS was accepted (100%), preferred (81%) and feasible (86%) to operationalize in this setting. SiTTS also facilitated timely knowledge of sero-status in all pregnant women, and rapid initiation of treatment in confirmed positives. This study paves the way for multiplexed POC testing in pregnancy.

## O038

### CERVICAL DYSPLASIA ASSOCIATED WITH PRESENCE AND NUMBER OF HPV TYPES AMONG A COHORT OF HIV POSITIVE WOMEN

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**BACKGROUND:** HPV infection and cervical dysplasia are common in HIV positive women. However, the relationship between HIV-HPV co-infection and cervical dysplasia has been unclear.
**METHODS:** As part of a longitudinal study of the immunogenicity and safety of a quadravalent HPV vaccine in a cohort of HIV positive women, preliminary data on HPV infection and cervical dysplasia was collected 3 months prior to and at the time of initial vaccination. Demographic, clinical and HIV laboratory data were collected, along with genital HPV sampling and liquid based cervical cytology.
**RESULTS:** Of 97 participants with screening data on cervical dysplasia, HPV type analysis is complete for 84. In the subset of women with complete data available (N=72), clinical characteristics were: median (IQR) age 37 (31-43); 52% Caucasian; median (IQR) CD4 count was 508 cells/mm3 (340-620); 61% have a VL < 50 copies/ml; and median (IQR) duration of HIV infection is 8 years (4-12). HIV risk factors of injection drug use and heterosexual contact were 24% and 78%, respectively. Results of the screening Pap smear were 4% HSIL, 13% LSIL, 5% ASCUS and 77% negative. There were 25% of women in whom no HPV was detected; 52% had no oncogenic HPV types detected. In the 84 women with both Pap test and HPV type results, 15 (18%) were classified as LSIL or HSIL and of these women 12 (80%) had at least one oncogenic HPV type detected compared to 14 (20%) in the no dysplasia group (p= 0.009). Median number of HPV types between those with and without dysplasia detected were 4 (IQR 3,6) and 1 (IQR 0,3) respectively [p<0.001].
**CONCLUSIONS:** Among this cohort of older HIV positive women, with generally good immune function, high rates of HPV infection with low rates of advanced cervical dysplasia were observed.

# Recent trends in the HIV Epidemic

## O039

### A COMPARISON OF ABORIGINAL AND NON-ABORIGINAL PERSONS' RESPONSE TO HAART IN BRITISH COLUMBIA

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**BACKGROUND:** Aboriginal persons in Canada are disproportionately represented in the HIV/AIDS epidemic, accounting for 27.3% of positive tests in 2006 despite representing 3.8% of the Canadian population. Previous population based studies have shown that Aboriginal persons have lower uptake and survival on HAART. This analysis was undertaken to determine if this trend continues among Aboriginal persons enrolled in the LISA (Longitudinal Investigations into Supportive and Ancillary health services) cohort by measuring HIV plasma viral load (VL) responses.
**METHODS:** The LISA cohort is a prospective study of HIV-positive individuals ≥19 years of age accessing HAART in BC. Primary endpoints of interest were VL suppression (2 consecutive VL measures <50 c/mL) and VL rebound (2 consecutive VL measures >1000 c/mL after suppression). Cox proportional hazards models were used to determine the association between being Aboriginal and clinical outcomes. Participants included in this analysis had to have at least 4 follow-up VL measures.
**RESULTS:** A total of 400 LISA participants (31.5% Aboriginal) met the criteria for inclusion. Aboriginal participants differed significantly (all p<.001 unless noted) from non-Aboriginal participants in terms of gender (44.4% vs. 17.5% were female), median baseline age (37 years vs. 43), high school completion (39.7% vs. 67.9%), annual income <$15,000 (78.4% vs. 56.3%), IDU history (91.3% vs. 63.1%), use of Aboriginal service organizations (40.5% vs. 11.3%), adherence ≥95% (48.4% vs. 67.5%), log10 baseline median VL (4.9 vs. 5.0; p=.003), and HAART regimen (NNRTI: 57.9% vs. 46%, boosted PI: 31% vs. 43.8%, single PI: 11.1% vs. 10.2%; p=.045). Cox proportional hazards models showed being Aboriginal was not significantly associated with VL suppression (HR 1.00, 95% CI 0.79-1.27) or VL rebound (HR 0.98, 95% CI 0.65-1.49).
**CONCLUSIONS:** Although aboriginal participants differed in demographic indicators, our analysis adds to the growing collection of literature stating that Aboriginal persons respond similarly to therapy as non-Aboriginal individuals.

## O040

### CHANGES OVER TIME IN RISK FACTORS FOR HIV SEROCONVERSION AMONG INJECTION DRUG USERS IN THE SURVIDU NETWORK, 1995-2009

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**OBJECTIVES:** To assess risk factors for HIV seroconversion among injection drug users (IDUs) participating in the SurvIDU network (province of Quebec and Ottawa) and verify if changes in risk factors occurred over time.
**METHODS:** From 1995 to June 2009, IDUs who had injected drugs during the previous 6 months gave informed consent to provide a saliva sample and answer a questionnaire. They were assigned a unique identifier allowing the detection of multiple visits by a same IDU (repeater). A Cox proportional hazard model with time dependent covariates was developed to assess risk factors for HIV seroconversion among repeaters. The model also included an indicator variable for time periods before (1995-2002) and after (2003-09) SurvIDU joined the national I-Track surveillance network, and interaction terms between the latter and other covariates.
**RESULTS:** HIV incidence among 2,903 initially HIV-negative subjects [10,107 person-years (py)] decreased significantly (p<0.05) between the 2 periods from 3.1 to 2.2 per 100 py. Whereas injecting with needles used by someone else [Hazard ratio (HR)=2.1, p<0.0001] and cocaine as the main drug injected (HR=2.2, p<0.0001) were associated similarly with HIV seroconversion in both periods, being aged ≥25 was a strong predictor of HIV in 1995-2002 (HR=2.6, p<0.0001), but not in 2003-09 (HR=0.77, p=0.35). A similar observation was made for the practice of injecting at least daily (1995-2002: HR=1.4, p=0.042; 2003-09: HR=0.92, p=0.72). On the other hand, involvement in sex work emerged as a significant risk factor in the most recent period (1995-2002: HR=1.1, p=0.57; 2003-09: HR=2.4, p=0.0002).
**CONCLUSIONS:** HIV incidence significantly increased (p=0.007) among young IDUs (<25 years) but decreased (p=0.003) among older ones, resulting in changes over time in HIV vulnerability according to age. The emerging association between HIV and sex work may reflect sexual transmission among IDUs, but could also relate to other vulnerability factors, especially among women.

## O041

### DECREASE OF HIV INCIDENCE AMONG INJECTION DRUG USERS (IDU) IN MONTREAL: EVIDENCE FROM THE SAINT-LUC COHORT

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**OBJECTIVES:** To estimate HIV incidence rates (IR) and to examine whether changes in the prevalence of risk behaviours and their association with HIV infection occurred overtime among IDUs recruited and followed in two mutually exclusive time periods.

**METHODS:** IDUs were recruited into a prospective cohort from 1988 to 2001 (wave 1) and from 2005 to 2008 (wave 2). At each semi-annual visit, IDUs completed interview-administered questionnaires. For comparison purposes, follow-up was censored at 48 months. The Kaplan-Meier survival function was used to compare incidence rates between periods. Time-updated Cox regression models were conducted to examine predictors of HIV incidence.

**RESULTS:** Of 2,075 HIV-seronegative IDUs enrolled and with at least one follow-up visit (80% males, and 34% under 30 years of age), 148 became HIV-positive within 4 years for an IR of 3.3 per 100 p-y (95% CI= 2.8,3.9). HIV incidence was lower during wave 2 compared to wave 1, with rates, respectively, of 1.4/100 person-years (95% CI: 0.8-2.5) and 3.6/100 person-years (95% CI: 3.1,4.3). Wave 2 participants reported a higher frequency of IV cocaine (80 vs. 65%), crack (61 vs.27%), and heroin (40 vs. 30%) use. Conversely, they reported less frequently syringe sharing (54 vs. 79%), and sharing with an HIV-positive individual (5 vs. 13%) in the past six months. In multivariate analyses, being female (Hazard Ratio (HR) 0.54 (95% CI: 0.3,0.96)), unstable housing (HR 1.96 (1.4,2.8)), IV cocaine use (HR 2.9 (1.7,5)), sharing syringes with, (HR 2.25 (1.2, 4.1)) and having sex with an HIV+ partner (HR 2.3 (1.2,4.1) were associated with HIV seroconversion. No interaction was found for period of enrolment (wave).

**CONCLUSIONS:** Our investigation supports a decrease in HIV incidence among IDUs recruited between 2005 and 2008, compared to those recruited earlier. This reduction might be partially explained by a reduction of specific sharing behaviours.

## O042

### THE CEDAR PROJECT: LONGITUDINAL VULNERABILITIES ASSOCIATED WITH SEX WORK INVOLVEMENT AMONG YOUNG ABORIGINAL WOMEN WHO USE DRUGS IN VANCOUVER AND PRINCE GEORGE, BC

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**OBJECTIVES:** To explore vulnerabilities associated with sex work involvement among young Aboriginal women who use non-injection and injection drugs in Vancouver and Prince George, BC.

**METHODS:** The Cedar Project is an ongoing prospective study of Aboriginal young people in Vancouver and Prince George who use injection and non-injection drugs. Sex work involvement was defined as having exchanged sex for money, drugs, food or shelter in the previous six months. This analysis included data collected between October 2003 and July 2007. Venous blood samples tested for HIV and HCV antibodies. Generalized estimating equation (GEE) modeling was used to identify factors associated with sex work involvement over the study period. Variables included in multivariable analysis were chosen because of their importance in the literature and because they reached statistical significance at the $p<0.05$ level in univariable analysis. Unadjusted and adjusted odds ratios (UOR/AOR) and 95% confidence intervals (CI) were calculated.

**RESULTS:** In total, 292 women contributed 979 observations over the five-year study period. In multivariable analysis, women involved in sex work over the study period were more likely to be younger (AOR: 0.935; 95%CI: 0.89-0.98), to have a bisexual sexual identity (AOR: 2.55; 95%CI: 1.46-4.46), to report homelessness in the past six months (AOR: 1.70; 95%CI: 1.27-2.28), to need help injecting drugs in the past six months (AOR: 1.58; 95%CI: 1.00-2.48), to smoke crack daily in the past six months (AOR: 3.35, 95%CI: 2.15-5.22) and to inject cocaine daily in the past six months (AOR: 2.49; 95%CI: 1.49-4.14). Sexual assault in the past six months was marginally significant (AOR: 1.67; 95%CI: 0.93-2.99).

**CONCLUSIONS:** The vulnerabilities faced by young Aboriginal women involved in sex work in this study are staggering. Developing interventions based on Indigenous strategies for healing that incorporate historical trauma and harm reduction approaches are essential for the safety and survival of these young women.

## O043

### EVOLUTION OF THE HIV EPIDEMIC IN THE PRAIRIE PROVINCES

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**BACKGROUND:** HIV care across the Prairie Provinces is provided at a small number of centres allowing the epidemiology of HIV to be easily followed. We examined the numbers and demographics of those in care between 2003 and 2007 and details of new diagnoses in 2007.

**METHODS:** A cross sectional retrospective chart review of those receiving HIV care between 2003-2007 in Alberta, Saskatchewan and Manitoba was conducted. Detailed data was collected on those newly diagnosed in 2007. Data from Edmonton is currently being analyzed, with full results to follow.

**RESULTS:** By end of December 2007, 2263 HIV positive persons were in care in Manitoba, Saskatchewan and S Alberta. Males and females accounted for 1674 and 589 of the cases respectively. Between 2003-2007 there was a significant increase in newly reported cases per year ($p = 0.03$). In 2007, there were 222 new HIV cases to care (33% female). Heterosexual contact was the most common HIV risk but diversity was seen across sites with frequent IDU and MSM risk in Saskatchewan and S Alberta respectively. The Aboriginal population remains heavily over-represented, with approximately 36% of new cases being Aboriginal. Saskatchewan had the largest proportion with 72% of new cases self-reporting as aboriginal compared to 7% in S Alberta. Late presentation was common across all care sites with almost 35% presenting with CD4 < 200 cells/mm3.

**DISCUSSION:** 2300 HIV positive persons are in care in the Prairie Provinces with high diversity in HIV risk being seen. Aboriginals however, are overrepresented at all sites but in Saskatchewan are 77% of new cases and most presenting very late for care. In contrast to national trends, we are seeing increasing numbers of new and late diagnoses. Further efforts need to be made to facilitate earlier testing and linkage to care.

## O044

### TRENDS IN BEHAVIOURS ASSOCIATED WITH HIV/STBBIS AMONG GAY MEN IN MONTREAL: RESULTS FROM THE ARGUS 2005 AND 2008 SURVEYS

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**OBJECTIVE:** Explore the evolution of risk behaviours among gay men from 2005 to 2008.

**METHOD:** ARGUS is part of M-Track, an enhanced surveillance system that monitors HIV/STBBIs and risk behaviours among MSM in Canada. Men were recruited through approximately 40 gay venues during both cycles of ARGUS. Subjects completed self-administered questionnaire. Analyses were restricted to HIV-negative/unknown gay men in Montreal. Bivariate analyses assessed associations between selected behavioral variables and the the survey year. For each variable, a multivariable logistic regression model was used to adjust for sample variation (recruitment site and socio-demographics) from 2005 to 2008. Only statistically significant findings are presented [OR (95%CI)].

**RESULTS:** Data were available for 1409 and 1080 subjects in 2005 and 2008, respectively. Respondents in 2008 were more likely to report the following for the past six months: ≥6 male partners [1.34 (1.01-1.77)], anal sex with ≥6 male partners [1.64 (1.15-2.35)], looked for a sexual partner on the internet ≥1/week [2.58 (1.91-3.47)], been under the influence of

ecstasy [1.52 (1.04-2.21)] or GHB [1.72 (1.15-2.59)] at least once during sex; Men were also more likely to have been tested for HIV [2.65 (1.74-4.04)] and to have been diagnosed with syphilis [2.40 (1.17-4.94)] during the last 12 months, Unprotected anal sex (UAS) with a "casual partner or a regular HIV-positive/unknown partner", UAS as well as intentional UAS with a casual partner were not associated with the year survey.
**CONCLUSION:** Current trends suggest that HIV-negative/unknown gay men in Montreal are having a greater number of sexual and anal sex partners compared to 2005. They are also more likely to have recruited sexual partners by using the internet and to have had sex while using recreational drugs. Despite this, there does not appear to have been any increase in the frequency of UAS with an "at risk" partner. The increase in recent HIV testing is encouraging.

## O045
### ETHNO-RACIAL VARIATION IN SEXUAL BEHAVIOUR AND HIV INFECTION AMONG MEN WHO HAVE SEX WITH MEN (MSM): RESULTS FROM THE LAMBDA STUDY

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**OBJECTIVE:** To examine the demographic characteristics, sexual behaviour and HIV infection among ethnic-racial MSM.
**METHODS:** In 2007, we recruited MSM in bars, bathhouses, community organizations and social events in Toronto and Ottawa. Data were collected using a standardized self-administered questionnaire. Dried blood spots were collected and tested for HIV.
**RESULTS:** We recruited 2,438 MSM; 30.2% of participants in Toronto and 17.8% in Ottawa were from minority ethno-racial groups, including South/Southeast Asian (10.3%), Aboriginal (5.5%) and African-Caribbean (4.9%), and Latin-American (2.8%). 45.9% of Aboriginal MSM competed college/university compared to South/Southeast Asian (68.8%), African-Caribbean (55.6%), Latin-American (66.1%) and European/North American (64.2%) ($p<0.01$). 78.6% of Latin-American MSM earned less than $50,000 annually compared to South/Southeast Asian (63.7%), African-Caribbean (68.0%), Aboriginal (64.2%) and European/North American (53.4%) ($p<0.0001$). 64% of MSM had more than one casual partner during the previous 6 months but we observed no difference across ethno-racial groups. Overall, 8.5% of those with self-reported HIV-negative or unknown HIV status reported delayed condom application during receptive anal sex (RAS) with an HIV-positive or unknown HIV status partner. Overall, 18.4% had unprotected RAS with a casual partner or HIV-positive or unknown HIV status regular partner. However, the differences in these two indicators were not statistically significant across ethno-racial groups. The proportion who reported having been tested for HIV varied by ethno-racial group: 78.0% of South/Southeast Asian MSM had previous HIV test compared to Aboriginal (91.5%), African-Caribbean (83.0%), Latin-American (87.7%) and European/North American (90.2%) ($p<0.0001$). We observed the lowest HIV prevalence among South/Southeast Asian MSM (9.4%) compared to Aboriginal (32.3%), African-Caribbean (17.5%), Latin-American (33.3%) and European/North American (19.3%), ($p<0.0001$).
**CONCLUSIONS:** The Lambda survey successfully recruited an ethno-racially diverse sample of MSM. HIV testing and HIV prevalence varied by ethno-racial group. Thus, HIV prevention programs among MSM need to take into account these patterns.

## O046
### CD4 COUNT AT PRESENTATION FOR HIV CARE AMONG INJECTION DRUG USERS IN THE OHTN COHORT STUDY

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**OBJECTIVE:** HIV-positive injection drug users (IDUs) often have inferior access to health care compared to other people living with HIV. We investigated whether IDUs were diagnosed later in the course of HIV infection by assessing the first recorded CD4 count after HIV diagnosis.
**METHODS:** We analyzed data from the Ontario HIV Treatment Network Cohort Study (OCS). CD4 counts were extracted from clinical charts; injection drug use and other variables were usually categorized by participants' self-report. We compared the earliest CD4 count among IDUs and other groups using linear regression and performed two sensitivity analyses. First, we analyzed the mean CD4 count during the first 6 months of diagnosis. Second, we analyzed only CD4 counts measured within one year of the earliest recorded HIV diagnosis date. Multivariable models were adjusted for age, sex, and aboriginal status.
**RESULTS:** CD4 counts were unavailable for 193 of 3572 participants (5%). The prevalence of historical injection drug use was 6%. The earliest CD4 count for IDUs was 425 cells/mm3 compared to 352 for non-IDUs (p-value <0.01, difference= 73, [95% confidence interval 36 to 109]). This difference persisted after covariate adjustment (99 [61 to 138]). The CD4 count at presentation was similar for men who had sex with men and women but was lower for heterosexual men (−70 [−103 to −38]) and older people (−27 [−37 to −18] per decade). Too few aboriginals were included to make reliable conclusions regarding this group. Sensitivity analyses yielded similar results.
**CONCLUSIONS:** Among OCS enrollees, IDUs had a higher first recorded CD4 count than other participants. Possible explanations for this finding include good access to HIV testing among drug using populations, a volunteer bias among OCS participants, and differential biases in data collection among demographic groups. Late HIV diagnosis may be a significant problem for heterosexual men and older individuals.

# Perspectives on HIV/AIDS from Indigenous Contexts

## O047
### POPULATION-SPECIFIC HIV/AIDS STATUS REPORT: ABORIGINAL PEOPLES – PUBLIC HEALTH POLICY, PROGRAM AND RESEARCH IMPLICATIONS

**C Jackson, C Babin**
**Ottawa, ON**

**BACKGROUND:** This Public Health Agency of Canada (PHAC) report examines current Canadian evidence related to HIV/AIDS among First Nations, Inuit and Métis peoples to inform and support future directions of HIV/AIDS policy, programming and research.
**METHODS:** Literature searches identified Canadian peer-reviewed and grey materials published from 2002-2008 addressing epidemiology; determinants of health; currently funded research; and program and policy responses related to HIV/AIDS among Aboriginal peoples. Information was also gathered from PHAC, Health Canada, Correctional Service of Canada, Canadian Institutes of Health Research, and provincial/territorial governments. Report development was advised by a national multisectoral expert working group.
**RESULTS:** The HIV infection rate for Aboriginal persons was about 3.6 times higher than among non-Aboriginal persons in 2008, and unlike the general Canadian population, injection drug use is the main category of HIV exposure for both Aboriginal males and females. This report confirms that the over-representation of Aboriginal peoples in Canadian HIV and AIDS statistics must be considered within a social and historical context, taking into account the impacts of systemic racism, poverty, high rates of incarceration, housing instability and homelessness, and the multi-generational effects of the residential school system. HIV-related stigma, discrimination, and homophobia, as well as the geographic isolation of many Aboriginal communities, also contribute to the spread of HIV. The majority of available research focuses on factors that increase this population's vulnerability to HIV; more information is needed on factors and responses that support resilience, particularly among Aboriginal women and youth.
**CONCLUSIONS:** This report identifies the need for programs and research that consider and address the distinct needs and realities of First Nations, Inuit and Métis peoples in relation to HIV prevention, care,

treatment and support. Targeted responses that reflect Aboriginal leadership, resilience and strengths are critical and gaining increasing support in programming and research initiatives.

## O048

### LIFE EXPEREINCES OF ABORIGNAL COMMUNITIES AND HIV/AIDS IN CANADA

**K McKay-McNabb**
**Regina, SK**

The purpose of my PhD research study was to develop a theory grounded in the experience of Aboriginal community members in Canada that describes ways in which they have been affected by HIV/AIDS. This presentation will include a proposed theory which will incorporate the effects of colonization within Aboriginal communities; although historical, effects of colonization have been linked by researchers to many health challenges confronting Aboriginal communities today. This presentation will briefly review research evidence that suggests the higher prevalence and incidence of HIV/AIDS in Aboriginal communities has roots in historical colonization. The qualitative data collected will provide experiential information documenting present-day experience of community members who are affected by HIV/AIDS. I have conducted 25 qualitative interviews with Aboriginal community members from across Canada who have been effected (been diagnosed with) or affected (relative has been diagnosed with) by HIV/AIDS to gain a better understanding of how HIV/AIDS is changing the health landscape within Aboriginal communities. This presentaiton will include quotations from the participants journey with HIV/AIDS. Grounded theory methodology was utilized to analyze the interview data. As there is a paucity of research about Aboriginal Peoples living with HIV/AIDS, the results of this research study will contribute to development of a theory describing what it is like for Aboriginal peoples who are living with or affected by HIV/AIDS and suggest culturally relevant method of healing. This research provides a snapshot of the picture that HIV/AIDS has created across Canada.

## O049

### ALCOHOL USE BY ABORIGINAL PERSONS LIVING WITH HIV/AIDS AND ITS ASSOCIATION WITH ACCESS TO CARE AND TREATMENT

**R Masching[2], C Dell[3], J Egan[4], N Gros-Louis McHugh[5], T Prentice[6], D Lee[4], L Storm[4], H Dale-Harris[6], AC McGee[1]**
**[1]Nolalu, ON; [2]Halifax, NS; [3]Saskatoon, SK; [4]Vancouver, BC; [5]Wendake, QC; [6]Ottawa, ON**

**BACKGROUND:** The Public Health Agency of Canada reported in 2005 that Aboriginal peoples account for approximately 7.5% of persons living with HIV and 9% of all new HIV infections, despite composing only 4% of the total population. Problematic substance use (specifically injection drugs) is a significant factor in HIV transmission. While research regarding the impact of alcohol on antiretroviral therapies is inconclusive, research undertaken by the Canadian Aboriginal AIDS Network has found that Aboriginal People with HIV/AIDS (APHAs) have reported that perceptions by health care professionals who assume a tendency to addiction and drug abuse based on ethnicity leads to avoidance of health services, except in extreme circumstances.

**GOAL/OBJECTIVES:** This project is an in-depth exploration of the association between alcohol use and access to services from the perspectives of APHAs and service providers using a mixed methodology. The interrelated objectives are: (1) To determine the impact of alcohol use and/or perception of alcohol use on access to services by APHAs; (2) To document the extent to which service needs are being enhanced or compromised for APHAs who use alcohol or are perceived to be using alcohol; (3) To develop policy and/or practice recommendations based on the findings.

**METHODS:** Two national surveys were undertaken – one with APHAs and one with service providers. The APHA survey focuses on alcohol use experiences and perspectives and kinds of services needed and accessed. The service provider survey focuses on types of services provided and use of services by APHAs using alcohol or perceived to be using alcohol. 25 service providers, and 25 APHAs will be interviewed in the qualitative component of the study based on emergent themes from the quantitative data analysis.

**FINDINGS:** We will present the preliminary analysis of the findings, comparing the views and experiences of APHAs to the service providers. Health care provision policy recommendations will also be suggested.

## O050

### TRIPLE JEOPARDY: A QUALITATIVE STUDY OF THE ROLE OF SEXUAL VIOLENCE IN THE LIVES OF ABORIGINAL WOMEN LIVING WITH HIV/AIDS

**C Reading[2], JK Barlow[3], R Masching[1]**
**[1]Dartmouth, NS; [2]Victoria, BC; [3]Rexton, NB**

**BACKGROUND:** Aboriginal women are over-represented among new HIV diagnoses in Canada. Entrenched marginalization and discrimination within Canadian society as well as gender, class, and ethno-culture, have increased exposure to HIV among Aboriginal women. One of the outcomes of these factors is the widespread occurrence of sexual violence and exploitation of Aboriginal women and girls.

**OBJECTIVES:** Study objectives were to explore: 1. The ways in which AWHAs understand and cope with experiences of sexual violence in their personal lives and in the context of Aboriginal culture; 2. The interplay between sexual violence and culture; and 3. The distinctive features of Aboriginal women's experience of sexual violence and HIV infection.

**METHODS:** This community-based study employed a grounded theory, in-depth, semi-structured interviews and the research principles of Ownership, Control, Access and Possession. This research team collaborated with community-based organizations, service providers and AWHA representatives.

**FINDINGS:** Exposure to violence throughout the lifetime, often from childhood, influenced by social determinants, emphasising gender inequalities. Many of these factors also influenced exposure to HIV; and being HIV positive further exposed AWHAs to violence. Many participants believed their gender, cultural identity, and HIV status, affected how they were treated by service providers. HIV stigmatization was often intertwined with discriminatory attitudes surrounding gender and cultural identity. Society's treatment of AWHAs creates a form of 'triple jeopardy' that contributes to continued social marginalization and isolation. This triple jeopardy can create significant challenges to AWHAs' ability to mange their HIV illness, access support for sexual trauma and substantially undermine the quality of health services received.

**CONCLUSION:** This action-oriented research project highlights some of the many actions that could better meet the unique gender and cultural needs of AWHAs who have experienced violence.

## O051

### HIV/AIDS IN CANADA'S ABORIGINAL POPULATIONS: OPPORTUNITIES FOR CORPORATE INVOLVEMENT AND SUPPORT

**J Globerman[1], R Masching[2], E Dove[3], C Levine-Beard[3], I Melngailis[3]**
**[1]Toronto, ON; [2]Dartmouth, NS; [3]New York, USA**

To address the HIV epidemic within the Aboriginal community, several Canadian member companies of the Global Business Coalition on HIV/AIDS, Tuberculosis and Malaria (GBC) supported an assessment of how companies operating in Canada can develop, scale-up and improve efforts to respond to this serious issue.

Between January and March 2009, a thorough literature review and interviews with over 40 key stakeholders in Canada were conducted to gain perspectives and input from corporate representatives, Aboriginal leaders, leaders of local and national AIDS organizations, representatives from Aboriginal AIDS organizations, and federal and provincial government representatives.

Assessment outcomes included identification of key challenges, successes, and opportunities, and recommendations for action. The assessment documented the dynamics of the HIV epidemic within Aboriginal populations, organizations actively involved in addressing the issue(s), and key interventions underway. Specific resource challenges and gaps in programming

were identified as potential entry points for corporate involvement through financial support, leveraging in kind and skill sharing opportunities, and expanding existing programs.
Opportunities identified included increasing workforce and community awareness, reducing stigma, strengthening prevention initiatives and addressing underlying 'root causes' of vulnerability for Aboriginal Peoples through skills building, small business and job training, and legal assistance programs. Potential advocacy opportunities include providing direct government relations support or capacity-building to AIDS service organizations and Aboriginal advocates to address relevant policy issues. Companies can maximize efficiency and effectiveness by linking existing corporate investments in Aboriginal education, job training and other programs with HIV/AIDS programs, to ensure that investments reach those most at-risk.
Overall, results indicate that the business sector's investment in and partnership with Aboriginal HIV/AIDS programs could have unique and significant impacts on the HIV epidemic among Aboriginal Peoples in Canada. More broadly, collaboration has great potential for strengthening capacities and opportunities for healthy, vibrant futures in Aboriginal communities.

## O052

### THE RELATIONSHIP BETWEEN MASCULINITIES AND HEALTH PRACTICES OF MI'KMAQ MEN: A COMMUNITY-BASED PARTICIPATORY ACTION STUDY

**GA Getty**
**Fredericton, NB**

**PURPOSE:** To promote the health of Mi'kmaq men living in Elsipogtog First Nation and to decrease the disparities between Mi'kmaq men and the larger Canadian population of men.
**OBJECTIVES:** To examine how the practices of masculinities influence Mi'kmaq men's perception of health and health practices.
To examine how the experiences of illness and health influence Mi'kmaq men's perception of their masculinity and the configurations of its practices.
**METHOD:** This study used a Critical Indigenist approach to participatory action research. Twenty-two men and two women elders who had brought up several sons were interviewed about their life-story, health practices, and experiences with illness. The data were analyzed using an interpretive approach in which coding was done by the research team together with a consensual process of decision-making.
**FINDINGS:** The masculinity practices of the majority of participants differed from the western hegemonic masculinity in their egalitarian view of women and others, their respect for all creation, acceptance of difference, ability to express emotions, lack of homophobia and ethic of hard work and supporting your family. All had endured racist stigmatization. Children were valued and it was the responsibility of men to teach their sons about the world and how to care for it. While about 25% had been sexually assaulted by other men as children or teens, and the majority had dealt with addiction issues, their healing emerged from spiritual practices, including the Sun Dance and sweat lodge. Several participants had been in many different white foster homes in between enduring violent home lives of addicted parents.
**CONCLUSIONS:** Programs that address issues of sexual abuse, racism and violence in the family are important. Mi'kmaq men express their manhood in many healthy ways that would facilitate increased help-seeking when ill and maintain their health.

## O053

### VOICES FROM THE FIRE: VISION IN TRUTH. A PERSPECTIVE OF HIV/AIDS AMONG ABORIGINAL COMMUNITIES IN CENTRAL ALBERTA

**EM Konsmo[1], R St. Denys[2], C Boniface[2], J Vanderschaeghe[2], J Keller[3], J Stark[2], K Robson[2], Q Nniuq[2], S Oddie[2], T Lee[3], W Faye[4]**
**[1]Innisfail; [2]Red Deer; [3]Edmonton; [4]Rocky Mountain House, AB**

There exists a significant disparity in HIV/AIDS rates among Aboriginals when compared to non-Aboriginals; this reality, along with the growing percentage of HIV reports and AIDS cases in Aboriginal communities, necessitates examination of the gaps, barriers, and needs related to this specific population. Storytelling is a traditional practice for sharing and building Aboriginal knowledge systems. Storytelling is also a key method that allows researchers to capture a community's perspective on health and wellness issues. A perspective will be encapsulated that will integrate areas including the social and structural aspects that are needed to sustain health and ultimately prevent HIV/AIDS among Aboriginal communities. The practice of storytelling will be used to capture the impact of HIV/AIDS, barriers to appropriate health care services, and stories of survival, success and "wise" practices already in place. This research uses storytelling to provide a perspective of HIV/AIDS to inform education, prevention and/or support strategies in the central Alberta region. Field researchers give their own stories and collect additional narratives from a diverse range of communities (e.g. rural, urban, on and off reserve). The stories collected will serve as knowledge that will be transferred to communities, service providers and policy makers and ultimately inform and catalyze effective responses to the HIV/AIDS epidemic.
The additional objective of this project is to build a foundation for respectful and sustainable research partnerships. Through the creation and maintenance of a collaborative research approach, it is hoped that sustainable knowledge exchange will be established between Aboriginal communities, policy makers and researchers.

## O054

### SPIDER WEAVING: STI/HIV PREVENTION USING POPULAR THEATRE AND ACTION RESEARCH IN AN INDIGENOUS COMMUNITY

**J Auger**
**St Albert, AB**

A pocket of HIV infection has grown to epidemic proportions in a mostly Aboriginal community in Northern Alberta. At the start of the research my assumptions were that Aboriginal sexuality is affected by political, historical, cultural, psychological, and social factors that underpin the social determinants of health. STI/HIV is a symptom of the marginalized status of Aboriginal peoples who experienced historical trauma due to colonization. As an insider researcher, using an exploratory design I addressed the following questions: 1) Is popular theatre a culturally appropriate medium for introducing information to increase knowledge of STI/HIV in an Aboriginal audience? 2) Is popular theatre an effective way to encourage audience members to express their attitudes, knowledge, and behaviours related to sexual health? 3) How are popular theatre and action research methodologically and conceptually appropriate for preventing STI/HIV? 4) How do the influence of elders and a popular theatre practitioner affect the intervention? 5) Can the use of action research and popular theatre influence the attitudes, knowledge, and behaviours to promote healthy sexual choices? 6) Is narrative analysis a good way for Aboriginal people to tell their stories or have their stories told? Completing this exploratory research was financially possible through the Aboriginal Health Strategy. The funds enabled me to recruit a popular theatre practitioner, a group of young Indigenous community members and supportive elders to answer my research questions. The data was obtained through one-to-one interviews, journals, talking circles, and field notes. Due to a lack of time in the field, narrative analysis was not used. Instead I introduced Grandmother Spider and developed a dream catcher that I refer to as the Indigenous Iterative Webbed Circle to analyze the real and fictional stories that lead to the community performance of "My People's Blood." The methods are appropriate and effective if the principles of CBPR and action research are followed.

# Anti-retroviral Drugs, Microbicides, and Novel HIV Inhibition Strategies

## O055

### DE NOVO GENERATION OF BEVIRIMAT RESISTANCE MUTATIONS FROM CLINICAL ISOLATES MIMICS THE PATTERNS OF RESISTANCE SEEN IN VIVO

**DJ Knapp, PR Harrigan, PK Cheung**
**Vancouver, BC**

**BACKGROUND:** Bevirimat (BVM) is an HIV-1 maturation inhibitor in development which inhibits CA-SP1 cleavage. Polymorphisms in the QVT motif at gag positions 369-371 have been shown to decrease BVM response. Here we investigate the utility of testing mixtures of clinical isolates as a model for predicting the clinical behaviour of resistance development and relative viral fitness to BVM.

**METHODS:** 10 clinical isolates without QVT mutations with standard sequencing were mixed in equal proportions and used to infect MAGI-CCR5 cells at 0.01μM, 0.1μM, 1μM, and 10μM BVM, and in the absence of drug. This was repeated independently in 3 groups. Samples were taken weekly for 9 weeks and "deep sequenced" on the GS-FLX to measure fitness in the presence and absence of drug.

**RESULTS:** A median of >2700 HIV gag sequences were acquired for each time point. Low levels of unscreened mutations were present in all groups. In group A at 0.1μM and 1μM a 370A/376V variant emerged and took over. At 1μM a 364V variant later emerged, and predominated the population though it did not eliminate the 370A/376V variant. In group B at 0.1μM BVM a 362I/370A variant emerged and rose to nearly 100% prevalence. Despite screening, group C had a ~4.8% prevalence of 362I/370A in the initial inoculum. In this group, the 362I/370A variant was rapidly selected, reaching ~100% prevalence at all concentrations ≥0.1μM. Below 0.1μM, the 362I /370A variant remained at low prevalence, though it was not eliminated from the population.

**CONCLUSIONS:** Different variants emerged under very similar culture conditions, with the 370A mutation generated or selected in all three replicates. The use of mixtures of clinical isolates appears to mimic the patterns of resistance seen in vivo, and could potentially be used as a model for clinical resistance.

## O056

### CHARACTERIZATION OF ANTI-HIV ACTIVITY MEDIATED BY DIFFERENT R88-APOBEC3G MUTANT FUSION PROTEINS

**Z Ao, X Wang, Z Yu, K Fowke, G Kobinger, X Yao**
**Winnipeg, MB**

**OBJECTIVES:** APOBEC3G (A3G), a deoxycytidine deaminase, is a potent host antiviral factor that can restrict HIV-1 infection. However, its antiviral activity is counteracted by HIV-1 Vif since this viral protein is able to induce A3G protein degradation, prevent its viral incorporation and inhibit the activity of intravirion A3G. Thus, interventions that interfere with Vif's activities on A3G could hold promise as novel therapeutic strategies against HIV-1 infection. We have recently demonstrated that A3G could bypass Vif's blockage and incorporate into virus through an alterative pathway mediated by Vpr14-88, and significantly restrict Vif+ HIV infection. In this following study, we have characterized different R88-A3G mutants for their anti-HIV effects and mechanisms involved. We further demonstrated that a most potent fusion protein, R-A3GP129A, could be used as our leading molecule against HIV replication.

**METHOD, RESULTS AND CONCLUSIONS:** We have introduced several A3G mutants in R88-A3G fusion protein and investigated their intracellular distribution, resistance to Vif-mediated degradation, virion incorporation and their inhibitory effects on Vif+ HIV-1 infectivity. Our results showed that R88-A3G wild type and all mutants were localized in cytoplasm and efficiently incorporated into viral particles, including R88-A3GY124A, a previously described A3G virus-packaging defective mutant. The antiviral activity of A3GY124A was also rescued by fusing with R88. Introduction of a deaminase defective mutant E259Q into R88-A3G abrogated its ability to inhibit HIV-1 infection, suggesting a requirement of deaminase activity for R88-A3G antiviral activity. Interestingly, both of R88-A3GD128K and R88-A3GP129A, two Vif-binding defective mutants and showing resistance to Vif-mediated degradation, possessed very potent anti-HIV activity. When R88-A3GP129A was stably expressed in CD4+ C8166 T cells, HIV-1 infection was completely abolished for at least 24 days. Thus, expression of R88-A3GP129A can efficiently inhibited HIV-1 infection and spread in CD4+ T cells. The studies to deliver these fusion proteins into human primary T cells, macrophages and test their resistant to HIV infection are underway.

## O057

### SOLUBLE GLOBOTRIAOSYLCERAMIDE AS A POTENTIAL MICROBICIDE FOR THE PREVENTION OF HIV-1 INFECTION

**AL Harrison[1], SD McCarthy[1], M Kim[1], S Henry[2], C Lingwood[1], DR Branch[1]**
**[1]Toronto, ON; [2]Auckland, New Zealand**

**BACKGROUND:** The glycosphingolipid globotriaosylceramide (Gb3/Pk/CD77) has been identified as an inhibitor and resistance factor against HIV-1 infection in vitro. Here, we have used two mucosal cells lines (vaginal and cervical) and developed a novel mouse model to show that soluble Gb3 may also provide local protection from sexual HIV transmission.

**METHODS:** A novel mouse model was developed for Level 2 use to test in vivo the efficacy of soluble Gb3 analogues for the prevention of mucosal viral infection. This model uses a pseudoenvelope-typed VSV/HIV recombinant virus that infects mice. Binding characteristics of VSV-G and gp120 to Gb3 were analyzed by both immunbiochemistry and using a Langmuir trough. Soluble Gb3 was incorporated into gel or used alone and applied directly to the vaginal and rectal mucosal tissue of mice. PCR and quantitative real-time PCR were used to measure the copy number of HIV cDNA. Pro- and anti-inflammatory cytokine profiles of vaginal and rectal lavage fluid of treated and control CD1 mice were monitored using the BioRad system.

**RESULTS:** Soluble Gb3 inhibits infection of both intact HIV and the recombinant virus. We show that the envelope glycoproteins VSV-G of VSV and gp-120 of HIV both bind Gb3 similarly. We have determined that soluble Gb3 can inhibit HIV-1 infection of vaginal-derived cell lines. Furthermore, our current sample size has shown a clear trend towards efficacy of soluble Gb3 to inhibit mucosal infection using a mouse model. We show that soluble Gb3 does not result in induction of significant inflammatory responses in either vagina or rectum, indicating that soluble Gb3, unlike other microbicides that have been tested, would be safe and not result in increased HIV infection.

**CONCLUSIONS:** These studies provide additional evidence and support for the continued exploration of soluble Gb3 analogues for use as prophylatic and therapeutic agents for HIV/AIDS.

## O058

### SYNTHETIC PK INHIBITS HIV-1 INFECTION IN VITRO BY TWO MECHANISMS

**AL Harrison[1], M Kim[1], SD McCarthy[1], S Henry[2], C Lingwood[1], DR Branch[1]**
**[1]Toronto, ON; [2]Auckland, New Zealand**

**BACKGROUND:** Previously, it was shown that the cell-membrane-expressed histo-blood group antigen, Pk, also known as Gb3, protects against HIV-1 infection and may be a newly described natural resistance factor against HIV infection. We have now investigated the potential of a novel, water soluble, non-toxic and completely synthetic analogue of Pk (FSL-Pk) to inhibit HIV-1 infection in vitro.

**METHODS:** A uniquely designed analogue of the natural Pk molecule was synthesized. HIV-1IIIB (X4 virus) and HIV-1Ba-L (R5 virus) infection of PHA/interleukin-2-activated, peripheral blood mononuclear cells (PBMCs) and Jurkat T cells in vitro was assessed. We monitored Pk, CD4 and CXCR4 expression by fluorescent antibody cell sorting and viral replication by p24gag ELISA. Total cellular Pk was examined by

glycosphingolipid extraction and thin layer chromatography. In vivo toxicity was monitored in mice by histological assessment of vital organs and lymphoid tissue.

**RESULTS:** FSL-Pk blocked X4 and R5 virus infection in activated PBMCs with a 50% inhibitory concentration (IC50) of approximately 100-200 µM. FACS and TLC overlay showed that FSL-Pk can insert itself into cellular plasma membranes and that cellular membrane-absorbed FSL-Pk is able to inhibit subsequent HIV-1 infection. There was no affect of FSL-Pk on cell surface levels of CD4 or CXCR4. Infusion of FSL-Pk into laboratory mice at doses well in excess of theoretical therapeutic doses was tolerated with no untoward reactions.

**CONCLUSIONS:** Our results demonstrate the potential utility of using a completely synthetic, water soluble Pk blood group antigen, having low toxicity, for possible future use as a novel therapeutic approach for the systemic treatment of HIV/AIDS.

## Prevention of Peril

### O059

### TMC278 SHOWS FAVORABLE TOLERABILITY AND NON-INFERIOR EFFICACY COMPARED TO EFAVIRENZ OVER 192 WEEKS IN HIV-1-INFECTED TREATMENT-NAÏVE PATIENTS

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**[1]Winston-Salem, USA; [2]London, United Kingdom; [3]San Juan, Puerto Rico; [4]Bloemfontein, South Africa; [5]Mexico City, Mexico; [6]Rio de Janeiro, Brazil; [7]Bangkok, Thailand; [8]Toronto, ON; [9]Mechelen, Belgium; [10]Titusville, USA**

**BACKGROUND:** In the randomized Phase IIb trial, TMC278-C204 (NCT00110305), all three blinded once-daily (qd) doses (25, 75 or 150mg) of the investigational next-generation NNRTI, TMC278, showed non-inferior antiviral efficacy but more favorable tolerability than the open-label control, efavirenz 600mg qd, over 96 weeks in 368 HIV-1-infected treatment-naïve patients. The trial was extended to investigate long-term safety and efficacy. 192-week results are presented.

**METHODS:** No TMC278 dose-response relationships for safety or efficacy parameters were observed after 96 weeks. All TMC278-treated patients were switched to open label 75mg qd at Week 96. At ~Week 144 (range: 131–157 weeks), all TMC278-treated patients were switched to 25mg qd, the selected Phase III dose, since this dose gave the best benefit-risk balance.

**RESULTS:** TMC278 continued to show non-inferior antiviral and immunological efficacy compared to efavirenz over 192 weeks (Table).

The majority of adverse events (AEs) for both NNRTIs were observed in the first 48 weeks of treatment. No new types of AEs were noted between Weeks 48 and 192. At Week 192, the incidences of any grade 2–4 AE and most commonly reported grade 2–4 AEs at least possibly related to TMC278 or efavirenz were lower with TMC278 than with efavirenz (Table). TMC278 was associated with statistically significant smaller lipid increases than efavirenz.

| Week 192 virologic and immunologic response | All TMC278[†] (n=279) | EFV 600mg qd (n=89)[‡] |
|---|---|---|
| Confirmed viral load <50 copies/mL (ITT-TLOVR algorithm), % (95% confidence interval) | 59 (53–65) | 61 (50–71) |
| Mean (SE) increase from baseline in CD4 cell count, cells/mm $^3$ | 210 (12) | 225 (21) |
| **Summary of treatment-emergent AEs at the time of the Week 192 analysis** | | |
| **AEs (%)** | | |
| Any grade 2–4 AE at least possibly related to TMC278 or EFV | 24** | 44 |
| Any serious AEs | 16 | 17 |
| AEs leading to discontinuation | 14 | 12 |
| Grade 3 or 4 laboratory abnormalities | 31 | 29 |
| **Most common grade 2–4 AEs[¥] at least possibly related to TMC278 or EFV (%)** | | |
| Nausea | 4 | 6 |
| Dizziness | 1 | 3 |
| Headache | 1 | 2 |
| Abnormal dreams/nightmare | 1 | 3 |
| Depression | 1 | 2 |
| Dyspepsia | 1 | 2 |
| Asthenia | 1 | 2 |
| Somnolence | 0.4 | 2 |
| Vertigo | 0.4 | 2 |
| Rash[¶] | 0.4*** | 9 |
| **Mean (SD) change from baseline in lipids at Week 192** | | |
| Total cholesterol, mg/dL | 17 (35)*** | 41 (31) |
| LDL-C, mg/dL | 10 (30)** | 22 (31) |
| HDL-C, mg/dL | 5 (12)*** | 11 (10) |
| Ratio TC/HDL-C | –0.1 (1.3) | 0.002 (1.1) |
| Triglycerides, mg/dL | 10 (107)** | 54 (101) |

*EFV = efavirenz; ITT-TLOVR = intent-to-treat time-to-loss of virologic response; [†]From Week 96 to ~Week 144, all patients received TMC278 75mg qd and were then switched to TMC278 25mg qd; [‡]N=88 for CD4; [¥]Observed in ≥2% of patients in either the TMC278 group or EFV group and excluding laboratory abnormalities reported as an AE; [¶]Grouped term, including the preferred terms allergic dermatitis, drug eruption, erythema, exanthema, rash, erythematous rash, macular rash, maculopapular rash, papular rash, pustular rash, scaly rash, toxic skin eruption, urticaria, papular urticaria; **p≤0.01; ***p≤0.001 for TMC278 vs EFV Fisher Exact test (AEs); non-parametric Wilcoxon rank-sum test (lipids), post-hoc analysis*

**CONCLUSION:** TMC278 was shown to be non-inferior to efavirenz in terms of efficacy and was associated with lower incidences of grade 2–4 AEs, including rash and nervous system/psychiatric events, and lower lipid increases over 192 weeks.

### O060

### VALPROIC ACID TO REDUCE HIV FROM RESTING CD4$^+$ MEMORY CELLS: RESULTS FROM A CANADIAN MULTICENTRE RANDOMIZED CLINICAL TRIAL (CTN 205)

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**[1]Montreal, QC; [2]Ottawa, ON; [3]Laval, QC; [4]Vancouver, BC**

**BACKGROUND:** Data have demonstrated that valproic acid (VPA), a potent HDAC inhibitor, can strongly induce HIV transcription, allowing outgrowth of latent HIV in resting CD4$^+$ cells without enhancing new infection or activating CD4$^+$ cells, in treated patients with undetectable viral load. VPA could potentially reduce the reservoir of chronically HIV-infected cells.

**OBJECTIVE:** To assess the effect of VPA on HIV reservoir, measured by the frequency of resting CD4$^+$ memory cells carrying HIV proviral DNA in peripheral blood of aviremic, chronically HIV-infected patients.

**METHODS:** Subjects with CD4$^+$ cell count ≥200 cells/ml and viral load <50 copies/ml for at least the previous 12 months on HAART were randomized to receive either: VPA plus HAART for 16 weeks before

switching to HAART alone for 32 weeks (Group A); or HAART alone for 16 weeks followed by VPA plus HAART for 32 weeks (Group B). The primary outcome was a three-fold reduction in the frequency of resting CD4+ memory cells carrying HIV proviral DNA.
**RESULTS:** 56 patients were randomized at 7 Canadian centres and 84% were male. The mean CD4 was 537 with a nadir CD4 of 219. Of the 56 patients, 12 failed to complete the study protocol. 10 patients discontinued the study due to adverse events, two of which were serious. 38.1% (8/21) of Group A had a three-fold reduction in HIV reservoir size compared to 38.9% of Group B (Fisher's exact p=1.00). If one compares each individual at the end of their therapy on VPA compared to their period on HAART alone, 16 had a three-fold reduction on VPA compared to HAART alone, 14 had a three-fold reduction on HAART only compared to VPA, and 9 had smaller differences between the two periods.
**CONCLUSIONS:** Valproic acid was relatively well tolerated but did not exhibit a significant impact on $CD4^+$ memory cells HIV proviral DNA.

## O061

### SENSITIVITY AND SPECIFICITY OF RAPID HIV TESTING IN A COMMUNITY SETTING

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**Montréal, QC**

**INTRODUCTION:** It was estimated in 2005 that 13% of men who have sex with men (MSM) in Montréal were HIV-positive, and that 23% of these were not aware of their diagnosis. Clinique l'Actuel introduced a pilot rapid HIV testing program using the MedMira kit in 2008.
**OBJECTIVE:** Describe the sensitivity and specificity of rapid HIV tests in a community based, high HIV risk setting.
**METHODS:** An advertising campaign encouraged MSM and others at risk for HIV to undergo testing through dedicated clinics offering rapid HIV tests. Patients calling for testing deemed at high risk were given appointments within 2 weeks, where they filled out a short questionnaire, received medical consultation routine STI screening, pre- and post-test counselling and their HIV test results within the hour. Those consenting received with a MedMira or and INSTI rapid test and regular HIV screening. Any positive result was confirmed by Western blot.
**RESULTS:** 2500 individuals were tested: 98% men with a median age of 34 (IQR+26-41). For the MedMira test there were 43 true positives, 2295 true negatives, 13 false positives and 4 false negatives. 145 patients received the finger-prick INSTI test giving 2 true positives and 143 false negatives. For MedMira, sensitivity was 91.5% and specificity 99.5% while both figures were 100% for INSTI. The 4 false negatives were also negative by standard ELISA but positive for P24 antigen. Patients testing positive for HIV had significantly more history of previous STI than those testing negative (p=0.041).
**CONCLUSION:** In this setting sensitivity and specificity of the rapid tests used was comparable to standard testing. Acute seroconversion likely explains the 4 false negatives. As with conventional testing, rapid testing requires adequate counselling about the possibilities of a false negative test. In high-risk populations, routine STI screening should always be performed together with HIV screening.

## O062

### AGS-004, AN AUTOLOGOUS DENDRITIC CELL THERAPY IMPACTS ON THE EVOLUTION OF RESIDUAL HIV VIRUS ALONG WITH A SUBSTANTIAL INCREASE IN TIME TO VIRAL REBOUND, DURING AN STI IN THE CTN 239 CLINICAL STUDY

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**BACKGROUND:** We have previously demonstrated that AGS-004 immunotherapy (monocyte-derived dendritic cells (DC)) electroporated with HIV RNA encoding autologous Gag, Nef, Rev, and Vpr antigens (GVRN) was able to induce immunity. This study, CTN 239 (AGS-004-001) evaluates its efficacy and safety in a multicenter phase 2 clinical trial.
**METHODS:** Subjects, on initial ART therapy, with VL <50 copies/ml, current CD4 >450 cells/uL with a CD4 nadir >200 cells/uL and a pre-ART VL >10,000 to 500,000 copies/mL, were eligible. The treatment consists of 4 intradermal AGS-004 doses administered monthly with ART followed by two additional doses during the 12 week structured treatment interruption (STI). The impact of AGS-004 on HIV was assessed by sequencing of up to 10 individual clones GVRN genes after AGS-004 treatment and comparing them to those isolated from a pre-AGS-004 plasma sample.
**RESULTS:** 37 subjects from 7 Canadian sites were enrolled and 25 subjects have received AGS-004. Individual case studies will be presented detailing viral and immunologic dynamics during the STI. Treatment-related AEs were limited to grade 1 or 2 injection site reactions and flu-like or GI symptoms. No autoimmunity or AIDS defining events were observed during the study to date.
The GVRN sequencing analysis completed for 4 subjects demonstrated that in some subjects the post AGS-004 virus diversity is shifted indicating that the residual virus indeed mutated compared to pre AGS-004 sequences. Amino acid analysis of some antigens revealed great reductions in their diversity. Studies are being conducted to understand the mechanism of virus evolution.
**CONCLUSIONS:** These clinical results warrant further evaluation of AGS-004 in a randomized placebo controlled clinical trial which is planned to begin shortly. In addition, viral evolution was demonstrated indicating the presence of some interplay between the host immune system and the virus post AGS-004 therapy.

## O063

### RISK FACTORS FOR HIV IN PATIENTS SEEKING OUT RAPID TESTING AT MONTRÉAL'S CLINIQUE L'ACTUEL

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**Montréal, QC**

**INTRODUCTION:** It was estimated in 2005 that 13% of men who have sex with men (MSM) in Montréal were HIV-positive, and that 23% of these were not aware of their diagnosis. Clinique l'Actuel introduced a pilot rapid HIV testing program targeting high risk individuals in 2008 in order to improve access to HIV testing called Fais-toi testé (FTT).
**OBJECTIVE:** Describe the sexual HIV risk profile of individuals seeking out HIV testing through the FTT pilot program.
**METHODS:** Rapid HIV-tests offered through dedicated clinics were widely advertised in Montréal's MSM community. Patients calling for testing deemed at high risk were given appointments within 2 weeks, where they filled out a short questionnaire, received medical consultation routine STI screening, pre- and post-test counselling and their HIV test results within the hour. Ongoing support, care, and treatment were offered to those testing positive.
**RESULTS:** Over 9 months 2500 received HIV testing. 98% were men and median age was 34 (IQR=26-41). 45% did not test regularly (i.e. annually). When asked the following reasons were reported: they did not feel they were at risk (35%), they were in a monogamous relationship (30%), they forgot (25%), or they were afraid of a positive result (20%). 2% (n=47) were found to be HIV positive. HIV+ patients, compared to those who tested negative, were more frequently reported: sexual contacts in saunas (63% vs 39%, p=0.005), previous gonorrhea (39% vs 24%, p=0.041), previous herpes (15% vs 6%, p=0.057, and previous syphilis (11% vs 3%, p=0.058).
**CONCLUSION:** Facilitated access to rapid HIV testing can increase uptake in high-risk patients. This may increase early HIV diagnosis and intervention to decrease transmission.

## O064

### PERINATAL HIV THERAPY AND VERTICAL TRANSMISSION IN ABORIGINAL MOTHER-INFANT PAIRS LIVING IN CANADA: DATA FROM THE CANADIAN PERINATAL HIV SURVEILLANCE PROGRAM (CPHSP) 1997-2008

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**OBJECTIVE:** To describe and compare the geographic distribution, associated injection drug use (IDU), combination antiretroviral therapy in pregnancy (HAART) and vertical transmission rates of HIV infected Aboriginal mother-infant pairs (MIP) to non-aboriginal MIP living in Canada.

**METHODS:** CPHSP prospectively collects data annually on children born to HIV+ mothers from 21 pediatric sites across Canada, including maternal demographics, antiretroviral treatment and infant outcome. Data website and analysis was managed by Canadian HIV Trials Network. Cumulative data from 1997 was analyzed as HAART was routinely offered in pregnancy from that date.

**RESULTS:** From 1997-2008, the vertical transmission rate was 3.5% in the total cohort (N=1857) compared to 0.7% in HAART treated MIP (N=1269). 18.3% (N=341) were aboriginal women of whom 67% were from Prairie Provinces (Alberta, Saskatchewan, Manitoba). Injection drug use was described in 56% of aboriginal MIP compared to 14% of the non-aboriginal cohort. HAART uptake and vertical transmission rate for aboriginal MIP were 55% and 5.6%, respectively, compared to 71% and 3.1% for non-aboriginal MIP. 79% (N=179) of the aboriginal MIP from Prairie Provinces were diagnosed after 2002; in this subgroup 61% had a history of IDU, only 57% received HAART and the vertical transmission rate was 6.6%.

**CONCLUSIONS:** HIV infected aboriginal women are over-represented nationally and in particular in the Prairies. Aboriginal MIP in Canada have higher rates of IDU use, are less likely to receive HAART and have higher rates of vertical transmission compared to non-aboriginal MIP. These trends were more pronounced in the Prairies. Improved strategies for HIV testing and access to care and treatment for pregnant aboriginal women should be a high priority, particularly in the Prairie Provinces.

# Methodologies to Ensure Accurate Epidemiology

## O065

### THE CEDAR PROJECT: OVER-TIME TRENDS IN HEALTH OUTCOMES ASSOCIATED WITH CHILDHOOD SEXUAL ABUSE AMONG YOUNG ABORIGINAL MEN AND WOMEN WHO USE DRUGS IN TWO CANADIAN CITIES

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**[1]Vancouver; [2]North Saanich, BC**

**OBJECTIVES:** To describe outcomes related to childhood sexual abuse between ages 0-15 (CSA) among young Aboriginal men and women who use drugs over a five-year study period.

**METHODS:** The Cedar Project is an ongoing prospective study of young Aboriginal people in Vancouver and Prince George who use injection and non-injection drugs. This analysis included data from October 2003-July 2007. Venous blood samples tested for HIV and HCV antibodies. Generalized estimating equation (GEE) models investigated the effect of antecedent CSA on a priori health and social outcomes while adjusting for demographic and historical trauma factors. Separate models were carried out for men and women. Unadjusted and adjusted odds ratios (OR) and 95% confidence intervals (CI) were calculated.

**RESULTS:** In total, 264 (43.6%) of 605 participants enrolled at baseline reported that they had experienced CSA, 61.6% of which were women. Overall, 292 women contributed 978 observations and 313 men contributed 938 observations over the study period. The average age of first experiencing CSA was 6. In univariable analysis: women who had experienced CSA were more likely to report sexual assault (UOR: 6.12; 95%CI: 2.48-15.10), to inject cocaine daily (UOR: 1.45, 95%CI: 1.01-2.10) and to be HIV positive (UOR: 1.15, 95%CI: 1.08-1.22); men were more likely to be HIV positive (UOR: 1.10; 95%CI: 1.04-1.17) and HCV positive (UOR: 1.78; 95%CI: 1.06-3.00). In multivariable analysis: women who had experienced CSA were more likely to report recent sexual assault (AOR: 6.17; 95%CI: 2.4-15.84) and men were more likely to report sex work (AOR: 2.40; 95%CI: 0.98-5.91) and sexually transmitted infections (AOR: 2.96, 95%CI: 1.36-6.44) over the study period.

**CONCLUSION:** The risk of sexual vulnerabilities and HIV and HCV infection among young at-risk Aboriginal people who have experienced CSA is distressing. Meaningfully addressing CSA in this population requires community based, client-driven healing programs that incorporate traditional and western approaches.

## O066

### VITAL STATISTIC ESTIMATES MAY SIGNIFICANTLY UNDERREPORT HIV/AIDS MORTALITY: FINDINGS FROM A CANADIAN COHORT STUDY

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**Vancouver, BC**

**OBJECTIVE:** To characterize proportion of HIV+ deceased patients with HIV/AIDS listed on their death record and patient characteristics and causes of death associated with having HIV/AIDS listed as an underlying cause of death.

**METHODS:** The HAART Observational Medical Evaluation and Research (HOMER) cohort is population-based sample of people aged 19 years and over who initiated HAART in BC between August 1, 1996 and September 30, 2006. Data on deaths were obtained through annual linkages with the BC's Vitals Statistics Agency death registry and clinical and patient characteristics (gender, age, CD4 cell count, ethnicity, and physician experience) were from the HIV/AIDS Drug Treatment Program. In multivariate analysis, a backward stepwise technique was used in variable selection.

**RESULTS:** 613 (126 female and 487 male) HIV+ deaths were observed and 381 (62%) reported HIV/AIDS as an underlying cause of death. A total of 1,848 causes of death were listed. The number of causes listed per record ranged from 1 to 8 with a median of 3 (IQR: 2-4). The most common causes of death were HIV/AIDS [n = 470 (77%)], other comorbid infectious diseases [n = 151 (25%)], hepatitis [n = 135 (22%)], heart disease [n = 124 (20%)], abnormal findings [n = 121 (20%)], pneumonia [n = 113 (18%)], injury and poisoning [n = 103 (17%)], digestive system diseases [n = 104 (17%)], and cancer [n = 100 (16%)]. In multivariate analysis, patients whose underlying cause of death was HIV/AIDS were more likely to be those with lower CD4 counts [OR=1.4(95%CI: 1.2-1.6) per 100 cells/mm3 decrease], other comorbid infectious diseases [OR=4.5(95%CI: 2.2-9.0), nervous system problems [OR=2.9(95%CI: 1.2-7.0)], and without heart disease [OR=0.2(95%CI:0.1-0.4)], digestive system diseases [OR=0.3(95%CI:0.2-0.6)], and drug dependency [OR=0.4(95%CI:0.2-0.7)].

**CONCLUSION:** Of the 613 HIV+ deaths recorded in HOMER, 38% do report HIV/AIDS as underlying cause of death and 23% do not record HIV/AIDS anywhere on the death record. HIV+ deaths at low CD4s were more likely to be attributable to HIV/AIDS.

## O067

### LESSONS LEARNED FROM RESPONDENT-DRIVEN SAMPLING IMPLEMENTATION: TRANS PULSE PROJECT

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**[1]London; [2]Aylmer; [3]Waterloo; [4]Toronto, ON**

**BACKGROUND:** Respondent-driven sampling (RDS) provides an attractive option for sampling "hidden populations" and calculating valid statistics for networked communities. A newer method, it remains difficult

to strategize around recruitment initiation, incentives, anonymity, data collection modes, and recruitment promotion.
**APPROACH:** Modifications to "standard" RDS were implemented in a multi-mode RDS survey of trans people in Ontario. The 90-minute survey can be completed online, via paper-and-pencil, or by telephone. Due to anonymity concerns, a third-party company was contracted to dispense $20 honoraria. Secondary incentives are not used, to preserve anonymity and since high levels of enthusiasm appeared to negate their necessity. In the absence of guidelines for optimizing the number of initial participants, the 16-person Community Engagement Team served as seeds.
**FINDINGS:** The third-party honorarium process proved cumbersome and anonymity concerns appeared lower than expected. While recruitment has progressed at an acceptable pace, secondary incentives and a shorter survey may have accelerated it. Eagerness to participate resulted in minor tensions with some participants wishing to fill out the survey; concerns over inclusion of underrepresented groups led others to circumvent the RDS recruitment process. Periodic re-seeding occurred once 4-5 waves of participants had been recruited. The multi-mode survey format proved a viable option, though online RDS required original software programming. As online participants have no direct contact with the research team, promotional materials were directed to trans community broadly. RDS use involved an ongoing process of adjusting strategy and promotion. The importance of local community leaders' understanding of the process and promotion has been crucial.
**CONCLUSION:** RDS remains one of the only methods to obtain statistically valid estimates in hidden populations, but it can be challenging to implement. Detailed understanding of the community, thoughtful advance strategizing, and a responsive approach to implementation are required to allow for the process to occur properly.

## O068

### THE BLACK, AFRICAN AND CARIBBEAN CANADIAN HEALTH (BLACCH) STUDY: LAYING THE FOUNDATION FOR CONDUCTING HIV EPIDEMIOLOGIC STUDIES WITH ETHNO-RACIAL MINORITY COMMUNITIES IN UNDERSTUDIED URBAN-RURAL LOCALES

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**CHALLENGE:** London reportedly has Ontario's third-highest HIV infection rate, and a small (2.2%) but growing African, Caribbean and other Black (ACB) population. These diverse communities historically faced racism, exploitation and social exclusion, which have lasting impacts. Although a target population for HIV prevention, they are difficult to reach for research and programming, especially in London and similar urban-rural locales with few ACB-specific resources. In ACB communities, HIV is most commonly spread through heterosexual contact, yet cultural and religious norms often discourage discussions about sex and sexuality, whether normative or non-normative. Homophobia, racism and HIV-related stigma discourage ACB persons from seeking information about HIV/AIDS. Additionally, few local researchers have worked with ACB communities; service providers are seldom researchers; trust is lacking between ACB communities and service providers; and there are inter- and intra-ethnic separations in ACB communities.
**APPROACH:** The Black, African and Caribbean Canadian Health Study is an interdisciplinary, mixed-methods, community-based epidemiologic project about health and HIV in London's ACB communities. This project involved: networking with ACB community members, service providers, and academic researchers; learning about ACB communities through semi-ethnographic work; immersing a multi-disciplinary team in health research; and interviewing community members and service providers. Team members represent AIDS service organizations, a settlement agency serving ethno-racial minority communities, and a university. ACB persons comprise over half of the research team.
**DISCUSSION:** Community-based research is unusual in epidemiology but necessary for conducting good-quality epidemiologic studies in communities like London's ACB communities. It helps build capacities of service providers, community members and academic researchers to undertake research. Taking our approach, we identified: relevant epidemiologic survey topics; methods for recruiting respondents; and appropriate question formats. The team was able to: build relationships with community members and service providers; promote the project; identify individuals to help recruit respondents; and learn about norms in different communities.

## O069

### FACTORS ASSOCIATED WITH HIV TESTING AMONG MEN WHO HAVE SEX WITH MEN (MSM): RESULTS FROM A NATIONAL ENHANCED HIV SURVEILLANCE SYSTEM

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**OBJECTIVE:** To identify the socio-demographic and behavioural correlates of HIV testing in a sample of MSM.
**METHODS:** M-Track is an enhanced surveillance system that tracks HIV, HCV and syphilis, and associated risk behaviours among MSM in Canada. Participants were recruited through venue-based convenience sampling (Phase 1, 2005-2007, five sentinel sites) and completed a self-administered questionnaire asking about demographics, sexual and testing behaviours. A blood sample was collected for HIV, HCV and syphilis testing. Multivariable logistic regression was used to estimate the correlates of HIV testing. Only statistically significant findings are presented [adjusted OR (95%CI].
**RESULTS:** Of 4,486 eligible participants, 3,869 (86.2%) reported ever being tested for HIV. Among never-testers who provided a blood sample, 4.8% tested HIV positive. The primary reason reported for never testing for HIV was "low risk for HIV infection" (48.5%). In the final adjusted model, the odds of ever having been tested were higher for MSM: aged 30-49 years [3.58 (2.86-4.49)] and 50+ years [1.97 (1.51-2.57)] compared to those aged 16-29 years; with personal incomes of $10,000-$29,000 and $30,000+ per year compared to those with personal incomes less than $10,000 per year [1.35 (1.02-1.78) and 1.66 (1.26-2.18), respectively]; who ever versus never injected drugs [1.69 (1.16-2.47)]; with multiple sex partners versus none in the past 6 months [1.87 (1.40-2.50), 2.21 (1.67-2.93) and 3.59 (2.64-4.87)] for 1 partner, 2-5 partners and more than 5 partners respectively (test for trend: $P < 0.01$).
**CONCLUSION:** In this sample of MSM, 13.8% of men had never been tested for HIV. Current testing recommendations regarding HIV testing for men with multiple partners, other risks (drug injection) appear to be working. Information generated from this analysis could serve to improve HIV testing uptake in the lower tested subpopulation (younger age, with lower income) of MSM.

# Risk, Intervention, and Prevention – Populations

## O071

### THE YOUTH INJECTION PREVENTION (YIP) PROJECT: AT-RISK YOUTH SHARE PERSPECTIVES WITH YOUTH CO-RESEARCHERS ON PREVENTING THE TRANSITION INTO INJECTION DRUG USE

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From 2002 to 2008, 30.06% of newly diagnosed HIV cases in BC identified injection drug use (IDU) as the major risk factor; with 19.8% of all HIV cases reported in persons aged 15-29 years. Preventing the transition into IDU is critical among this population. The Youth Injection Prevention (YIP) Project is a collaborative study between the UBC School of Population and Public Health, UBC School of Nursing, BC Centre for Disease Control, community partners and youth co-researchers that focuses on identifying resiliency factors associated with preventing the transition into IDU among at-risk street-involved youth aged 15-24 years in Metro Vancouver, British Columbia. Preliminary results from twenty

in-depth interviews and ten focus groups conducted with non-injecting and injecting at-risk street-involved youth will be presented. Domain analysis conducted to date has identified the following main threads: 1) factors that influence why youth choose not to inject; 2) factors that influence why youth stop injecting and; 3) recommendations for prevention services. Factors that influence youth to choose not to inject include: effects on behaviour and physical appearance, fear of needles, fear of negative health consequences, not knowing how to inject, parental injection drug use, social stigma and willpower. Factors that influence youth that have transitioned to stop injecting include: effects on behaviour and physical appearance, economics, experience of health consequences, housing, negative injection experiences, responsibility for others, social stigma, support and wanting a better life. Recommendations for prevention services include: public health campaigns highlighting available youth services, early school-based IDU education, low-barrier services, peer outreach with experiential youth, recreational activities and youth-friendly safe spaces. It is anticipated that the results of this study will inform community-level, evidence-based, youth-driven intervention strategies that intend to prevent the transition into IDU and/or reduce the harms associated with IDU, while promoting resiliency among at-risk youth.

## O072

### USING ART TO EDUCATE THE YOUTH AND OPEN-UP A DIALOGUE RE: HIV/AIDS IN THE ETHIOPIAN-CANADIAN COMMUNITY

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**SUMMARY:** Ethiopia is one of the countries listed as HIV endemic countries by PHAC. Ethiopian Canadian youth are at a higher risk of contracting HIV/AIDS due to multiple marginalization issues. In response to the increased need to educate the community about HIV/AIDS, People to People (P2P) Canada, (a population specific ASO), has been running a Youth Festival for the past 6 years. Its Youth leadership program targets youth between the ages of 14 and 25 and aims to raise awareness about HIV/AIDS and relies heavily on art and performance as an education tool.

**OBJECTIVE:** The Ethiopian youth experience multiple forms of marginalization including cultural and language barriers that prevents them from acquiring prevention and care information like other Canadians in the same age group. The youth leadership program's objective is to facilitate dialogue about HIV/AIDS and to minimize the risk of transmission among youth by providing sound transmission and prevention information.

**METHODS:** 15 youth (14 – 25 years) are recruited annually to attend the P2P youth leadership program. There is a 10 week mandatory training on risk, transmission, and prevention issues. Once the training is completed, the youth with the help of a theatre director work on play themes that carry HIV/AIDS Education messages. Poems, skits, songs, and dances reflect on issues that affect Ethio-Canadian youth including generation gap, identity Crisis, substance use, teenage pregnancy, and school dropout that increase youth vulnerability to HIV/AIDS. At the end of the program, the youth would perform at the Youth Festival organized by P2P.

**RESULTS:** Survey questionnaires and focus groups that were conducted among participating youth and the festival attendees indicate the program has been effective in raising awarenessand in combating stigma associated with HIV/AIDS.

**CONCLUSION:** Art and Performance found to be very effective tools to promote culturally appropriate messages about HIV/AIDS and to build the capacity of the Ethiopian Canadian youth. This program has mainly resulted in increased confidence and facilitated dialogue about HIV/AIDS, safer sex negotiation, and gender equality in the wider community.

## O073

### MOTHERS AND FATHERS: PERSPECTIVES ON PARENTING IN THE CONTEXT OF HIV/AIDS

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Although there is considerable research on, and concern for the role of mother-to-child transmission in the overall profile of HIV/AIDS in Canada (and elsewhere), there is very little comparable interest or concern regarding what it means to be a mother or father in the context of the epidemic. Models of reproductive health tend to restrict mothers to pregnant or breastfeeding women, while fathers remain virtually invisible. This paper provides an overview of an ongoing ethnographic and narrative-based study that involves 49 Aboriginal and non-Aboriginal men and women in Saskatoon, Saskatchewan, who are at risk for, or currently living with HIV and/or Hepatitis-C. The primary aim of this study is to broaden the focus on parenthood and HIV/AIDS by considering the lived experiences of the participants. This presentation will focus on three aspects of the study. First, the community partnership with AIDS Saskatoon will be considered in light of CIHR's model of community-based research. Second, a discussion of how HIV is embedded within broader experiences of motherhood, fatherhood, and caregiving as described and visually represented by the participants will be provided. And finally, the relevance of this research to broader models of maternal health and intergenerational care in the context of HIV/AIDS will be offered.

## O074

### RESOURCEFUL COMMUNITIES OR AT-RISK POPULATIONS? CONCEPTUALIZING HIV PREVENTION FOR AFRICAN, CARIBBEAN AND BLACK GAY AND BISEXUAL MEN IN TORONTO

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Canadian discourses on health and wellbeing construct certain population groups as necessarily "at-risk". African, Caribbean and Black (ACB) people in Toronto and throughout Ontario, including gay and bisexual men, are considered "at-risk" for HIV based on epidemiologic trends and behaviours that contribute to the spread of HIV. However, ACB populations are also considered "at risk" in relation to the social determinants of health, continued social oppression and marginalization, and cultural norms that may promote risky behaviours. This focus on individual and group deficits or stresses informs how health promotion and HIV prevention efforts are conceptualized.

Data from the MaBwana Black Men's Study of vulnerability to HIV among ACB gay and bisexual men demonstrate the salience of vulnerabilities and deficits, but also shed light on community strengths and assets that are instrumental to productively engaging gay and bisexual men in HIV prevention efforts. MaBwana was implemented in Toronto in 2006-2009. A purposive sample of 168 ACB gay and bisexual men was recruited for the MaBwana survey, and 24 men participated in semi-structured interviews. Participants acknowledged their experience of social oppression, the disproportionate effect of HIV on their communities, and their failure to maintain safer sex practices especially when circumstances challenge their commitment. However, MaBwana participants were also well informed; strongly committed to HIV testing; morally and practically invested in safer sex; engaged with their communities; motivated by concern for their own health and the well-being of their communities; aware of the challenge that HIV poses, and involved in (or conscious of the need for) an organized community response. They interpret themselves as agents of resistance to HIV, rather than merely as victims of a stressful environment. These assets and strengths are instrumental to survival in the short term, but also demonstrate resourcefulness for transcending the stresses and deficits signified in "at-risk".

## O075

### STICKING TO IT: THE EFFECT OF MEDICATION SUPPORT SERVICES ON THE ASSOCIATION BETWEEN HOUSING AND ADHERENCE AMONG A COHORT OF UNSTABLY HOUSED PEOPLE LIVING WITH HIV/AIDS (PLWHA) ACCESSING HAART

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**BACKGROUND:** Unstable housing is associated with poor health outcomes. Corroborating previous studies on the housing-health nexus, we found that unstable housing is inversely associated with HAART

adherence within the Longitudinal Investigations into Supportive and Ancillary health services (LISA) cohort. This study evaluated the efficacy of adherence support programs for unstably housed PLWHA.

**METHODS:** The LISA cohort is a prospective study of persons on HAART in BC. Interviewer-administered surveys collect information regarding housing, income, medication support and other clinically relevant socio-demographic factors. Clinical variables, such as CD4 count and viral load, are obtained through linkages with the Drug Treatment Program (DTP) at the British Columbia Centre for Excellence in HIV/AIDS. In order to determine the relationship between use of medication support and adherence for unstably housed LISA participants (n=132, 34%), logistic regression was used with adherence (≥95% vs. <95%) as the outcome.

**RESULTS:** This analysis is based on 457 interviews, of which the DTP reports optimal adherence [≥95% 12 month refill] for 221 (57%) individuals. After adjusting for injection drug use and viral load, we found that unstably housed participants who use medication support were 3.5 times more likely to be ≥95% adherent [95% Confidence Interval 1.25-9.52, p=0.017] than those who did not. Other factors associated with optimal adherence included not being a current injection drug user and being virally suppressed.

**CONCLUSION:** The comprehensive programs that have emerged in Vancouver's downtown eastside to fill the housing gap for unstably housed PLWHA provide a model for other urban centers plagued with concurrent and interrelated adherence barriers: high risk drug use, mental health disorders, commercial sex work and homelessness. Our findings suggest a need for structured collaboration between pharmacies and transitional housing services to coordinate medication dispensation and other medical service provision for PLWHA living in shelters and single room occupancy hotels.

## O076

### LABOUR FORCE PARTICIPATION IMPROVES HEALTH-RELATED QUALITY OF LIFE IN MEN WHO HAVE SEX WITH MEN LIVING WITH HIV: THE MULTICENTER AIDS COHORT STUDY

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**OBJECTIVE:** To determine the effect of employment status on health-related quality of life in HIV.

**METHODS:** The Multicenter AIDS Cohort Study (MACS) is an ongoing longitudinal observational study designed to assess the natural and treated history of HIV disease among men who have sex with men (MSM) in the United States. Participants provided longitudinal data on health-related quality of life (SF-36), sociodemographic status (age, education, ethnicity, income, employment status), individual risk factors (injection drug use, drinking pattern, smoking status), biological markers (CD4 counts, viral load), HIV-related medication use (health insurance coverage, type of antiretroviral therapy), clinical outcome indicators (HIV-related symptoms, hospitalization), and social support. We fitted Generalized Estimating Equations (GEE) models, controlling for potential confounders.

**RESULTS:** The study sample included over 1,500 participants: 58% non-Hispanic white, 63% employed, with a mean age of 41 years and 15 years of education. The observation period spanned 10 years with biannual visits. Participants contributed data for a median of 6 visits (IQR=4-14). The employment groups consisted of 41% continuously employed, 4% return to work, 21% intermittent employment, 9% job loss, and 25% continuously unemployed. GEE modeling showed that employment improved physical health quality of life scores by 3.13 points on a 100-point scale (95% CI 2.46 to 3.80), after controlling for age, income, CD4 counts, antiretroviral therapy, HIV-related symptoms and hospitalizations. Employment status also improved mental health quality of life scores by 2.55 points (95% CI 1.87 to 3.24), after controlling for age, smoking status, HIV-related symptoms and social support.

**CONCLUSION:** Among MSM living with HIV, labour market participation improved health-related quality of life independent of antiretroviral therapy.

# Pathogenesis and Cell Biology of HIV Infection and Co-infection

## O077

### HIV-1-RESISTANT SEX WORKERS OVEREXPRESS NOVEL ANTIPROTEASES AND ANTIVIRAL FACTORS IN THEIR CERVICAL MUCOSA. PROTECTIVE MILIEU AGAINST HIV-1 INFECTION?

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Our group has been trying to answer the riddle of HIV-1-resistance in a group of women belonging to the Punwami commercial sex worker cohort from Kenya. Our hypothesis is that mucosal factors are playing a role as previously described resistance mechanisms have been discounted, such as Δ-32-CCR5 polymorphisms. Initial studies of genital mucosa of HIV-1-resistant women indicate they secrete antiproteases at higher amounts than women who become infected (Burgener, 2008). We have expanded this dataset in a more comprehensive manner on a greater number of individuals and have confirmed the differential expression of these proteins.

**RESULTS:** Cervical lavage fluid (CVL) was collected from 566 women including 128 HIV-1-resistant, 220 HIV-1 uninfected, and 184 HIV-1 infected sex workers, as well as 34 HIV-1 uninfected low risk controls (non-sex workers). CVL protein (250μg) from each individual analyzed both independently by SELDI-TOF MS and as pooled groups by 2D-LC-FTICR MS. Of the more than 350 unique proteins identified 29 proteins were found to be differentially expressed (> 2-fold cutoff) between HIV-1-resistant women and controls, some > 2-log fold change in abundance. The majority of the overexpressed proteins were anti-proteases (>50%) as well as innate immune factors, some of which with known anti-HIV-1 activity, including those previously described. SELDI-TOF analysis confirmed the overexpression of specific antiproteases (p=2.2 x 10-8). Underexpressed proteins in HIV-1-resistant women included inflammatory proteases and immune response factors. Western blots on the pooled and individual CVL samples have confirmed this data. Correlation of specific antiprotease levels to epidemiological data is currently being investigated.

**CONCLUSION:** Our hypothesis is that these antiproteases might contribute, alone or in combination, to a natural protective environment against HIV-1-infection in the female genital tract. This is supported by their known biological functions in vivo which include subduing inflammation and immune cell migration, aiding in wound repair, and having anti-HIV-1 activity. Their potential role in HIV-1-resistance will be discussed. Understanding this mechanism could aid in the development of effective microbicide formulations and/or vaccines against HIV-1.

## O078

### INTERACTION OF HIV-1 INTEGRASE WITH IMPORTIN α3 AND ITS ROLE IN HIV-1 NUCLEAR IMPORT

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**INTRODUCTION:** HIV-1 can infect dividing $CD4^+$ T-lymphocytes as well as non-dividing macrophages, dendritic cells and resting $CD4^+$ T-lymphocytes. Active nuclear import by hijacking host nuclear import machinery underlines its non-dividing and dividing cell infection. Accumulated studies have suggested that the HIV-1 is able to recruit various import receptors (Importins) to facilitate its nuclear import. However, role of so far identified importins in HIV-1 nuclear import is still controversial. Hence, it suggests that some unidentified yet cellular factors may be playing an important role in HIV-1 nuclear import. In the present study, we have identified a novel interaction of HIV-1 Integrase (IN) with Impα3, a member of Impα family of adopter proteins, and its crucial role in HIV-1 nuclear import.

**METHODS AND RESULTS:** By using in-vitro pull-down assay and cell-based co-immunoprecipitation method in 293T cells and HIV-1 infected cells, we have identified a direct interaction between IN and Impα3 and deletion analysis revealed that a region (aa 250-288) within C-terminal

domain of IN is required for this viral-cellular protein interaction. By employing lentiviral vector expressing short hairpin RNA (ShRNA) against Impα3, we knockdown (KD) Impα3 in dividing C8166T, HeLa cells and non-dividing monocyte-derived macrophages (MDM). The HIV-1 replication in Impα3 KD cells was significantly down-regulated. Also, a similar pattern of HIV replication using HIV-1 without Viral protein R (Vpr) was observed in Impα3 KD MDM. The possible effect of Impα3 on late stage HIV-1 replication (post integration) was ruled out as there was no inhibition in HIV-1 gene expression when pNL4.3/$E^-$/$R^-$/$luc^+$ provirus transfected into Impα3 KD cells. The total and 2LTR circle DNA from HIV-1 infected Impα3 KD $CD4^+$T cells was quantified by using QPCR. There was a significant reduction in 2LTR but not the total viral DNA; indicating defective nuclear import.

**CONCLUSION:** During HIV-1 infection, Impα3 is recruited through interaction with IN and this viral/cellular protein interaction contributes significantly to HIV-1 replication by affecting nuclear import.

## O079

### TELOMERE LENGTH MEASUREMENT IN FRESH AND FROZEN CORD BLOOD AND PLACENTA BY QUANTITATIVE PCR: COMPARISON WITH OTHER METHODS

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**BACKGROUND:** Telomere shortening occurs with each cell division and is associated with aging. Zidovudine (ZDV) inhibits telomerase (the enzyme responsible for telomeric DNA elongation) and accelerates telomere shortening. ZDV is routinely used in HIV-infected pregnant women and may have effects on the fetus that are unknown. As a component of an investigation into the effects of ART among pregnant women and their infants, we compared qPCR with other established methods of ATL measurement, to establish its accuracy. The qPCR method has the advantage that it may be applied to archived blood samples (dried blood spot or frozen blood) with no specific processing as well as solid tissues.

**METHODS:** We measured rATL by qPCR in whole cord blood (CB) samples (N=80) and placenta tissue (N=91) collected within 2 hours of delivery, as part of a prospective cohort study of HIV-infected and uninfected pregnant women. Absolute lymphocyte ATL was also determined in a subset (N=25) of fresh CB samples by Flow-Cytometry-Fluorescence-in situ-hybridization (Flow-FISH). Placenta ATL was also estimated by telomere restriction fragment (TRF) assay (N=5). The qPCR rATL intra- and inter-assay coefficients of variation were ~5% and ~12%.

**RESULTS:** The CB qPCR rATL was highly correlated with that measured by Flow-FISH (N=25, $R^2$=0.827, p<0.0001). Although the qPCR assay measured whole blood rATL while Flow-FISH measured absolute lymphocyte ATL, the following equation can guide the estimation of absolute CB ATL = 1.11(rATL) + 5.376 kb. For 5 placenta samples assayed by Southern Blot TRF, the ranking was in full agreement with that obtained by qPCR.

**CONCLUSIONS:** Taken together, these results indicate that qPCR rATL measurement is a reliable and high throughput method that allows the use of small archived samples (frozen tissue or as little as 80 µL of blood) while other methods typically require >1 mL. This should facilitate telomere studies in neonates and other settings, where available clinical samples are often of limited size, archived dried or frozen.

## O080

### HOST PROTEIN KU70 INTERACTS WITH HIV-1 INTEGRASE AND PROTECTS IT FROM PROTEASOMAL DEGRADATION

**Y Zheng, B Wang, K Danappa Jayappa, Z Ao, X Yao**
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**BACKGROUND:** HIV-1 integrase (IN) is a key viral protein which is able to act with various host cofactors to assist in HIV-1 replication steps; including nuclear import, chromatin targeting and viral DNA integration. Presently, there is a great interest to study how HIV-1 IN acts on these viral steps to manipulate cellular factors during HIV-1 replication. As a major DNA repair protein, Ku70 has been implicated in DNA repair, chromatin targeting and modulating proteasomal degradation pathway. However, if these activities of Ku have a role during HIV replication remains unclear. In this study, we have investigated whether Ku70 is hijacked by HIV-1, especially IN to facilitate viral infection.

**METHODS AND RESULTS:** To test whether HIV-1 recruits Ku70 during HIV-1 infection, their interaction was analyzed by co-immunoprecipitation in IN and Ku70 cotransfected 293T cells and HIV-1 infected C8166 T cells, and results indicate that their interaction occurs during viral infection. The C-terminal of IN was shown to be involved by mutagenesis study, while N-terminal of Ku70 is critical for IN binding. Meanwhile, their interaction is independent of heterodimerization of Ku70/80 as Ku70 1-430 deletion mutant lost Ku80 binding but retains the interaction with IN. Moreover, we further demonstrated that Ku70 was able to protect IN from proteasomal degradation. IN level was affected in the presence and absence of Ku70, and a significantly reduced IN expression was observed in RNAi-mediated Ku70 knockdown cells. Such effect was reversed by proteasome inhibitor MG-132 treatment. Remarkably, Ku70 knockdown HeLa cells exhibited a significant inhibition of HIV-1 infection but not MoMLV in the luciferase-based infection assay.

**CONCLUSION:** This report firstly demonstrated the importance of IN/Ku70 interaction on HIV-1 infection. Further studies will help to better understand the interplay of IN with Ku70 during viral infection and it is possible that their interaction could be a new target for anti-HIV strategy aimed to inhibit HIV-1 replication.

## O081

### TRANSCRIPTIONAL REGULATION OF THE CD127 GENE IN CD8 T-CELLS

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**BACKGROUND:** We have previously demonstrated that expression of the IL-7 receptor alpha-chain (CD127) is suppressed on CD8 T-cells in HIV+ patients and that this down regulation is mediated by both the HIV Tat protein and IL-7. The mechanisms by which IL-7 alone down-regulates expression of CD127 have not yet been fully characterized but appear to occur at multiple levels. We show here that IL-7 down-regulates the level of CD127 transcripts and hypothesize that this occurs by inducing a transcriptional repressor.

**METHODS:** CD8 T-cells from healthy HIV-negative adult volunteers were treated with IL-7 (0.1-10 ng/ml) for 3-72 hours. CD127, Notch-1 and Gfi-1 mRNA transcript levels in treated cells were compared to untreated controls by qPCR normalizing to 18S expression. Effects of cycloheximide on IL-7-mediated CD127 down-regulation was also examined by flow cytometry.

**RESULTS:** IL-7 down-regulates CD127 transcripts in a time- and dose-dependent manner, and high and sustained levels of IL-7 (10 ng/ml) are required to maintain suppression. Whereas Notch-1 has been shown to positively regulate CD127 expression, we found IL-7 has no effect on Notch-1 mRNA suggesting CD127 down-regulation by IL-7 does not occur by suppressing Notch-1. Conversely, IL-7 suppression of CD127 transcripts was dependent on JAK kinase activity, and Actinomycin D or cycloheximide blocked IL-7's ability to down regulate CD127 mRNA. Taken together these data indicate activation of JAK kinase through the IL-7 receptor stimulates the de novo synthesis of a transcriptional repressor which in turn down regulates CD127 gene transcription. Growth Factor Independent (Gfi)-1, has been implicated in suppression of CD127 expression and we are currently investigating whether this transcriptional repressor plays a role in IL-7 signal transduction in CD8 T-cells.

**CONCLUSION:** IL-7 appears to down regulate CD127 expression in CD8 T-cells at the level of both mRNA and protein. By binding to its receptor, IL-7 activates JAK kinase which, presumably through STAT5, up regulates expression of a transcriptional repressor which in turn suppresses CD127 gene transcription. What role if any Gfi-1 plays in this process requires further investigation.

## O082

### SOLUBLE CD127 DECREASES IL-7 ACTIVITY AND IS INCREASED IN HIV INFECTION

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**BACKGROUND:** Expression of IL-7R alpha (CD127) is decreased on CD8+ T-cells in chronic viral infections (HIV, HCV, CMV, EBV) and in breast cancer and may play a role in disease pathogenesis. A soluble form of CD127 (sCD127) is secreted by $CD8^+$ T-cells in response to IL-7. This is of particular significance in HIV infection when IL-7 production is increased. The function of sCD127 and whether it influences IL-7 bioavailability or activity is unknown.

**METHODS:** The effect of sCD127 on IL-7-related activities (P-STAT5, P-Akt, Bcl-2, proliferation) was assessed by incubating recombinant or native forms of sCD127 with IL-7 and then culturing this mixture with isolated CD8+ T-cells. Human plasma samples from which sCD127 was depleted by affinity chromatography were pre-incubated with IL-7, cultured with CD8+ T-cells and then P-STAT5 expression was evaluated. Plasma sCD127 concentrations of HIV− and HIV+ individuals were measured using a CD127-specific immunoassay.

**RESULTS:** Recombinant and native sources of sCD127 significantly inhibited IL-7 signalling, proliferation and Bcl-2 expression in CD8+ T-cells in vitro. Anti-IL-7 activity (inhibition of IL-7-induced P-STAT5) was inherent to human plasma and was reversed by depletion of sCD127, suggesting that this function may be relevant in vivo. Plasma sCD127 concentrations were increased in HIV+ individuals compared to HIV− controls, correlated with plasma IL-7 levels and remained unchanged in HIV+ individuals following one year of effective antiretroviral therapy.

**CONCLUSIONS:** These data suggest that sCD127 may have a biologically relevant role in mediating IL-7 activity. Furthermore, sCD127 activity may contribute in part to decreased IL-7 activity and progressive loss of CD8+ T-cell function in HIV infection. Determining the regulation and function of sCD127 may be critical for understanding both the pathogenesis of diseases in which IL-7 likely has a role (eg. HIV infection, cancer) and its potential impact on IL-7 as a therapeutic approach.

## O083

### ISHAK-KNODELL (IK) PATHOLOGY SCORE, MITOCHONDRIAL DNA (MTDNA) CONTENT AND MITOCHONDRIAL GENE EXPRESSION (MT-MRNA) IN LIVER FROM PATIENTS CO-INFECTED WITH HIV AND HEPATITIS C VIRUS (HCV)

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**BACKGROUND:** Hepatic mitochondrial toxicity is a concern for HIV/HCV co-infected patients and may be associated with altered mitochondrial DNA (mtDNA) content and mitochondrial gene expression (mt-mRNA) due to viral effects or associated therapies. We investigated the relationships between liver biopsy Ishak-Knodell (IK) pathology scores, liver mtDNA and mt-mRNA levels, in patients ON and OFF-HAART.

**METHODS:** In this observational cohort study, HIV/HCV co-infected patients (N=34 ON-HAART; N=18 OFF-HAART) underwent a double liver biopsy during pre-HCV therapy assessment. IK scores were recorded from patient charts. MtDNA/nDNA and mt-mRNA/β-actin mRNA were quantified in the second biopsy sample by qPCR. Comparisons were performed using the Mann-Whitney test.

**RESULTS:** There was high inter-individual variability in mtDNA and mt-mRNA, notably in the ON-HAART group (CV=92 and 103% respectively vs. 59 and 62% for OFF-HAART). The ON and OFF-HAART groups did not differ significantly in median [IQR] IK score (N=32, 7.5[4.8-9.0] vs. N=16, 7.0[4.0-8.3], p=0.84), mtDNA content (N=32, 368[315-545] vs. N=18, 399[312-623], p=0.81) or mt-mRNA (N=24, 28[19-36] vs. N=15, 27[21-30], p=0.92). No differences were seen between ON-HAART patients on PI versus NNRTI with respect to IK scores (N=17, 8.0[4.0-9.0] vs. N=6, 6.0[4.3-8.5], p=0.74) or mtDNA (N=17, 391[305-538] vs. N=7, 320[242-394], p=0.19). However, mt-mRNA was higher in patients on PI compared to NNRTI (N=13, 34[26-39] vs. N=4, 17[15-20], p=0.015). Patients on D-drugs (d4T, ddI) versus other NRTIs did not differ in IK scores (N=6, 8.5[5.0-9.0] vs. N=24, 6.0[4.8-9.0], p=0.97), mtDNA (N=6, 357[302-502] vs. N=25, 370[320-625], p=0.68) or mt-mRNA (N=5, 35[21-39] vs. N=17, 27[20-34], p=0.54).

**CONCLUSIONS:** The lack of differences between the ON and OFF-HAART groups supports previous observations that HAART is not associated with increased hepatic mitochondrial toxicity amongst HIV/HCV co-infected patients. Although limited by small sample size, the results fail to associate drug classes (PI versus NNRTI; D-drug versus other NRTI) with toxicity. These findings may inform management of HIV/HCV co-infected patients.

# Vanquishing Vulnerability

## O084

### BONE HEALTH AND MUSCLE FORCE IN HIV-INFECTED CHILDREN AND ADOLESCENTS

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Osteoporosis is a common complication in HIV adults. Pediatric studies have been inconsistent with regards to bone health in HIV infected children; body composition and muscle force have rarely been studied.

**OBJECTIVE:** To determine the impact of HIV infection and treatment on height, bone mineral density (BMD/BMC) and body composition changes over a 3 year period among HIV-infected children. To compare bone health status and muscle force between HIV-infected and matched control HIV negative children.

**METHODS:** This study evaluates BMD, BMC and body composition changes over 3 years by DXA in 20 congenital HIV-infected children. Vitamin D status was assessed. Age- and gender-adjusted SDS and Z-scores were calculated for height, BMD and body composition. Bone status and Muscle force (using Leonardo platform and manual dynamometry) were evaluated in our 20 patients and compared to 20 control HIV negative children pared for age, gender, ethnic and pubertal status.

**RESULTS:** 20 HIV patients (10 boys) were evaluated. Median age was 13.9 years. Results are summarized in table 1 and expressed as median and range. Vitamin D deficiency was present in 3/20 patients. Height and lumbar BMD did not show any significant change in Z score over the 3 year period. Compared to their matched control, HIV-infected patients have lower volumetric bone mineral density and lower weight normalized muscle force (final results will be presented).

**CONCLUSION:** Growth and BMC accrual is regular over 3 years period in our cohort. However, HIV patients seem to present reduced BMD and muscle force compared to matched controls. Muscle force being a major factor for bone mass acquisition and resistance to fracture, long term follow-up of the muscle-bone unit should be mandatory in HIV children.

| | Patients (n=20) |
|---|---|
| Age (years) | 13.9 (8-17.9) |
| Age at beginning of therapy (y) | 2.6 (0-13) |
| Length of therapy (y) | 8.6 (7-16.3) |
| Height ** | –0.474 (–2.39/+1.90) |
| Δ Height** | –0.028 (–0.81/+0.8) |
| Weight ** | –0.084 (–1.45/+1.77) |
| BMI ** | 0.24 (–2.2/+2.6) |
| Δ BMC** | 0.115 (–1.6/+1.49) |
| BMDvol ** | 0.46 (–1.39/+2.05) |
| Δ BMDvol ** | 0.158 (–0.81/+1.38) |
| Δ BMC/LBM | 3.0 (–23.0/+67.0) |
| Δ LBM** | –0.156 (–2.14/+1.88) |
| Δ % Fat mass | 0.64 (–3.1/+2.29) |

** Z-score / SDS

## O085

### PERINATAL HIV TRANSMISSION AND DEMOGRAPHICS IN CANADA: DATA FROM THE CANADIAN PERINATAL HIV SURVEILLANCE PROGRAM (CPHSP)

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**OBJECTIVES:** To describe vertical transmission (VT) rates and demographic parameters of mother-infant pairs (MIP) in the Canadian perinatal HIV surveillance cohort.

**METHODS:** Maternal and infant data are collected annually from 21 pediatric sites across Canada. VT rates are obtained from the "perinatally identified cohort" defined as MIP identified prenatally or within 3 months of birth. Data are submitted via a secure web-based system and analyzed by the Canadian HIV Trials Network. Data gathered includes antiretroviral therapy, maternal characteristics, mode of delivery and infant outcome. Descriptive analysis of demographics, ART used and vertical transmission rates was undertaken.

**RESULTS:** Among 2366 MIP identified perinatally between 1990-2008, overall VT rates were 6.4%. In the HAART era (1997-2008), the overall VT rate was 3.5% (1857 MIP) but only 0.7% in MIP receiving HAART (1269 MIP, 68%). In 2008, 4 infants acquired the infection perinatally amongst the 240 MIP identified (VT 1.7%). Of the 87.8% of mothers who received HAART in 2008, there was no VT. 70% (N=168) of mothers had acquired HIV heterosexually and 16% (N=38) through IDU. 3 mothers acquired the infection perinatally. 56% (N=134) of the mothers were Black (mostly immigrants) and 14% (n=34) were Aboriginal. 34% of identified MIP were from Ontario, 25% from Quebec, 23% from the Prairies, and 13% from BC. The updated 2009 data will be presented.

**CONCLUSIONS:** Despite continued decreases in the overall VT rates, there are still Canadian born children who acquire HIV infection each year and 12% of identified mothers did not receive HAART in pregnancy. Demographic variations exist amongst MIP across the country with aboriginal and immigrant populations overrepresented throughout. Renewed efforts should be made to understand the factors that lead to "missed opportunities" to prevent mother-to-child transmission including barriers to HIV testing in pregnancy and optimal pre/peri and post natal care.

## O086

### BEHAVIOUR AND ATTITUDES IN HIV (BEAHIV): A NATIONAL SURVEY STUDY TO EXAMINE THE LEVEL OF AGREEMENT BETWEEN PHYSICIANS AND PATIENTS IN SYMPTOM REPORTING

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**BACKGROUND:** Management of antiretroviral (ARV)-related symptoms is a major challenge in the treatment of HIV infection, and uncensored reporting by the patient and subsequent acknowledgement by the physician are critical. The primary objective of BEAHIV was to examine the level of agreement between patients and their physicians regarding the presence or absence of 21 symptoms as reported on the HIV Symptoms Distress Module (SDM).

**METHODS:** A non-interventional, observational, cross-sectional survey study was conducted Sept-Nov 2009 across 16 Canadian sites. Data was collected from consenting adult HIV-positive outpatients and their HIV-treating physicians at a single clinic visit. Major inclusion criteria included ability to read and write in English or French.

**RESULTS:** 1000 patient and corresponding physician surveys were collected. Physician respondents (68% male) had been treating HIV patients for an average of 15 years. 88% of patient respondents were male, 84% were currently on ARVs, 59% had received ARVs >5 years, and 31% had detectable viral load at survey completion. Median age was 46 years, median time since HIV diagnosis was 11 years and median CD4 count was 460 cells/mm3. Fifty-six percent had comorbid conditions (29.5% mental health issues, 18.7% HBV/HCV co-infection, 18.9% metabolic problems), and 72% were taking non-ARV medications. Median total SDM score (out of 84) was 31.0 reported by patients versus 8.0 by physicians. All symptoms, including those most bothersome to patients, were reported more frequently by patients than physicians; symptoms with the largest discordance were trouble remembering (60.2% vs. 16.4%), sexual problems (59.1% vs. 16.4%) and bloating pain/gas (54.3% vs.12.6%).

**DISCUSSION:** This large, Canadian, cross-sectional survey study identified substantial and relevant differences in agreement between HIV patients and their physicians regarding the presence or absence of a defined set of common symptoms associated with HIV and its treatment. Relative to their patients, physicians consistently under-reported patients' symptoms.

## O087

### HIV SELF-MANAGEMENT SUPPORT FOR ABORIGINAL AND NON-ABORIGINAL PEOPLES LIVING IN VANCOUVER'S DOWNTOWN EASTSIDE – THE IMPACT ON ANTIRETROVIRAL ADHERENCE AND UPTAKE

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**Vancouver, BC**

**BACKGROUND:** Marginalized Aboriginal and non-Aboriginal peoples living with HIV face numerous health challenges and often lack the voice or power to effect meaningful change. Self-management support interventions have been shown to improve the management of numerous chronic diseases but have not been well examined in HIV. Our centre cares for over 300 HIV positive people in Vancouver's Downtown Eastside, 53% of whom are Aboriginal. To improve HIV care outcomes we created an HIV self-management support (PSMS) program based on principles of chronic disease management and traditional Aboriginal healing theory and have trained both peer and medical professional self-management coaches.

**RESEARCH OBJECTIVE:** To evaluate the impact of an HIV PSMS program in an inner city setting on Antiretroviral (ARV) adherence and uptake.

**RESEARCH DESIGN:** Randomized controlled trail.

**METHODOLOGY:** Participants were randomized to one of three groups: (1) peer based coaching using a PSMS program or (2) medical professional based coaching or (3) standard care. Adherence scores (based on the past

3 months of ARV pharmacy data) were measured at baseline, and again for the 3 months post PSMS intervention.
**RESULTS:** 180 patients have been enrolled-52% Aboriginal, 29% female, 49% with stable housing. At base line, the median CD4 was 290, 88% were on ARVs, 62% had an undetectable viral load and the average adherence score was 77%. Interim analyses of the 65 participants who have completed the intervention show a 4% increase in ART uptake (92%), a 4% increase in viral load suppression rate (66%), and an 11% increase in adherence score (86%).
**DISCUSSION:** Preliminary analysis indicates that PSMS can improve rates of ART uptake and adherence, but completion of post intervention analysis (expected in June 2010) is needed to determine the magnitude and significance of this effect.

## O088
### THE PREVALENCE OF DOMESTIC ABUSE WITHIN A REGIONAL HIV POPULATION

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**BACKGROUND:** A recent incident within our HIV-infected population prompted us to evaluate the acceptability of a standard clinical tool for determining the extent of past or present – including both childhood and adult – domestic abuse, and to establish its utility in identifying potentially "at risk" patients for referral to support and counselling services. We first wished to establish the overall prevalence of domestic abuse within our population.
**METHODS:** We incorporated into our ongoing HIV practice at the Southern Alberta Clinic (SAC), a standardized screening tool adapted from the Calgary Health Region Domestic Violence Screening Guidelines to be given once to all patients who attended an appointment in the last eight months. SAC is a highly heterogeneous cohort comprising of all individuals living with HIV in one large geographic area. We report on the results of abuse screening for consecutive patient visits between May 27th, and December 27th, 2009.
**RESULTS:** Of the first 853 patients screened, 34% (N = 294) reported past or present abuse. Of these, 16% reported abuse perpetrated by their current partner, 58% from a previous relationship, and 57% of patients reported a history of childhood abuse. Within the entire study population, 43% of females, 26% of heterosexual males, and 35% of homosexual/bisexual males disclosed a history of abuse. Nine patients were identified as feeling unsafe in their current situation, necessitating urgent referral to a social worker.
**DISCUSSION:** A simple abuse screening tool was helpful for identifying patients experiencing domestic abuse in our heterogeneous HIV-infected population. Females and homosexual/bisexual males were found to be at a greater risk for abuse. A surprisingly high self-reported prevalence (>33% patients) of current or past abuse was found, which is most likely an underreporting of actual abuse cases. HIV caregivers should be aware of domestic abuse within their patient population.

## O089
### TREATMENT OF HIV INFECTION IN INJECTION DRUG USERS: DIRECTLY OBSERVED THERAPY AND SELF-ADMINISTERED THERAPY

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**OBJECTIVES:** We examined the treatment of HIV infection in injection drug users (IDUs) receiving HAART.
**METHODS:** In a longitudinal prospective and retrospective cohort study we identified HIV-infected IDUs who received HAART either as directly observed (DOT) or self-administered therapy (SAT) from 1996 to 2007. Immunologic and virologic responses as well as treatment retention were measured at 6, 12 and 24 months. Virologic suppression was defined as an HIV plasma viral load <50 copies/mL. Factors associated with virologic suppression and treatment retention were assessed by multiple logistic regression and Cox Proportional Hazard models, respectively. Causes and rates of treatment discontinuation were also assessed.
**RESULTS:** Overall, 171 IDUs initiated HAART. A total of 477 regimens were used; 252 were DOT and 225 SAT. At months 6, 12 and 24, rates of virologic suppression were 39%, 36% and 23% in DOT-based as compared to 16%, 11% and 7% in SAT-based regimens, while treatment retention rates were 73%, 54% and 30% in DOT-based as compared to 58%, 36% and 15% in SAT-based regimens ($p<0.001$ for all comparisons). Immunologic responses were improved, but not sustained with SAT. Treatment discontinuations were more common with SAT. Factors associated with virologic suppression included the use of DOT, older age, later initiation of HAART, modifications during therapy, earlier lines of therapy, being hepatitis C virus negative and initiating regimens with a suppressed viral load or a CD4 cell count >200 cells/mm3. Similar factors were associated with treatment retention.
**CONCLUSIONS:** By retaining patients in care for longer periods of time, DOT can be an important tool in improving treatment responses in HIV-infected IDUs.

## O090
### A CHRONIC CARE MODEL APPROACH TO INNER-CITY HIV CARE INCREASES CARE ENGAGEMENT AND ANTIRETROVIRAL TREATMENT SUCCESS

**D Tu, D Littlejohn, R Barrios, M Tyndall**
**Vancouver, BC**

**BACKGROUND:** Vancouver's Downtown Eastside (DTES) neighborhood is infamous for its high rates of HIV infection and related morbidity and mortality. The Vancouver Native Health Society cares for over 350 DTES residents living with HIV, of which 53% are Aboriginal (inclusive of First Nations, Inuit or Métis). In 2007 our centre initiated a HIV quality improvement project (entitled CHCNUP - Complete HIV Care for Native Urban People) based upon the Chronic Care model.
**OBJECTIVE:** To evaluate the impact of CHCNUP by measuring improvements in HIV care engagement and treatment success.
**METHODS:** Among 306 HIV positive participants enrolled in CHCNUP between October 2007 and October 2008, the rates of syphilis screening, pneumococcal immunization, TB screening, antiretroviral uptake (proxies for HIV care engagement) and viral load suppression (proxy for HIV care success) were measured. We then compared these baseline measures with quarterly follow-up rates up to and including January 2009.
**RESULTS:** The study group consisted of 67% male and 53% Aboriginal participants. The median age was 46 and the majority was thought to have contracted HIV through injection drug use. Compared to their baseline status, those enrolled in the program showed increases in rates of pneumovax immunization (48% vs. 69%), syphilis screening (50% vs. 66%), tuberculosis screening (14 vs. 20%), antiretroviral uptake (51% vs. 68%), and viral load suppression (71% vs. 90%).
**CONCLUSIONS:** This preliminary analysis indicates that a chronic disease management approach to HIV care in an inner-city population leads to improved rates of HIV care engagement, antiretroviral treatment uptake, and antiretroviral treatment success. Further follow-up and analysis is required to establish the magnitude of these improvements, the durability of these improvements over time and whether they translate into reductions in mortality and morbidity.

## O091
### PREVALENCE OF HIV-1 DRUG RESISTANCE IN THE CONTEXT OF PREGNANCY LIMITED ANTIRETROVIRAL THERAPY (PLAT) IN BRITISH COLUMBIA

**T Chaworth-Musters, A Bond, E Maan, A Kaida, R Harrigan, J Forbes, J van Schalkwyk, D Money**
**Vancouver, BC**

**BACKGROUND:** With increasing numbers of reproductive-aged HIV positive women in Canada, it is vitally important to understand the impact of pregnancy limited antiretroviral therapy (PLAT) the development of lifetime resistance. The objective of this study was to assess the prevalence of HIV drug resistance in pregnancy among women who achieved viral suppression antenatally and post-partum compared with those who did not.

**METHODS:** Population-based data of pregnancies among HIV-positive women in British Columbia between 1998-2008 was queried. Analysis was restricted to pregnancies treated with HAART for at least four weeks and that resulted in a live birth. Women who had a plasma sample available for analysis within 12 weeks following delivery were divided into groups based on the pattern of viral suppression in the antenatal and postpartum periods. Drug resistance mutations were assessed for all antiretroviral drugs and were determined using RNA extraction, PCR amplification and genome sequencing at the Harrigan laboratory.
**RESULTS:** Of the 151 pregnancies receiving HAART, 48% of the mothers (73/151) were fully suppressed by delivery and at 12 weeks post-partum, so did not have samples to assess for post partum resistance. Of the 78 with measurable virus post partum, 43/78 (55%) suppressed in pregnancy, of whom showed 5% resistance to drugs used in pregnancy, but 26% resistance to other ARVs. Of those that did not fully suppress, 34% had resistance to drugs used in pregnancy and 20% resistance to other ARVs. There were no cases of vertical HIV transmission in this cohort.
**CONCLUSION:** In women with successful virologic suppression in pregnancy 5% showed post partum resistance to the pregnancy regimen compared to 34% in women without successful suppression in pregnancy. This highlights the need for attention to factors that result in successful virologic suppression in pregnancy to prevent associated resistance development.

## HIV Prevention

### O092
### EVALUATION OF THE "TROUSSE D'OUTILS POUR LA PRÉVENTION ET LE SOUTIEN AUPRÈS DES QUÉBÉCOIS D'ORIGINE HAÏTIENNE : INTÉGRER LES DIMENSIONS CULTURELLES DANS L'INTERVENTION FACE AU VIH ET AUX AUTRES INFECTIONS TRANSMISSIBLES SEXUELLEMENT ET PAR LE SANG" A COLLABORATIVE PROJECT OF THE DIRECTION DE LA SANTÉ PUBLIQUE DE MONTRÉAL (DSP-MTL), GAP-VIES AND THE COALITION DES ORGANISMES COMMUNAUTAIRES QUÉBÉCOIS DE LUTTE CONTRE LE SIDA (COCQ-SIDA)

**G Fadel, A Adrien, J Jean-Gilles, JI Lebounga Vouma, M Bernier, V Lépine**
**Montreal, QC**

**CONTEXT:** In 2008, we produced and distributed an intervention toolkit for front line workers in health units, CBO and schools, promoting culturally adapted interventions addressing issues regarding HIV/AIDS and other STIs among Quebecois of Haitian origin (QHO). The nine thematic sections of the kit (ex. testing, relationships, parent-child communication, sexuality, gender and sexual diversity) contain various tools and cultural information to guide interventions. A training session on culturally adapted interventions and the use of the toolkit was offered to those who received the toolkit.
**OBJECTIVES:** Evaluate the user toolkit satisfaction as well as document its appropriation and various uses and any content that needs to be added. Explore different strategies for a phase two distribution of the toolkit in electronic form.
**METHODOLOGY:** Analysis of evaluation forms filled out at training session (completed). Statistical analysis of a web based survey of users of the toolkit as well as a focus group with a convenience sample of users (data collection will be completed in February).
**RESULTS:** The successful partnership between the three organisations and the extensive consultation with actors in the field allowed for an in-depth needs assessment. 15 CBO, 6 health units and one school received the toolkit. 84% of participants (n=24) at the training session "strongly agreed" that the content of the toolkit was relevant and 91% "agreed" or "strongly agreed" that the content will be useful in their work. By conference time, we will present quantitative data examining different uses and appreciation of content variables. Comparisons will be drawn between different milieu (CBO vs. health unit) and between different types of organisations (QHO vs. multi-populations). Data from focus group will explore different aspects of the use of the toolkit, its strong points and possible improvements.
**CONCLUSION:** Lessons learned from the evaluation will guide a second phase distribution of the toolkit as well as explore the possibility of creating an electronic version and a future version focusing on Quebecois of African and Caribbean origin.

### O093
### USE OF A PEER-LED MOBILE OUTREACH PROGRAM AND ELEVATED ACCESS TO DETOXIFICATION AND RESIDENTIAL DRUG TREATMENT AMONG FEMALE SEX WORKERS WHO USE DRUGS IN A CANADIAN SETTING

**KN Deering, MW Tyndall, T Kerr, K Gibson, L Irons, J Montaner, K Shannon**
**Vancouver, BC**

**OBJECTIVES:** Peer-based outreach services by community organizations often serve as the first and sometimes only point of contact between drug-using FSWs and health and support services. The objectives of this study were to examine the determinants of using a mobile outreach program (the Mobile Access Project [MAP]) among a sample of street-based female sex workers (FSWs) at high risk for HIV in Vancouver, Canada and evaluate the relationship between program exposure and accessing addiction treatment services.
**METHODS:** The study sample was a prospective cohort of 242 street-based FSWs. A detailed questionnaire administered at baseline and bi-annual follow-up visits over 18 months (2006-2008) elicited information on demographics, working conditions, violence/safety, sexual/drug-related harms, inpatient and outpatient addiction service access and MAP use. MAP has operated since 2005, distributing sexually transmitted infections (STIs), HIV and blood-borne infections prevention resources (e.g. condoms, needles), collecting reports of client violence and providing a primary contact for peer interaction and referral to health/social support and drug treatment services.
**RESULTS:** The median age of the sample was 36, with 50.8% self-identifying as Aboriginal and 25% HIV-positive. Over 18 months, 42.2% (202) reports of mobile outreach program use were made. The program clearly reached high-risk street-based FSWs: those who serviced a higher weekly volume of clients (10+) and solicited clients in deserted, isolated settings both had 1.7-fold ($p<0.05$) elevated proportional odds of accessing the program. In total, 9.4% (45) reports of accessing inpatient addiction treatment services were made (7.5% detoxification; 4.0% residential drug treatment), and 33.6% (161) accessing outpatient treatment (28.8% methadone; 9.6% alcohol/drug counsellor). Notably, program exposure remained independently correlated with accessing inpatient addiction treatment, with 4-fold elevated proportional odds ($p<0.001$), even after adjusting for individual drug use, environmental-structural factors, and outpatient drug treatment.
**DISCUSSION:** Our findings demonstrate that FSWs at higher risk for STIs, HIV and violence are more likely to access this peer-led mobile outreach program and suggest that the program plays a critical role in facilitating access to detoxification and residential drug treatment.

### O094
### MEASURES OF SUCCESS IN A PEER HEALTH OUTREACH PROGRAMME FOR DRUG USERS

**P Millson, J Altenberg, G Dias, C Strike, L Challacombe, W Cavalieri, R Balian, T Guimond, B McPherson, J Weaver, MK MacVicar**
**Toronto, ON**

**OBJECTIVE:** We trained peer health outreach workers (HOWs) to provide assistance to substance users in identifying problems and accessing services. The HOW program was added to other harm reduction and social services carried out at 2 community heath centres (CHCs) in Toronto. We report initial process evaluation.
**METHODOLOGY:** After 12 training sessions, HOWs received ongoing supervision and support while engaging with substance users, providing

counselling, making referrals and doing accompaniment to appointments. We assessed this process through qualitative interviews with HOWs, measurement of numbers of clients seen and services provided, and qualitative interviews with staff who interact with HOWs regarding client referrals and accompaniments.

**RESULTS:** HOWs work 12 hr/mo in 2-4 hour shifts. Number of clients counselled per shift varies from 1-11. Most common client issues are unmet health needs. Other issues identified: drug-related concerns; housing; income/welfare; and legal/probation issues. In response to identified needs, the HOWs either connected substance users to services available within the CHC or referred to outside agencies. Accompaniments were also performed, either to the drop-in clinic in the same CHC, or to outside medical services. Upon request from staff at the CHC, HOWs assisted substance users in attending specialty medical appointments that they were otherwise unwilling or unable to attend for a variety of reasons. Although numbers of accompaniments were small, they filled a serious service gap. HOWs helped establish clients with internal and external care providers they would not have seen without this service.

**CONCLUSION:** HOWs provide counselling and active listening support to clients coming for harm reduction materials, or during outreach. In addition they provide service information and make referrals, as well as doing accompaniment for a smaller number of clients who need this support in order to access essential medical services. HOWs express great personal satisfaction with being able to develop their skills and assist their peers, as well as concern about future work opportunities.

## O095

### NEW HIV PREVENTION TECHNOLOGIES WITHIN A BROADER CONTINUUM OF PREVENTION

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**[1]Ottawa; [2]Toronto, ON**

**BACKGROUND:** On Thursday May 13, the Interagency Coalition on AIDS and Development, Canadian AIDS Society and Canadian AIDS Treatment Information Exchange will co-host an ancillary session at CAHR. This session will bring together community partners and Canadian researchers involved in basic and social sciences to explore how new HIV prevention technologies, including vaccines, microbicides and pre-exposure prophylaxis, fit within a broader continuum of HIV prevention strategies. The session will assess how existing and new prevention technologies can impact key populations, and discuss specific community needs and strategies to prepare for the introduction of new prevention technologies.

**Description of Oral Presentation:** This oral presentation will be used to report to the broader CAHR audience on the key discussions and outcomes of the Ancillary session.

**OBJECTIVES:**

1. To generate clearer understanding of how new prevention technologies fit within a broader continuum of HIV prevention strategies.
2. To inform CAHR delegates of the key discussions that took place in the Ancillary session, particularly around community needs and strategies to prepare for the introduction of new prevention technologies.
3. To highlight the roles that basic, clinical and social scientists can play in new prevention technology development.

## O096

### EXTENDING THE SCOPE OF PEER HARM REDUCTION: THE HEALTH OUTREACH WORKER (HOW) PROJECT

**J Weaver, J Altenberg, G Dias, R Balian, W Cavalieri, C Strike, L Challacombe, T Guimond, B McPherson, P Millson**
**Toronto, ON**

**OBJECTIVE:** Harm reduction programs in Toronto maintain a low prevalence of HIV, but lack resources to address many other health needs of clients. We developed and evaluated an innovative peer program to help with unmet health and social needs.

**METHODS:** The South Riverdale Community Health Centre provides harm reduction, outreach, primary care and case management for vulnerable drug users, with harm reduction service delivered by drug using peers. Despite efforts to provide accessible medical services, some harm reduction clients will not access needed care without additional supports. We trained 12 peer health outreach workers (HOWs) to counsel substance users and assist them in accessing services. The HOWs participated in a 12 session training program to learn about active listening, community outreach, mental health issues, harm reduction, etc. After training, HOWs engaged with substance users, identified needs, made appropriate referrals, and did accompaniments when needed. Service provision can lead to positive and negative impacts for workers. We evaluated the impact of the training and employment on the HOWs' wellbeing.

**RESULTS:** HOWs had a high prevalence of mental health problems. 83% reported a prior diagnosis of at least one mental illness, most commonly depression, attention deficit/hyperactivity disorder, or anxiety, and 92% screened positive for at least one current diagnosis when beginning training. Post-training, reported marijuana and crack use and HIV and Hepatitis C risk behaviours declined, including lending and borrowing crack pipes. No syringe sharing was reported either before or after training. Affectionate social support and reported physical functioning increased significantly by post-training. 6 HOWs remain active in the program, some others have moved on to full-time employment. Participants reported benefits from training whether working in the program or not.

**CONCLUSIONS:** Meeting the HOW's needs for ongoing training, support and supervision, as well as dealing with difficulties maintaining work schedules, were challenging. This training and work is clearly feasible and promising, and the program continues to evolve.

## O097

### EFFECT OF VIRAL LOAD SUPPRESSION ON EMERGENCY DEPARTMENT USE IN COHORT OF PERSONS ON HAART IN BRITISH COLUMBIA

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**Vancouver, BC**

**BACKGROUND:** Poor treatment adherence and the resultant loss of viral load (VL) suppression are known to burden the health care system, most visibly in the form of frequent Emergency Department (ED) use. The objective of this study was to examine the relationship between ED use and virologic suppression and determine the number of patients that need to be virologically suppressed to prevent one ED visit.

**METHODS:** The Longitudinal Investigations into Supportive and Ancillary health services (LISA) cohort is a prospective study of persons on HAART in BC. Participants must be ≥19 years of age and antiretroviral-naïve prior to initiating HAART. An interviewer-administered survey collects socio-demographic information. Clinical variables such as VL suppression (2 consecutive VL measures <50 c/mL) are obtained through linkages with the Drug Treatment Program. ED admission information is obtained through linkages with the St Paul's Hospital (SPH) ED. ED use was restricted to use in the 6 months prior to the interview.

**RESULTS:** Our analysis included 493 LISA participants residing in the SPH ED catchment area. A total of 153 (31%) participants reported SPH ED use, of whom 51 (10%) had 3 or more ED visits. ED users were more likely to report current drug use (68% vs. 44.7%), unstable housing (55.3% vs. 30%) and experiencing violence in the past 6 months (27% vs. 14.2%). These variables were significant at the p=<0.001 level. SPH ED users were less likely to have an undetectable VL at the time of interview (AOR=0.53 [95% CI 0.34-0.83]; p=0.006). Based on these findings, seven people would need to be virologically suppressed in order to prevent one SPH ED visit.

**CONCLUSION:** Virologically suppressed persons are less likely to use the ED. Comprehensive primary care programs should be better supported to help marginalized PLWHA achieve VL suppression and decrease ER use. This would contribute to improved health outcomes and decreased health care costs.

## O098

### FACTORS ASSOCIATED WITH REGULAR HIV SCREENING AMONG PEOPLE WHO INJECT DRUGS IN MONTREAL

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**Montreal, QC**

**OBJECTIVES:** Describe factors associated with regular HIV screening among injection drug users (IDUs) in Montreal.

**METHODS:** The SurvUDI network allows the surveillance of HIV prevalence, incidence and associated behaviours among IDUs in the province of Quebec and the city of Ottawa since 1995. Active IDUs (having injected in the past six months) were recruited in Montreal between 07/2004 and 06/2008. They were grouped based on their use of HIV screening (time since last test and number of tests in last two years) reported at last interview. Individuals reporting being HIV-infected were excluded from the analysis. Using multivariate logistic regression, regular screeners (last test within 6 months; ≥4 tests in two years) were compared to individuals never tested or screened occasionally (last test >6 months ago; ≤3 tests in two years). Final analyses were stratified by sex.

**RESULTS:** Among 1,135 participants (men: 76.7%, mean age: 34.2 years), 9.1% had never been screened, 62.1% were occasionally screened and 28.8%, regularly screened. Among those occasionally screened, 59.2% had their last test in the health care system (hospital, community health clinic) whereas among regularly screened, 61.2% had it in a cohort study. In multivariate analyses controlling for age, regular screening among men was significantly ($p \leq 0.05$) associated with having been last screened in a cohort study (Adjusted Odds Ratio [AOR]=6.56); among women, regular screening was significantly associated with having been last screened in a cohort study (AOR=3.02), having injected at least once per week in the past month (AOR=2.56) and having unstable housing (AOR=2.08).

**CONCLUSIONS:** Overall, only 28.8% of IDUs reported regular HIV screening. Among both sexes, regular screening appears to be strongly linked with participation in cohort studies. Among women, regular screening seems also linked with higher risk. Ways to encourage regular HIV screening among Montreal IDUs need to be developed.

# Risk, Intervention, and Prevention – Individuals

## O100

### THEORY AND EVIDENCE-BASED INTERVENTION TO FACILITATE ARV-TREATMENT TAKING AMONG PERSONS LIVING WITH HIV IN MONTREAL: RESULTS OF A PILOT STUDY

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**Montréal, QC**

**AIM:** The key to successful antiretroviral treatment is optimal treatment taking. However, a significant percentage of PLHIV have been reported to not persevere with this behaviour. Some studies have demonstrated the effectiveness of interventions to facilitate optimal treatment taking but there is insufficient evidence on the capacity of these interventions to improve viral or immunologic outcomes. None of these interventions were based on a theoretical framework to provide a comprehensive understanding of the behaviour. The goal of this study was to develop and evaluate a theory and evidence-based intervention to facilitate optimal antiretroviral-treatment-taking behaviour among people living with HIV.

**METHODS:** Intervention mapping was used as a framework for developing the intervention. A pilot randomized trial was conducted to evaluate the effect of this intervention on optimal ARV-treatment taking and on viral and immunologic outcomes.

**RESULTS:** The individualized intervention was structured as four 45 to 75-minute meetings held over a 12-week period with a nurse who had expertise in HIV. The goal of the intervention was the acquisition and mobilization of skills to manage antiretroviral treatment. A total of 51 participants were enrolled in the study. At 12 and 24 weeks respectively, the HIV RNA level was undetectable for 34.8% and 56.5% of controls and 78.6% and 89.3% of experimental participants (p= .056). We found that 17/20 individuals in the experimental group had a clinically significant increase in CD4-count (>30%) at 24 weeks as compared to 9/14 in the control group (p= .23).

**DISCUSSION:** An intervention to foster optimal ARV-treatment taking among PLHIV was developed on the basis of evidence and theory. This intervention was well accepted by PLHIV who expressed their satisfaction with the intervention and with the new skills it afforded them. We believe the results of this pilot controlled trial are compelling and suggest that this intervention merits further formal testing.

## O101

### ETHICAL ISSUES SURROUNDING HIV MANAGEMENT IN OLDER INDIVIDUALS

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**[1]Montreal; [2]Sainte Foy, QC**

**BACKGROUND:** The efficacy of HAART is producing an HIV-infected population that is aging and whose life expectancy is increasing. This specific population (50 years of age and over) is characterized by: delayed diagnosis, poorer outcome due to lower immune reconstitution with HAART, cardio-vascular disease and cancers, immune activation and new availability of erectile-dysfunction drugs that extend sex life. There is also an epidemic among aging individuals who are ignorant of their HIV status. Thus the objective was to study this undiagnosed population and to characterize their invisibility, detection and entry into care while emphasizing the ethical standards that apply to each stage.

**METHOD:** A systematic literature review examined the risks for invisibility from the spaces of HIV screening and diagnosis and medical care. These risks have been analyzed using the ethical theories of Metz, Cavanaugh and Certeau.

**RESULTS:** Risk factors for being undiagnosed or for poorer outcome after diagnosis included: 1) underrepresentation in epidemiologic surveys; 2) failure to be screened because of prejudices that sexual activity drops or ceases with age; 3) confusion of HIV symptoms with age-related ones; 4) targeting prevention at non-aged populations such as youth or IDU's; 5) greater risks for more frequent unprotected sexual encounters; 6) paucity research on sexual risks especially unprotected sexual encounters in older populations; 7) faster disease progression and greater decline in life expectancy when untreated.

An ethical framework based on the concepts of clandestine activities and space of care can provide standards of care tailored to this population's specific needs:

1) Greater research on this population can lead to more appropriate policies, forms of care and public health interventions.

2) Promoting care by greater recruitment into clinical trials and greater sensitivity to informed consent in face of cognitive impairment and dementia.

3) Greater sensitivity by caregivers regarding age-related concerns of sexuality, sexual activity, physical and cognitive function.

**CONCLUSION:** Clandestine activity and space of care ethics can help tailor standard of care for detection, diagnosis and care of aging HIV-infected populations.

## O102

### EXAMINING NEW INTERVENTIONS IN UNCONVENTIONAL SETTINGS: COUNSELLING IN TORONTO'S MALE BATHHOUSES

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Male bathhouses are key venues for HIV/AIDS prevention work. In Toronto, a pilot counselling project, TowelTalk, augments current sexual health promotion services by placing a professionally trained counsellor in four male bathhouses. In this presentation we discuss current conceptualizations of the bathhouse environment as they emerged in the development and ongoing evaluation of TowelTalk. We will tease out these conceptualizations as we discuss how bathhouse patrons engaged with the

TowelTalk program, which men accessed the counseling program, and what sort of themes or issues were addressed during sessions. By drawing on our experience with the project, we will examine the challenges and benefits of implementing a clinical mental health intervention in an unconventional setting.

**BACKGROUND:** TowelTalk is a collaborative effort between several organizations involved in HIV support and prevention, and is led by the AIDS Committee of Toronto (ACT). Since April 2009, a professionally trained counsellor has offered bathhouse patrons anonymous and brief counselling (10 to 45 minute sessions), as well as referrals to other health and social services. When a need is identified, the counsellor also provides short-term follow-up counselling (up to 8 sessions) at ACT.

In the literature, bathhouses are often described as highly sexualized environments where men can have anonymous sex with other men. Participants of the evaluation (bathhouse staff, outreach workers, bathhouse patrons, TowelTalk staff) offered a broader, more varied image of bathhouses. We will explore the conceptualizations that emerged in the evaluation data (interviews, questionnaires, and session notes), and pay particular attention to the bathhouse counsellor's experience of providing counselling in an environment described by men as both anonymous and intimate. By teasing out the multiple ways men conceptualize and experience the bathhouse context we are better able to examine what sort of clinical counseling intervention is possible in a bathhouse environment.

## O103

### IN THE SHADOWS: HIV-NEGATIVE LONG TERM SURVIVORS DESCRIBE THEIR EXPERIENCES OF ONGOING MULTIPLE LOSSES IN AIDS-IMPACTED COMMUNITIES

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**[1]Toronto; [2]Ottawa; [3]Peterborough; [4]Peel, ON**

**BACKGROUND:** In AIDS-impacted communities, the emerging group of long-term survivors navigates complicated attachment and loss terrain. Accompanying the HIV+ population is a corresponding network of HIV-negative individuals who have also experienced catastrophic losses in their community-of-meaning. Many of these HIV- individuals have stood on the front lines of AIDS since the beginning. Few studies have examined the experiences of HIV- long term survivors related to the impact and resolution of loss. Understanding the psychosocial needs of a bereaved HIV affected population is relevant to maintaining healthy communities.

**METHODS:** As part of a larger qualitative study by the AIDS Bereavement Project of Ontario undertaken to examine the bereavement experiences of HIV infected and affected survivors within AIDS-impacted communities in Ontario, a mixed sero-status team conducted in-depth semi-structured 1-1 interviews with 15 HIV-negative individuals, followed by a ½ day dialogue group with HIV- participants. Data was themed from interviews and HIV-negative dialogue group content.

**RESULTS:** HIV- participants had been "community involved" for a mean of 20 years. They averaged 127 AIDS deaths per person and described how HIV had decimated entire social networks and reshaped their identities. While a sense of connection was a primary dimension of community life, their ability to form authentic connections was severely challenged by loss. Social support was noted as a determinate in the resolution of grief, but difficult to access when entire social networks were gone. They described emotional numbing, withdrawal, and intrusive thoughts. Survivor guilt was accompanied by a feeling of disenfranchisement from community. For the majority, there was a struggle to convey their experiences of being left behind, to find meaning in life and to maintain optimism. However, survivors also identified creative strategies of resiliency.

**CONCLUSIONS:** HIV-negative individuals have tremendous capacity to form meaningful and multifaceted attachments in a loss-saturated environment. Disenfranchised loss experiences present significant challenges for this population. We identify the need to create supports that match the emerging, but often unrecognized needs of HIV- community members.

## O104

### DO COPING STRATEGIES AFFECT THE RELATIONSHIPS BETWEEN QUALITY OF LIFE AND ANXIETY/DEPRESSION AND PHYSICAL SYMPTOMS?

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**[1]Laval; [2]Montréal, QC**

**OBJECTIVE:** To determine the influence of coping strategies on quality of life in the presence of anxiety and/or depression and symptoms experienced by people living with HIV.

**METHOD:** Data were obtained from a longitudinal cohort study (named the MAYA study) which documented the quality of life of people living with HIV. Of 904 participants recruited at baseline (T0), 746 were successfully contacted at 12-month follow-up (T2). Variables assessed were: quality of life (MQoL-HIV), coping strategies (COPE), anxiety and depression (HADS), physical symptoms (HIV symptoms index), and socio-demographic characteristics. Using the Baron & Kenny (1986) framework, a series of three-step hierarchical regressions was used to test the coping strategies as potential moderators of the MQol-HIV – HADS and MQoL-HIV – Physical symptoms relationships.

**RESULTS:** Eighty percent of the participants were male and 20% were female, with a mean age of 44.5 ± 9.5 years old. Seven sub-scales of the coping strategies (COPE) had a moderating effect on the HADS-QOL relationship. These were acceptance ($\beta$=–0.012; $p < 0.01$), humour ($\beta$=–0.11; $p < 0.05$), religion ($\beta$=–0.09; $p < 0.15$), partner support ($\beta$=–0.21; $p < 0.05$), denial ($\beta$=0.10; $p < 0.10$), substance abuse ($\beta$=0.09; $p < 0.15$), and behavioural disengagement ($\beta$=0.18; $p < 0.05$).

**IMPLICATIONS:** It appears important to intervene and improve coping strategies since they appear to reduce the influence of anxiety-depression on quality of life. Particular attention should be given to acceptance, humour, religion and partner support because these factors reduce the influence of anxiety-depression on QOL whereas denial, substance abuse and behavioural disengagement increase the influence of depression or anxiety on QOL.

## O105

### EVIDENCE-BASED HIV DISCLOSURE INTERVENTION FOR AFRICAN AND CARIBBEAN WOMEN IN CANADA: WHEN TO TELL, TO WHOM, WHY AND HOW

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**Toronto, ON**

**BACKGROUND:** Failure to disclose HIV positive status to sexual partners is now a criminal offense in many countries. Developing effective strategies to support HIV positive women to disclose their status is paramount if secondary transmission is to be prevented and prosecution avoided. We developed an evidence-based HIV serostatus disclosure intervention adapted to the unique needs and challenges faced by African and Caribbean women living in Toronto.

**OBJECTIVE OF PRESENTATION:** To discuss the development and implementation of an HIV disclosure intervention that takes into consideration race, gender and other socio-cultural variables.

**METHODS:**

1) A literature review exploring the inhibitors and facilitators of disclosure was conducted. Existing models and theories were identified.

2) Four focus groups (n=30) and four key-informant interviews were conducted with HIV-positive women who had not disclosed, women at various stages of the disclosure process and with service providers. Data was analyzed thematically using relevant theories.

3) An HIV disclosure intervention was drafted, reviewed by providers and pilot tested with women contemplating disclosure with the support of providers and trained peer-counselors.

4) The draft intervention was modified based on pilot testing experience.

**RESULTS:** The final intervention accommodates realities of women's lives and includes scenarios for disclosure to partners, children, family members and service providers. Descriptions of the disclosure process, potential outcomes, detailed checklists, a peer support training package and appropriate resources are incorporated into the intervention to support its implementation.

**CONCLUSION:** An appropriate HIV disclosure model should be broadly applicable and cost-effective, allowing for regional and individual adaptations. We present an effective culturally-based disclosure intervention developed according to the challenges and opportunities faced by African and Caribbean women with possibility of adaptation across diverse populations. Next steps include implementation of the intervention across multiple settings to monitor and evaluate long-term impacts to confirm the universal applicability of the disclosure framework.

## O106
## REVISITING HIV-RELATED STIGMA: NEW CHALLENGES AND NEW COMMITMENTS TO THEORETICALLY CONTEXTUALIZE THE EXPERIENCE OF PEOPLE LIVING WITH HIV/AIDS

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In the field of HIV/AIDS, stigma is a core component of both qualitative and quantitative studies that speak to the lived realities of people living with HIV/AIDS (PLWHA). In the current literature, researchers are increasingly opting for the term HIV-related stigma to address the psychosocial experiences reported by PLWHA and to merge all of the stigmatic attributes that circulate within this rather diversified population. As suggested by Parker and Aggleton (2003), one of the major factors limiting our understanding of stigma and discrimination in the context of HIV/AIDS may be less the inherent complexity of these phenomena than the relative simplicity of the existing conceptual framework. We argue that the current framework suffers from two important limitations. First, it forces researchers to conceptualize stigma as being fundamentally related to HIV and inherently inclusive, which is not an adequate depiction of the challenges faced by PLWHA in the post-HAART era. Second, it relies on a micro-social understanding and symbolic interpretation of stigma that is insufficient to analyze the very production of difference. The new challenge in the field of HIV/AIDS is to examine stigma as a product of everyday experiences and social interactions while acknowledging that it is also embedded in and reinforced by various discourses, practices and institutions. Based on the integrated theoretical framework of Stacey Hannem and Chris Bruckert, our objective is to demonstrate how the works of Goffman and Foucault could be combined and applied to the field of HIV/AIDS in order to understand the intricacy of the stigmas experienced by PLWHA and the marks that define them at a social level and, regrettably, a personal level. In doing so, we believe that there should be a new commitment to understand stigma as a function of interaction and to theorize the construction of difference as a means of governmentality.

## Basic Sciences Posters

### P108
### MICROBICIDES PERMEABILITY IN VAGINAL, CERVICAL AND RECTAL MUCOSAL SITES: POTENTIAL ROLE OF DRUG TRANSPORT PROTEINS

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Microbicides have gained global attention as a strategy for HIV prevention. We propose that mucosal permeability, efficacy and/or toxicity of microbicides may be regulated by interactions with drug efflux membrane transporters P-glycoprotein (P-gp), Multidrug Resistance-Associated Proteins (MRPs) and/or Breast Cancer Resistance Protein (BCRP) that may reduce levels of these agents in the genital tract or rectum, and/or by interactions with drug influx membrane transporters organic anion transporting polypeptide (OATP), organic anion transporter (OAT) and/or organic cation transporter (OCT) that may increase their levels at these same sites. It has been reported that tenofovir renal transport is mediated by MRP4, and that maraviroc has affinity for P-gp. At present, very few studies document the functional expression of these transporters in genital and rectal mucosa. The objective of this project was to investigate the expression of drug influx/efflux transporters in human vaginal and cervical cell lines, as well as in recto-sigmoid colon biopsies from HIV (+) and HIV (–) individuals. mRNA expression of drug influx/efflux transporters was evaluated by RT-PCR in VK2 E6/E7 vaginal epithelial cell line and Hec1A endometrium cell line, as well as in recto-sigmoid colon biopsies obtained from: i) HIV infected, therapy naive men, ii) HIV infected, HAART-treated men with HIV viral load <50 copies/ml for at least 4 years (LT-HAART), and iii) HIV negative individuals. P-gp, MRP1 and MRP4 protein expression was determined by immunoblotting in the same samples. The following table summarizes the results obtained:

| Cell Lines/ Sigmoid Colon Samples | mRNA Expression Efflux Transporters | mRNA Expression Influx Transporters | mRNA Expression Nucleosides Transporters |
|---|---|---|---|
| VK2 E6/E7 | (+) (MRP2,4,5) | (-) | (+) (ENT1,2, CNT1,3) |
| Hec1A | (+) (MRP2,4,5, BCRP) | (+) (OATP 8,C) | (+) (ENT1,2, CNT1,3) |
| Chronic naive (N=1) | (+) (MDR1, MRP3,4, BCRP) | (+) (OATP B, OAT4, OCT1,3) | (+) (CNT2 , CNT3) |
| LT-HAART (N=8) | (+) (MDR1, MRP1,3,4, BCRP) | (+) (OATP B, OCT1) | (+) (CNT2 , CNT3) |
| HIV Neg (N=3) | (+) (MDR1, MRP1,3, BCRP) | (+) (OATP B) | (-) |

| Cell Lines/Sigmoid Colon Samples | P-glycoprotein Protein Expression | MRP1 Protein Expression | MRP4 Protein Expression |
|---|---|---|---|
| VK2 E6/E7 | (+) | (+) | (+) |
| Hec1A | (+) | (+) | (+) |
| LT-HAART (N=6) | (+) | (+) | (+) |

These data suggest that MRP4 and Pgp expression at genital and rectal sites could alter the permeability of tenofovir and maraviroc. This work could help elucidate factors influencing the mucosal bioavailability and efficacy of microbicides.

*Supported by CIHR-CTN PDF Fellowship*

### P109
### INTERACTIONS OF HIV-PROTEASE INHIBITORS WITH SOLUTE CARRIER (SLC) TRANSPORTERS IN CACO-2 CELLS, AN IN VITRO MODEL OF HUMAN INTESTINAL EPITHELIUM

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**BACKGROUND:** Highly active antiretroviral therapy (HAART) is complex and can result in many drug-drug interactions. Atazanavir, an HIV protease inhibitor (PI) used in first-line regimens, is implicated in several interactions at the level of the intestinal mucosa. At present, limited information is available on the mechanism of PIs intestinal uptake. In this study, we examined the potential role of SLC transporters, such as organic anion transporting polypeptides (OATPs), in the intestinal uptake of ATV and antiretroviral drug-drug interactions using the in vitro Caco-2 intestinal cell model.

**METHODS:** mRNA and protein expression of uptake transporters in Caco-2 cells was investigated by RT-PCR and immunoblot analysis, respectively. The effect of antiretroviral drugs on the activity of drug transporters in the cells was assessed by comparing the uptake of radiolabeled probes in the absence or presence of each drug at varying concentrations and evaluating the corresponding IC50 values. Intracellular accumulation of [3H] ATV by Caco-2 cells was measured in the absence (control) or presence of standard inhibitors of SLC transporters or antiretroviral drugs. The effect of extracellular pH (5.5, 7.4, 8.5) and intracellular acidification with NH4Cl preincubation on ATV uptake was also examined.

**RESULTS:** Caco-2 cells demonstrated robust OATP2B1 expression and functional activity. HIV PIs: lopinavir, tipranavir, and nelfinavir potently inhibited OATP2B1 transport activity in Caco-2 cells. ATV uptake was pH dependent (uptake at pH 5.5 > pH 7.4 = pH 8.5) and susceptible to inhibition by established OATP family inhibitors, estrone-3-sulfate, rifamycin SV, MK571, and pravastatin. Although, HIV nucleoside analogs, tenofovir DF, abacavir, lamivudine, and emtricitabine did not inhibit ATV uptake by Caco-2 cells at clinical concentrations, PIs such as ritonavir, amprenavir, and tipranavir, demonstrated potent concentration-dependent inhibition of ATV uptake by Caco-2 cells at concentrations below 10µM.

**CONCLUSIONS:** These data provide further understanding of PIs intestinal absorption and potential mechanisms of antiretroviral drug-drug interactions at this site.

*Funding support: Canadian Foundation for AIDS Research and Ontario HIV Treatment Network studentship.*

### P110
### PHYLOGENETIC CLASSIFICATION AND HIGH-RESOLUTION GENOTYPING OF CYNOMOLGUS MACAQUE MHC CLASS I GENES

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**OBJECTIVES:** Cynomolgus macaque (Macaca fascicularis, Mafa) is increasingly important as a model for vaccine research and is more economical to maintain than other nonhuman primates. Despite this, there is little genomic data available on its major histocombatibility complex (MHC). The Mafa MHC class I region (Mafa-A/-AG/-G/-F and B) has under gone a series of duplications and major expansions that has resulted in as many as 25 functional genes compared to the six functional class I genes in humans. So far the effect of this expansion on the antigen presentation has not been characterized. The goal of this study is to perform high-resolution sequence-based genotyping and analysis of MHC class I genes of Cynomolgus macaques to characterize this model system for human vaccine research.

**METHODS:** PCR primers based on orthologous human MHC class I genes were used to amplify highly similar but polymorphic sequences from genomic DNA of 12 cynomolgus macaques. TOPO TA cloning was used to clone the PCR products and 48 clones from each PCR product were sequenced using ABI3700 Genetic Analyzer. Sequencher 4.8 was used to

assemble the sequences. MEGA 4.0 was used for multiple alignments, constructing phylogenetic trees and determining the phylogenetic relationship between cynomolgus and rhesus macaques.
**RESULTS:** We have identified 576 unique sequences from 12 monkeys in the region of exons 2 and 3. Among them, 299-B, and 201 at the A/AG/G region contain no stop codons, thus are likely to be functional. These sequences can be classified into 4 MHC class I genes: Mafa-A, -B, -AG and -G.
**CONCLUSIONS:** We have established a reliable method to classify MHC class I sequences in cynomolgus macaques. Further analysis will be conducted to determine the subfamily of these genes and to correlate them with T cell responses.

## P111
## POL SEQUENCE ANALYSIS OF PROVIRAL HIV-1 HYPERMUTATION IN THE PUMWANI SEX WORKER COHORT

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**BACKGROUND:** Several innate host factors contribute to HIV-1 disease progression, including Apobec3G. The activity of Apobec3G plays a critical role in modulating viral replication by creating point mutations in HIV-1 genome. Previously, we demonstrated that a subset of HIV-1 women have sequences containing several adenine residues which replaced consensus guanine residues located in vpu/env region of HIV-1. Furthermore, when translated to protein, there is a presence of detrimental mutations leading to defective provirus. Recent literature state that there is high Apobec3G activity in pol region of HIV-1 (Suspene et al. 2006).
**OBJECTIVE:** We will examine pol sequences from proviral DNA among 40 HIV-1 infected, ARV negative women from Nairobi, Kenya.
**HYPOTHESIS:** Individuals who progress slower to disease progression have evidence of strong hypermutation in pol region of HIV-1.
**METHODS FOR HIV-1 SEQUENCING:** DNA will be isolated from patients PBMCs from whole blood samples. DNA will be used as a template for PCR amplification of HIV-1 provirus using highly specific primers to the 5' and 3' LTR. The resulting PCR product will be used as a template in subsequent nested PCR reactions, to generate amplicons spanning pol regions of HIV-1 genome. Analysis of sequences for evidence of hypermutation will be determined by utilizing Hypermut 2.0 from the Los Alamos National Laboratory database.
**RESULTS:** Proviral HIV-1 DNA analysis is currently being established in the lab. Preliminary results will be presented.
**CONCLUSIONS:** The role of Apobec3G activity is currently under investigation. By understanding the mechanisms of Apobec3G, it may provide critical information about the mechanisms behind how patients either progress slower or faster to disease progression due to hypermutated provirus.

## P112
## IDENTIFICATION AND CHARACTERIZATION OF NEW HIV-1 INTEGRASE BINDING PARTNERS IN HOST CELL

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**RATIONALE:** One of the hallmarks of HIV-1 virus is integration of it's cDNA to the host genome, leading to persistent infection of the host. This integration reaction, catalyzed by the unique viral enzyme Integrase (IN), implicates employment of other viral and specially cellular proteins, e.g. LEDGF/p75, INI-1, Importin7 etc. to form a pre-integration complex (PIC) that helps in nuclear translocation and/or crucial integration of viral cDNA. But knock-down of these cellular factors can not completely block viral replication, indicating that other unknown cellular factors are involved in the action of HIV-1 IN. Successful identification of these cellular cofactors and blocking these interactions with HIV-1 IN may significantly inhibit HIV-1 replication and this blocking may be of clinical significance in terms of anti-HIV therapeutic aspect.
**METHODS:** 293 T cells were transiently transfected with pYEF-1-TAP-IN and lysed cells were subjected to Tandem Affinity Purification (TAP) system to pull down IN-interacting cellular partners. A number of distinct bands from the silver stained gel were excised followed by in-gel digestion and mass spectrometry. Furthermore, these newly identified cofactors will be analyzed by co-immunoprecipitation, critical regions for interaction will be defined, and their potential roles in HIV-1 replication will be studied by knock-down of targeted protein in CD4+ C8166 T cells that will be subsequently challenged with HIV-1 (pNL4.3).
**RESULTS:** Cellular proteins named glycerol-3-phosphate dehydrogenase, SNF2-related protein, NCF1, beta tubulin, ATP synthase alpha subunit etc. have been identified by mass spectrometry. In addition, the presence of beta-tubulin and, also, a nuclear splicing factor SF3A3, in TAP-purified protein extract, has been confirmed by western blot. Besides, endogenous SF3A3 was also able to be successfully co-immunoprecipitated with GFP-IN confirming it's interaction with IN, and the siRNA-mediated depletion experiments showed its requirement for HIV-1 replication.
**CONCLUSION:** More detailed functional analyses are underway that will provide better understanding of IN dynamics enriching our existing knowledge on HIV-1 biology.

## P113
## OPTIMAL GROWTH CONDITIONS OF CMV AND HIV-1 ANTIGEN-SPECIFIC CD8+ T CELLS AMONG KENYAN SEX WORKERS

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Previous work has shown that different antigen-specific CD8+ T cells possess different surface and intracellular phenotypes when assessed via staining and flow cytometry. It is indeed likely that CD8+ T cells specific to certain HIV-1 antigens will be more functional against the virus, though the details of these differences remain to be seen. A protocol for expansion of CMV antigen-specific cells was previously established using uninfected North American controls, but found to be less than optimal for expansion of HIV-1 specific CD8+ T cells in HIV-1 infected Kenyans.
A comparison of the optimal expansion methods was conducted on PBMC samples from HIV-1 infected and uninfected Kenyan sex workers for both CMV and HIV-1 specific CD8+ T cells. Tetramers specific to the CMV epitope NLVPMVATV and the HIV-1 epitope SLYNTVATL were used to screen individuals for responses, and PBMCs were then stimulated with varying combinations and concentrations of tetramer-matched peptide, along with IL2, IL4, IL7 and IL15. Cells were run on a 10-colour BD LSR-II flow cytometer and results were analyzed using FlowJo software.
Analysis of results revealed differences among optimal conditions for expansion of CMV versus HIV specific CD8+ T cells. Though both groups of cells preferred relatively low levels of exogenous peptide (0.05ug/ml as opposed to 5ug/ml or 0.5ug/ml), the CMV specific cells expanded better in the presence of IL-15 whereas HIV-specific cells expanded in response to IL-2. In both cases high levels of proliferation were observed at the lowest levels of IL-15 and IL-2 stimulation used (10ng/ml and 50ng/ml respectively).
These differences among expansion conditions suggest that there are fundamental differences among cells specific to HIV and CMV, and the reasons behind these observations are currently being investigated. Establishing an optimal method of expanding antigen-specific CD8+ T cells will be essential for the use of several down-stream functional assays in future work which will allow us to determine why responses to some antigens are more favorable in HIV-1 infection.

## P114
## ASSOCIATION OF HLA CLASS I WITH RESISTANCE AND SUSCEPTIBILITY TO HIV-1 INFECTION AND DISEASE PROGRESSION IN AN EAST AFRICAN SEX WORKER COHORT

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**OBJECTIVES:** A group of sex workers in the Pumwani Sex Worker cohort, established in 1985 in Nairobi, Kenya, remain HIV-1 seronegative

despite repeated exposure to HIV-1 and some HIV-1 infected women remain healthy for many years. The purpose of this study is to investigate the role of HLA class I in resistance/susceptibility to HIV-1 infection and progression to AIDS in this cohort.

**DESIGN:** HLA-A, -B, and -C were genotyped using a sequence-based method. Allele/phenotype frequencies were compared between HIV-positive women and women who have remained HIV negative for more than 3 years despite frequent exposure. HLA alleles and phenotypes were also analyzed for their influence on seroconversion and rates of progression to AIDS among HIV-1 infected individuals.

**METHODS:** HLA-A, -B, and -C were amplified, sequenced and genotyped using a taxonomy-based sequence analysis. PyPop was used to determine allele frequency and SPSS 13.0 was used for statistical analysis.

**RESULTS:** Many novel associations were identified at the HLA-A, HLA-B, and HLA-C loci. A*01, B*151701, Cw*060201 and Cw*070101 were associated with resistance, while A*6601, B*070201, B*4201, Cw*0210 and Cw*070201 were associated with susceptibility to infection. A*32, A*7401, B*14, B*570301, Cw*0802, Cw*0804 and A3 supertype homozygosity were associated with slower CD4+ decline to <200/mm3, while B*350201, B*530101, Cw*030201 and B7 supertype homozygotes were associated with rapid CD4+ decline. We observed an additive effect amongst individuals with multiple alleles associated with resistance or susceptibility to HIV-1 infection, and with multiple alleles associated with slower or faster CD4+ T cell decline.

**CONCLUSION:** Our findings suggest that CD8 T-cell responses associate with resistance or susceptibility to infection are different from those associated with rates of disease progression. The effect of multiple alleles is additive in determining rates of seroconversion and disease progression.

## P115

### EFFECTS OF HIV-1 ON DENDRITIC CELL MATURATION

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**OBJECTIVES:** Dendritic cells (DC) mediate the adaptive immune response and are responsible for antigen presentation to naïve T-cells in secondary lymph organs. The effects of HIV on DC maturation are not well established and conflicting results have been reported. The objective of this study was to evaluate the effects of HIV-1 on the maturation of monocyte derived dendritic cells (MDDCs) in vitro.

**METHODS:** Monocytes isolated from peripheral blood mononuclear cells were differentiated into immature MDDCs according to established methods. iMDDCs were incubated with or without HIV-1(CS204), then with or without an inflammatory cytokine cocktail (TNF-α, IL-1β, IL-6 and PGE2) and examined for expression of CD14, DC-SIGN, CD80, CD86, CCR5, CCR7, MHC I, and MHC II using flow cytometric analysis. Endocytosis was measured by incubating iMDDCs with a mock solution, HIV-1(CS204), or inflammatory cytokines followed by FITC-conjugated dextran incubation and flow cytometric analysis. Immunoblot analyses of p38 and JNK MAPK were performed after incubation of iMDDCs with a mock solution, HIV(CS204), or lipopolysaccharide (LPS).

**RESULTS:** Following infection with HIV a significant increase in the expression of DC-SIGN was observed.

HIV infection of iMDDC was associated with a decrease in cytokine induced CCR7 expression. Decreased levels of CD80, CD86, MHC I, and MHC II were also observed. Endocytosis of FITC-dextran was also decreased after infection with HIV. Both p38 and JNK MAPK pathways were activated by incubation of iMDDC with HIV(CS204).

**CONCLUSION:** In vitro HIV-1 infection appears to inhibit maturation of iMDDCs and to decrease endocytotic activity of iMDDCs without interfering MAPK pathways. Understanding the mechanisms of dendritic cell dysfunction in HIV infection will provide further insight into HIV immune pathogenesis.

## P116

### THE ROLE OF HLA CLASS II HAPLOTYPES IN HIV-1 INFECTION IN THE PUMWANI SEX WORKER COHORT

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**OBJECTIVES:** To characterize the distribution of DQA*DQB*DPA*DPB, DQA*DQB*DRB1, and DPA*DPB*DRB1 haplotypes and determine their relevance to HIV-1 infection in the Pumwani Sex worker Cohort.

**DESIGN:** The Pumwani Sex Worker Cohort contains a subpopulation of women who are seemingly resistant to HIV-1 infection despite continued exposure to the virus through sex work. Previous work identified specific $CD4^+$ T-cell responses that are associated with protection against the virus, implicating HLA class II as an important factor in the immune response against HIV-1. In total, 762 women were genotyped for DQA*DQB*DPA*DPB haplotypes, 851 were genotyped for DQA*DQB*DRB1 haplotypes, and 882 were genotyped for DPA*DPB*DRB1 haplotypes. Extended haplotype frequencies were determined using PyPop32-0.6.0. Statistical analysis was conducted with SPSS-13.0. Haplotypes that were present at 10 or more copies were examined for associations with resistance or susceptibility to HIV-1 infection by crosstab analysis.

**RESULTS:** We identified 25 DQA*DQB*DPA*DPB haplotypes, 26 DQA*DQB*DRB1 haplotypes, and 42 DPA*DPB*DRB1 haplotypes at a count of 10 copies or more. The haplotypes DQA*010201-DQB*060401-DPA*010301-DPB*040101 (P=0.023; OR:4.559; CI95%:1.298-16.015), DQA*010101-DQB*050101-DRB1*010201 (P=0.003; OR:2.365; CI95%1.314-4.257), DQA*050101-DQB*030101-DRB1*1102 (P=0.005; OR:2.308; CI95%1.268-4.201), DQA*010101-DQB*050101-DRB1*010101 (P=0.049; OR:3.323; CI95%1.036-10.659), DPA*010301-DPB*020102-DRB1*130201 (P=0.027; OR:2.770; CI95%1.196-6.417), and DPA*020202-DPB*010101-DRB1*1102 (P=0.045; OR:2.911; CI95%:1.039-8.161) were found to be protective against HIV-1 infection. In contrast, DQA*010201-DQB*0602-DPA*0301-DPB*0402 (P=0.033; OR:0.374; CI95%:0.146-0.957), DQA*010201-DQB*0602-DRB1*1503 (P=0.001; OR:0.270; CI95%:0.122-0.597), and DPA*0301-DPB*0402-DRB1*1503 (P=0.001; OR:0.280; CI95%:0.117-0.669) were found to associate with susceptibility to infection.

**CONCLUSION:** The identification of HLA class II extended haplotypes that are correlated with protection or susceptibility to HIV-1 infection reinforces the concept that CD4+ T-cell responses are an important factor in anti-HIV-1 immunity. These results complement current knowledge on HLA class II single locus associations with resistance or susceptibility to HIV-1 infection.

## P117

### THE POLYMORPHISMS OF THE APOLIPOPROTEIN B MRNA EDITING ENZYME, CATALYTIC POLYPEPTIDE-LIKE 3H (APOBEC3H) GENE IN PUMWANI SEX WORKER COHORT AND THE ASSOCIATIONS WITH THE SUSCEPTIBILY/RESISTANCE TO HIV-1

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**BACKGROUND:** APOBEC3H has the capability to interfere with the replication of HIV by mutating the negative strand of the viral DNA after reverse transcription. Unlike APOBEC3G, APOBEC3H has shown to be resistant to the viral accessory protein, Vif. It has been shown that the APOBEC3H of Rhesus Macaques can decrease the infectivity of HIV-1. However, human APOBEC3H has little effect on HIV-1 due to its low expression.

**OBJECTIVE:** To examine whether single nucleotide polymorphisms (SNPs) in the APOBEC3H gene play a role in the resistance to HIV-1 infection observed in a subgroup of women in the Pumwani sex worker cohort.

**METHODS:** Two exons and two introns of the APOBEC3H gene were amplified, sequenced, and genotyped from genomic DNA samples of

women (n=1029) enrolled in the Pumwani sex worker cohort. Genotyping results were statistically analyzed using SPSS-13.0, and linkage disequilibrium and haplotype frequencies were analysed using Helixtree®.
**RESULTS:** Of the twelve SNPs identified in the region, four were novel: SF17T (R17C), LF375 (G105G), LF381 (F107F), and LF478 (intron). Two of the four novel SNPs are associated with differential susceptibility to HIV-1 infection. LF381 (allele frequency: 2.20%) was enriched in the HIV infected women (P=0.0119, odds ratio:0.267, 95%CI:0.093-0.768) and is associated with faster seroconversion (P=0.000638, Log Rank: 11.66). LF375 (allele frequency: 4.05%) was enriched in the HIV resistant women (P=0.0145, odds ratio:2.413, 95%CI:1.223 - 4.762). Women with the SNP tend to seroconvert slower, however the p-value (0.176) was not significant.
**CONCLUSION:** Our results show that the two novel SNPs in APOBEC3H are associated with resistance/susceptibility to HIV-1 infection. Although these SNPs do not cause an amino acid change, they may be linked to SNPs in other regions of the gene and may influence the expression of APOBEC3H.

## P118
## INTERLEUKIN-7 RECPETOR SURFACE EXPRESSION ON CD4 T-CELLS IS DOWN REGULATED BY THE HIV TAT PROTEIN

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**SUMMARY:** HIV infection elicits defects in CD4 T-cell homeostasis in both a quantitative and qualitative manner. Interleukin-7 (IL-7) is essential to T-cell homeostasis and several groups have shown reduced levels of the IL-7 receptor alpha-chain (CD127) on both CD4 and CD8 T-cells in viremic HIV+ patients. Our lab has demonstrated that soluble HIV Tat protein specifically down regulates cell surface expression of CD127 on human CD8 T-cells in a paracrine fashion. Once taken up by CD8 T-cells, Tat enters the cytoplasm and interacts directly with the cytosolic tail of CD127 inducing receptor capping, endocytosis and degradation. The effects of Tat on CD127 expression in CD4 T-cells has yet to be described.
**OBJECTIVE:** The purpose of this study is to determine if, similar to CD8 T-cells, HIV Tat down regulates surface CD127 expression on CD4 T-cells.
**METHODS:** Primary CD4 T-cells isolated from healthy HIV-negative volunteers were incubated in media alone or with Tat protein (10 ug/ml) for up to 48 hours and then analyzed by flow cytometry for CD127 expression and other cell surface markers.
**RESULTS:** Similar to CD8 T-cells, soluble HIV Tat protein induces a 27.5% ± 4.6% decrease in surface CD127 expression on CD4 T-cells relative to cells cultured in media alone at 48 hours (n=2). This down regulation was not associated with cell activation as cells treated with Tat demonstrated no change in CD25, CD28, or CD56. Indeed, there was no change in overall phenotype including CD45RA, CD3, and CD4. Further, expression of CD132, the common gamma-chain which associates with CD127 to form the IL-7 receptor, was unaffected by Tat.
**CONCLUSIONS:** The HIV protein Tat significantly down regulates surface expression of the IL-7 receptor alpha-chain (CD127) on both CD4 and CD8 T-cells. In view of the important role IL-7 plays in lymphocyte proliferation, homeostasis and survival, this down regulation of CD127 by Tat likely plays a role in immune dysregulation and CD4 T-cell decline. Understanding this effect could lead to new therapeutic approaches to reverse the CD4 T-cell loss evident in HIV infection.

## P119
## TRANSMISSION PATTERNS OF HIV AND HCV WITHIN OTTAWA IDU SOCIAL NETWORKS

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**BACKGROUND:** Injection of illicit drugs remains a driver of HIV and hepatitis C (HCV) transmission throughout the world. In Canada, several centres have prevention strategies in place which have been effective at maintaining relatively stable HIV and HCV prevalence. Nevertheless, certain 'hot spots' including Ottawa continue to experience high levels of transmission. In order to better understand some of the many factors contributing to ongoing HIV and HCV transmission among IDU, we evaluated molecular characteristics of HIV and HCV in the context of Ottawa IDU social networks.
**METHODS:** IDU recruited through respondent-driven sampling provided a biological specimen for analysis. HIV and HCV positive specimens were analyzed using phylogenetic methods (Neighbour-joining) and molecular characteristics of HIV and HCV evaluated in the context of the recruitment networks.
**RESULTS:** We recruited 407 IDU (80% male) in 4 networks consisting of 12, 13, 126 and 253 participants. HCV and HIV prevalence were 60.6% and 10.1%, respectively, and 98% of HIV positive individuals were coinfected with HCV. HCV genotypes were 66% 1a and 23% 3a. HIV subtypes were 89% B and 11% C.
Thirty-six percent of HCV sequences were found clustered, whereas 67% of HIV sequences were clustered. In two pairs of participants, both HIV and HCV were phylogenetically related demonstrating a common source of both infections. Clustering within and between the recruitment networks were observed.
**CONCLUSIONS:** The high degree of HIV clustering suggests many are recent infections originating from within study networks, whereas a larger proportion of HCV infections may have occurred earlier. Transmission patterns within and between recruitment networks suggests a dynamic that may be explained through social network analysis.
Combing network analysis and phylogenetics can help us better understand HIV and HCV transmission dynamics, leading to more targeted harm reduction programs such that the limited resources available can have the greatest impact.

## P120
## LIBÉRATION D'EXOSOMES PROVOQUÉ PAR LE VIH-1

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Le virus de l'immunodéficience humaine (VIH-1) utilise principalement les cellules dendritiques, (CDs) qui sont des cellules présentatrices d'antigènes pour infecter un individu. Le VIH-1, après avoir été capturés et internalisés dans les endosomes de ces cellules, est transmis aux lymphocytes T CD4 (LTCD4), cellules orchestratrices de la réponse immunitaire. De cette façon, le VIH-1 voyage discrètement jusqu'aux organes lymphoïdes secondaires, site de la réplication virale. Cependant, une déplétion quasi totale en LTCD4 a été observée, et ce, 15 jours après le premier contact avec le virus compromettant ainsi le développement d'une réponse immunitaire protectrice. Les mécanismes participants à l'élimination rapide et drastique des LTCD4 ne sont pas encore tous élucidés; outre le fait que l'infection elle-même détruit les cellules, d'autres facteurs moins connus peuvent aussi influencer cette déplétion. Les CDs libèrent des microvésicules très semblables au virus. Ces vésicules que l'on appelle exosomes ont à leurs surfaces des molécules importantes pour la survie des cellules ou la présentation des antigènes et pourraient participer à l'élimination des LTCD4. En utilisant deux méthodes pour quantifier les exosomes, nous avons observé que les CDs ainsi que les LTCD4 en contact avec le VIH-1 pouvaient libérer de plus grande quantité d'exosomes. De plus, l'analyse protéomique réalisée sur les exosomes purifiés par gradient de vélocité, révèle un contenu riche en protéine jouant un rôle important dans la survie cellulaire. Enfin, une préparation virale dépourvue en exosomes favorise la survie d'un plus grand nombre de LTCD4. Ces premières observations laissent suggérer un rôle potentiel pour les exosomes dans la viabilité des LTCD4 lors de la primo-infection.

## P121
## DIFFERENTIAL SURFACE EXPRESSION OF DIPEPTIDYL PEPTIDASE IV PROTEIN IN HIV-1 RESISTANT COMMERCIAL SEX WORKERS

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Altered susceptibility to HIV-1 infection is seen in a commercial sex

worker cohort in Nairobi, Kenya, where some subjects are classified as resistant to HIV. Genetic factors also contribute to this escape from infection in HIV-1 resistant individuals.

After a genome-wide profiling analysis of HIV-1 resistant sex workers was conducted, Dipeptidyl Peptidase IV gene was the most differential gene with more than 2-fold overexpression. This was confirmed by real time qPCR. DPPIV inhibits genes of the insulin pathway. (Songok, et al, in press).

DPPIV protein plays a major role in immune response. Its abnormal expression has been associated with autoimmune diseases, HIV-related diseases and cancer (Boonacker and Van Noorden, 2002). There is a selective decrease in DPPIV positive T cells in HIV-1 infected individuals prior to a general reduction in the number of CD4+ cells (Blazquez, et al, 1992). This indicates the importance of the immunomodulating role of DPPIV. The exact functions of DPPIV in vivo have not yet been elucidated (Jeffrey, 1999).

Study population was drawn from the Pumwani Sex Worker Cohort, Nairobi. Study size was HIV resistant; new HIV-negative; HIV-positive and low exposure HIV-negative women (n=14each). Freshly isolated PBMCs were immunophenotyped using flow cytometry to determine surface expression of DPPIV. The cells were stained using CD4, CD8 and CD26 antibodies. Data was acquired using FACS Calibur Flow Cytometer (BD Biosciences, San Jose, CA). Analysis was done using Cell Quest and FlowJo (Tree Star, Inc, Ashland, Ontario) software. Statistical analysis was performed using Mann-Whitney U Test. Differences were considered to be statistical if $P<0.05$.

There was a significantly higher surface DPPIV expression in the T cells of HIV resistant subjects from the other groups: HIV negative antenatal clinic attendees (MCH) CD4 $p<0.0001$; newly enrolled HIV negative sex workers CD4 $p<0.0215$, CD8 $p<0.001$; HIV infected sex workers CD4 $p=0.0002$, CD8 $p<0.001$.

Work is underway to elucidate the potential role of this candidate gene in HIV-1 resistance in this cohort.

## P122

### A SYSTEMS BIOLOGY APPROACH FOR IMMUNE MONITORING IN HIV RESISTANT SEX WORKERS FROM NAIROBI, KENYA

**DR Stein, G Westmacott, M Carpenter, K Cheng, FA Plummer, B Ball**
**Winnipeg, MB**

**BACKGROUND:** With numerous failed vaccine trials it is becoming increasingly evident that vaccine development is in critical need of basic research into correlates of protection against HIV infection. New approaches are also required that can effectively monitor immune responses in vaccine trials generated at the systemic as well as mucosal level from low cell numbers.

**METHODS:** Peripheral Blood Mononuclear Cells (PBMCs) were collected from healthy donors at the University of Manitoba. PBMCs were then stimulated with PHA and protein collected at various time points. Using a differential mass spectrometry approach called iTRAQ, we are able to quantify and identify differentially expressed immune pathways at the protein level within study participants. This technique also has high through put capability allowing us to multiplex 8 patient samples into a single mass spectrometer run.

**RESULTS:** Preliminary mass spectrometer data is being generated to identify differentially regulated immune pathways in response to PHA stimulation. Analysis will focus on significantly enriched immune pathways that may be important when monitoring responses during vaccine trials. Further, this approach will also be used to study HIV resistant sex workers from Nairobi, Kenya.

**CONCLUSION:** Using a high thorough put and unbiased approach to better elucidate the correlates of immune protection in individuals who despite repeated exposure to HIV remain uninfected will provide valuable insight into site-specific immunity at the systemic as well as mucosal level. Further, systems biology techniques such as this one, require as little as 104 cells and could become an attractive approach for comprehensive immune monitoring during vaccine trials.

# Clinical Sciences Posters

## P124

### ASSESSING THE LEVEL OF ADHERENCE TO HAART AND ITS ASSOCIATED FACTORS AMONG HIV-POSITIVE YOUNG ADULTS: A CASE OF TWO UGANDAN TREATMENT CENTERS

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**BACKGROUND:** Strict adherence to HAART is a determinant of clinical and virologic success in HIV/AIDS treatment. Through young adults make up over 50% of HIV/AIDS cases in Uganda, no studies have been done to assess their adherence and associated factors.

**OBJECTIVES:** To assess the level of adherence to HAART and its associated factors among young adults in Uganda.

**METHODS:** A cross-sectional study with qualitative and quantitative methods of data collection was conducted at Naguru health centre and Mulago National Referral Hospital among HIV-positive patients aged 15-24 years who had been on HAART for at least one month. A total of 231 respondents were assessed for their 4-day adherence patterns using self reports. Data was collected using a semi structured questionnaire, was entered in Epidata and analyzed with STATA 8 key informant interviews and focus group discussions were held for the qualitative data.

**RESULTS:** Five in six (84%, n = 194) of the respondents were adherent. On multivariate analysis, the factors independently associated with adherence in young adults were <3 months' duration on HAART (OR – 106, 95% CI = 1.01-1.11), perceived lack of privacy at the treatment centre (OR=4.6, CI = 1.0520.10), and having a treatment BUDDY (or=2.04, CI = 0.97-15.52).

**CONCLUSION:** Adherence levels in young adults were high. Duration on HAART, having a treatment buddy, lack of privacy at the treatment centre, and having confidence in HAART were associated with adherence.

## P125

### OPTIMIZING HIV TREATMENT ADHERENCE BY ASSESSING HIV MEDICATION READINESS AND BY PREPARING PATIENTS FOR TREATMENT

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Excellent medication adherence is required for optimal HIV treatment success. HIV patients who begin HIV medications vary in how well prepared and ready they feel to begin treatment. Health Behaviour theories suggest that patients who feel more informed, prepared, and in control of their treatment tend to adhere better to their medical regimens. This project describes systematic methods for assessing HIV medication readiness and preparing HIV patients for starting treatment. The authors have developed and validated clinical tools to assess HIV medication readiness and methods for optimally preparing patients for starting HAART. These tools will be described and the clinical utility of using short, easy to use, validated self-report tools for assessing HIV patient treatment readiness and optimizing and predicting treatment adherence will be discussed. Clinical examples of how to adapt and tailor the HIV medication readiness tool to different HIV patient populations will also be discussed.

## P126

### TIME TO VIROLOGIC RESPONSE (TVR) IS NOT ASSOCIATED WITH RESPONSE DURABILITY IN TREATMENT-NAÏVE PATIENTS RECEIVING EFAVIRENZ (EFV)-BASED HIGHLY ACTIVE ANTIRETROVIRAL THERAPY (HAART)

**R Ebrahimi[2], P Borg[1], G Pearce[3], S Chen[2], D Warren[2]**
**[1]Mississauga, ON; [2]Foster City, USA; [3]Stockley Park, United Kingdom**

**BACKGROUND:** More recent antiretroviral drugs that have shorter time to virologic suppression in treatment naïve subjects have raised

questions regarding the association between shorter TVR and durability of virologic response. The objective of the current post-hoc analyses was to explore this association in four EFV-based HAART regimens from two large 144 week phase 3 trials. Study 903 (S903, TDF or stavudine (d4T) each in combination with lamivudine and EFV) and Study 934 (S934, TDF plus emtricitabine (FTC) or zidovudine/lamivudine (ZDV/3TC) each in combination with EFV) were performed in treatment-naïve patients and offer the longest exposure to EFV-based HAART regimens.

**METHODS:** Subjects were categorized based on time from baseline to their first confirmed HIV-RNA <50 copies/mL (Time to Virologic Response, TVR) while on study drug using Roche Amplicor HIV-1 Monitor Ultrasensitive Assay (S903 Versions 1.0 or 1.5 depending on site; S934 Version 1.5). Due to differences in study visit schedules, subjects in S903 and S934 were categorized slightly differently (see Table). Durability of response was measured from time of first achieving confirmed HIV-RNA <50 copies/mL (Week 1) to first confirmed HIV-RNA ≥50 copies/mL or last one while on study drug up to 96 weeks after TVR. Durability of response was estimated for each treatment group by KM product limit method.

**RESULTS:** 1,087 patients were included in the analysis.

| Study 903 (ITT analysis set) | TVR | N | KM% (95% CI) of Rebound at Wk 96 Since TVR |
|---|---|---|---|
| TDF+3TC+EFV (n=299) | < Wk 12 | 154 | 14% (8.6-19.8) |
| TDF+3TC+EFV (n=299) | Wk 12 to 24 | 90 | 15% (6.9-22.3) |
| TDF+3TC+EFV (n=299) | > Wk 24 | 18 | 17% (0.0-35.5) |
| TDF+3TC+EFV (n=299) | Not Achieved | 37 | NA |
| D4T+3TC+EFV (n=301) | < Wk 12 | 157 | 11% (6.0-16.4) |
| D4T+3TC+EFV (n=301) | Wk 12 to 24 | 97 | 14% (6.6-21.4) |
| D4T+3TC+EFV (n=301) | > Wk 24 | 15 | 27% (4.3-49.1) |
| D4T+3TC+EFV (n=301) | Not Achieved | 32 | NA |
| **Study 934 (MITT analysis set)** | | | |
| TDF+FTC+EFV (n=244) | < Wk 16 | 157 | 6% (2.3-10.3) |
| TDF+FTC+EFV (n=244) | Wk 16 to 24 | 35 | 17% (3.1-29.9) |
| TDF+FTC+EFV (n=244) | > Wk 24 | 24 | 13% (0.0-25.7) |
| TDF+FTC+EFV (n=244) | Not Achieved | 28 | NA |
| ZDV/3TC+EFV (n=243) | < Wk 16 | 145 | 6% (2.1-10.7) |
| ZDV/3TC+EFV (n=243) | Wk 16 to 24 | 33 | 4% (0.0-10.8) |
| ZDV/3TC+EFV (n=243) | > Wk 24 | 19 | 12% (0.0-27.4) |
| ZDV/3TC+EFV (n=243) | Wk 16 to 24 | 46 | NA |

*Twenty-two patients in S934 (11 in each arm) found to have baseline NNRTI resistance after randomization were excluded from the analysis. NA = not applicable*

**CONCLUSION:** TVR was not associated with durability of response in treatment-naïve patients treated with EFV-based HAART regimens for 144 weeks.

## P127

## IMPROVEMENT IN FASTING LIPIDS BUT MINIMAL RECOVERY OF LIMB FAT WERE SEEN 96 WEEKS AFTER SWITCHING FROM LAMIVUDINE/ZIDOVUDINE (CBV) PLUS EFAVIRENZ (EFV) TO FIXED-DOSE EFAVIRENZ/ EMTRICITABINE/TENOFOVIR DF (ATR) IN HIV-INFECTED PATIENTS

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**[1]Mississauga, ON; [2]Orlando, USA; [3]London, UK; [4]Baltimore, USA; [5]Madrid, Spain; [6]Foster City, USA**

**BACKGROUND:** Study 934 was a 144-week randomized trial comparing the safety and efficacy of emtricitabine/tenofovir DF (TVD) versus CBV each in combination with EFV in treatment-naïve patients (pts).

**METHODS:** After completing 144 wks, pts in both arms were switched to ATR once daily in a 96-wk extension phase.

**RESULTS:** 286 pts (160 TVD, 126 CBV; 88% male, 65% white, mean age 40 yrs, mean CD4 535) switched to ATR. At time of switch, 94% in TVD arm and 97% in CBV arm had VL<50 c/mL. Ninety-six weeks after switching from TVD and CBV to ATR, median CD4 count increased +37 and +42 cells, and GFR by Cockcroft-Gault changed +2 and –5 mL/min, respectively. No renal AEs occurred. Two deaths (cardiac arrest; presumed suicide) that were assessed as unrelated to study drugs occurred during the study. Two pts discontinued due to AEs (pulmonary MAC, metastatic anal carcinoma).

| Results | TVD+EFV to ATR | CBV+EFV to ATR |
|---|---|---|
| HIV RNA <50 (M=F, M=E) | 83%, 96% | 82%, 96% |
| Total cholesterol - mg/dL (mmol/L) | 189, +5 (4.89, +0.13) | 199, -12 (5.15, -0.31) |
| LDL-C - mg/dL (mmol/L) | 114, 0 (2.95, 0) | 118, -11 (3.05, -0.28) |
| Tryglycerides - mg/dL (mmol/L) | 120, +1 (1.35, +0.01) | 128, -20 (1.45, -0.23) |
| Total limb fat (kg) | 7.9, -0.12 | 5.4, +0.31 |

*All values (except HIV-RNA) are median at time of switch, median change 96 weeks post switch; cholesterol values expressed as mg/dL and mmol/L, respectively. p<0.05 for all median changes at 96 weeks post switch for the CBV+EFV to ATR arm*

**CONCLUSIONS:** Switching TVD+EFV or CBV+EFV to single tablet once-daily ATR was well tolerated and resulted in maintenance of virologic suppression through 96 wks. Patients on CBV+EFV for 3 years who switched to ATR demonstrated significant decreases in fasting lipids but minimal recovery of limb fat 96 weeks post switch.

## P128

## PHARMACOKINETIC BOOSTING OF ATAZANAVIR WITH THE PHARMACOENHANCER GS-9350 VERSUS RITONAVIR

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**BACKGROUND:** GS-9350 is a specific, potent, mechanism-based inhibitor of human cytochrome P450 3A (CYP3A) enzymes and lacks antiviral activity. Clinically, GS-9350 increases (boosts) plasma exposures of the CYP3A4 probe midazolam and the HIV integrase inhibitor elvitegravir comparably to ritonavir (RTV). Boosted-atazanavir (ATV) is a HIV protease inhibitor preferred for first line treatment of HIV patients in DHHS guidelines. This study evaluated the pharmacokinetics (PK) of ATV when boosted with GS-9350 or RTV.

**METHODS:** In a 3-period, 6-sequence, crossover study, healthy subjects (N = 7/sequence) were randomized to receive ATV for 10 days with GS-9350 100 mg, GS-9350 150 mg or RTV 100 mg under fed state, with a 4-day washout between treatments. ATV, GS-9350, and RTV PK were assessed on Day 10 of each period. Lack of PK alteration bounds for 90% confidence intervals (CI) about the geometric mean ratio (GMR) (ATV plus GS-9350 versus ATV plus RTV) were 80-125% for ATV Cmax, Ctau, and AUCtau.

**RESULTS:** Of the 42 enrolled subjects (67% male; mean age 28 years [range 18-45]), 33 completed the study; four discontinued due to treatment-related adverse events (AEs). Bilirubin levels were elevated (a known effect of ATV due to its inhibition of UGT1A1 enzymes) but comparable across treatments. Expressed as % GMR (ATV plus GS-9350 versus ATV plus RTV) (90%CI), ATV exposures were bioequivalent when given with GS-9350 150 mg or RTV 100 mg: AUCtau 101% (94.5, 108), Cmax 92.3% (85.1, 100), Ctau 97.6% (88.1, 108). GS-9350 100 mg provided lower ATV exposures. Most AEs were mild and no Grade 3 or 4, or serious AEs were observed. The most common treatment-emergent AEs were ocular icterus, headache, contact dermatitis, and jaundice.

**CONCLUSIONS:** ATV plus GS-9350 150 mg provides bioequivalent ATV exposures as ATV plus RTV 100 mg. A Phase 2 study comparing ATV 300 mg plus GS-9350 150 mg versus ATV 300 mg plus RTV 100 mg, each in combination with emtricitabine/tenofovir disoproxil fumarate, in treatment-naive HIV patients is ongoing.

## P129

## HOW IS CANADA PREPARING FOR PREP?

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**BACKGROUND:** Pre-Exposure Prophylaxis (PrEP) is a quite novel field in experimental HIV biomedical prevention. If proven clinically beneficial, it could help protect seronegative persons from HIV through oral

intake of antiretrovirals. Increasing funding has been devoted to PrEP research. And seven safety and/or efficacy PrEP trials are to yield new data in the next few months. If results are positive, decisions will have to be made by and guidance might be requested from scientists, regulators and community workers throughout Canada.
**OBJECTIVES:** 1) To determine the contribution of Canadians to PrEP scientific literature; 2) To explore the involvement of Canada in PrEP clinical research; 3) To identify Canadian planning initiatives related to PrEP implementation.
**METHODS:** A review of scientific and grey literature was conducted. Information sources included Medline, Google (main), the Canadian HIV Trials Network, the NIH trials registry and key informants.
**RESULTS:** Twelve published articles on HIV PrEP were found that included at least one Canada-based author. Subjects discussed included PrEP relevance, PrEP bioethics and theoretical impact of PrEP implementation. Two researchers affiliated to Canadian institutions were found to be involved in current or planned PrEP clinical studies. Four AIDS-serving organizations (Canadian AIDS Treatment Information Exchange, Canadian AIDS Society, Global Campaign for Microbicides, Interagency Coalition on AIDS and Development) were found to have produced some informational material or to have initiated public events focusing on PrEP. At the Federal Government level, the Canadian HIV Initiative now considers PrEP among other experimental new prevention technologies in HIV response planning. And the Canadian Institute of Health Research offers funding for PrEP studies.
**CONCLUSION:** This review suggests that there are resources and room for more Canadian involvement in the HIV PrEP field, nationally and internationally. Public discussions and collaborative networking are needed to help Canadian stakeholders get ready for upcoming PrEP trials results.

## P130
## IMMUNOLOGIC EFFECTIVENESS OF MARAVIROC AND RALTEGRAVIR CONTAINING REGIMENS VERSUS RALTEGRAVIR-BASED REGIMENS THAT DO NOT INCLUDE MARAVIROC

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**OBJECTIVES:** To compare the immunologic and virologic effectiveness of maraviroc and raltegravir (M+R)-containing regimens with raltegravir-based regimens that do not include maraviroc (M-R).
**METHODS:** A retrospective cohort study of patients starting M+R- or M-R-based regimens was carried out. The primary outcome was change in CD4+ count over time between the two groups. Secondary outcomes included changes in viral load (VL) and serum ALT and AST.
**RESULTS:** 56 patients receiving M+R and 122 patients receiving M-R were included in the analysis. The median durations of follow-up were 49.5 (38, 60) weeks for M+R and 48 (IQR 27, 68) weeks for M-R. Median baseline $CD4^+$ count was 370 cells/mm3 (IQR 185, 530) for M+R patients and 340 cells/mm3 (IQR 190, 510) for M-R patients. The median numbers of antiretroviral agents in the current regimen were 6 (IQR 5, 7) and 4 (IQR 4, 5) for M+R and M-R patients, respectively ($p < 0.0001$). No differences were observed between the groups for other baseline variables. The median $CD4^+$ count increases from baseline to week 24 were 40 cells/mm3 (IQR –15, 139.5) and 41.5 cells/mm3 (IQR –20, 150) for M+R and M-R, respectively ($p = 0.58$). Following adjustment for other covariates, maraviroc was not associated with median $CD4^+$ count change from baseline to week 24 using quantile regression ($p = 0.74$). No significant differences between groups were observed in viral load, serum ALT or serum AST from baseline to week 24.
**CONCLUSIONS:** The immunologic effectiveness of regimens including raltegravir is not enhanced by concomitant use of maraviroc.

## P131
## INCIDENCE OF SEXUALLY TRANSMITTED DISEASES IN RECENT HIV-SEROCONVERTERS

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**OBJECTIVES:** Risk of HIV transmission is high during early HIV infection, and is associated with risk of other sexually transmitted diseases (STDs). However, little is known about the effect of enrollment into studies of early HIV infection on risk of STDs.
**METHODS:** We studied demographics and incidence of STDs of people infected with HIV-1 for <12 months who were enrolled in a) the Baltimore, MD site of the Acute Infection and Early Disease Research Project (AIEDRP; enrollment period 2/1998-3/2002; N=92); and b) the Baltimore and Vancouver/Victoria, BC, Canada sites of a randomized trial of antiretroviral therapy (ART) in acute/early HIV infection (enrollment period 5/2005-6/2009; N=54 in Baltimore and 34 in BC). Data on STDs were collected only in the later study, in which participants were queried about high risk behavior and received safe sex counseling at each study visit.
**RESULTS:** In Baltimore, the later study had significantly greater proportions of participants aged <30 (85.9% vs. 41.5%, p<.001), men who have sex with men (MSM) (68% vs 37%, p=.009) and men (96.8% vs. 67.4%, p=.006) than the earlier study. BC participants were also predominantly male and MSM. After enrollment in the later study, in Baltimore 16 subjects (30%), all male, developed 27 STDs (median follow-up = 34.5 months, median time from HIV diagnosis to acquisition of an STD = 11.5 months, median age at diagnosis = 24.5 yr); cumulative probabilities of developing an STD by 6, 12 and 24 months were .06, .21 and .32, respectively. In BC, similar results were obtained, with 8 (24%) of participants, all male, developing 8 STDs, for corresponding probabilities of .06, .13, and .24, respectively.
**CONCLUSIONS:** Subjects enrolling in studies of acute/early HIV infection in Baltimore showed an increase in STDs in young MSMs, consistent with national incidence data, and similar demographics were seen in British Columbia. At both sites, despite safe sex counseling, 1/4 to 1/3 of participants had at least one sexually transmitted disease after their diagnosis of HIV.

## P132
## 'TWO DISEASES, ONE PATIENT' – TACKLING TB/HIV CO-INFECTION THROUGH A SOCIALLY INFORMED PARADIGM OF CARE

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**BACKGROUND:** Tuberculosis (TB) is the leading opportunistic infection and cause of mortality among people living with HIV/AIDS in sub-Saharan Africa. The greatest impact is felt in South Africa, where approximately one in five adults is HIV-positive and three of every four TB patients are co-infected with HIV, resulting in escalating rates of morbidity and mortality. Coordinated efforts are imperative to tackle the epidemiological storm created by the confluence of the TB and HIV epidemics.
**OBJECTIVE:** This paper critically examines the coordination of TB/HIV healthcare through the voices of co-infected patients and healthcare providers in South Africa.
**METHODS:** In 2009, a qualitative study was implemented at an HIV clinic in KwaZulu-Natal province. Alongside field observations, in-depth interviews were privately conducted, in English and isiZulu, with 13 adult patients co-infected with TB and HIV, and 2 key-informant healthcare workers. Data was analyzed through an iterative, inductive process involving coding and conceptualizing.
**FINDINGS:** Qualitative data captured patients' and providers' experiences with TB/HIV coinfection and exposed how the social underpinnings of illness may impact the uptake and delivery of coordinated care. Analysis revealed novel themes and concepts related to the double stigma of TB and HIV; shared coping; disparate models of TB and HIV care; socially rational decision-making; and, ownership and acceptance. They highlighted difficulties encountered by patients and providers when navigating between

resource-constrained, stigma-ridden and historically different cultures of care across TB and HIV programs, in efforts to integrate treatment under the WHO model of 'two diseases, one patient'.

**CONCLUSIONS:** This study urges conceptualization of a socially informed paradigm of TB/HIV care, which may be tailored to specific healthcare settings. Findings inform the design of interventions aimed at mitigating the dual impact of TB and HIV in diverse global regions where TB is a burgeoning public health threat in the context of HIV/AIDS.

## P133

## HEPATITIS B-HIV CO-INFECTION: EXPERIENCE FROM A TERTIARY CARE HOSPITAL IN TORONTO

**HH Ko, DK Wong**

**Toronto, ON**

**BACKGROUND:** HBV-HIV co-infection has been reported to have an increased liver-related morbidity and mortality. However, these observations predated the widespread use of Tenofovir for HBV-HIV co-infection.

**OBJECTIVE:** Compare the clinical features and outcomes of HBV-HIV co-infected to HBV mono-infected cohorts.

**METHODS:** All patient encounters for a Hepatology opinion at the Toronto General Hospital Immunodeficiency Clinic and the Toronto Western Hospital Liver Centre from Dec 2006 to Jan 2010 have been captured using an electronic medical record system. Data on patient demographics, treatment response and clinical outcomes were analyzed.

**RESULTS:** Of 2,033 referred for HBV, 64 were known to HIV-positive. Two were HBsAg-negative at first presentation, leaving 62 with chronic HBV-HIV co-infection. Most were men (90.3%), age 46 + 9 years. MSM sexual contact was the major risk factor for HIV (75.8%) and for HBV (67.7%). HBeAg was positive in 80.5%. Most were on treatment: 48 (77.4%) on 3TC/FTC-TDF combination therapy and 8 (12.9%) on 3TC or ETV monotherapy. Of 15 tested for resistance, 12 had M204V/I and/or L180M and V183L. Only 29 (46.8%) had fully suppressed HBV (DNA < 12 IU/mL). During follow-up, 15 (33%) had HBeAg to anti-HBe seroconversion and 2 lost HBeAg but remained anti-HBe negative. Five (8.1%) lost HBsAg, 4/5 also anti-HBs positive.

When comparing HBV-HIV co-infected to HBV mono-infected, more co-infected were treated 56/62 (90.3%) vs 961/1969 (48.8%) and yet severe disease was more common in the co-infected cohort: cirrhosis in 27 (43.4%) vs 429 (21.8%) and hepatocellular carcinoma in 4 (6.5%) vs 65 (3.3%).

**CONCLUSION:** HBV-HIV co-infection management remains a challenge. Although 3TC/FTC-TDF combination therapy is recommended for all, only the minority have fully suppressed HBV DNA levels on therapy. Furthermore, the prevalence of advanced liver disease and liver-related complications is higher in those with HBV-HIV co-infection and so surveillance is required.

## P134

## POOR QUALITY OF LIFE IN HIV-HEPATITIS C VIRUS (HCV) CO-INFECTION IS PREDOMINATELY A CONSEQUENCE OF UNFAVOURABLE SOCIAL CONDITIONS

**AE Adams, D Rouleau, J Cox, S Saeed, MB Klein**

**Montreal, QC**

**BACKGROUND:** The MOS-HIV is a validated self-administered quality of life (QOL) scale. We used the MOS-HIV to assess the QOL of a cohort of HIV-HCV co-infected patients.

**METHODS:** Data were collected prospectively from 2003-2005 as part of the HIV-HCV Co-infection Pilot Cohort Study in Quebec. Multivariate linear regression models were used to assess associations between the various QOL dimensions and demographic, risk behaviour and clinical factors at entry into the cohort. Final models were adjusted for gender, age, antiretroviral (ART) use and baseline CD4 cell count, HIV viral load and APRI (AST to platelet ratio index).

**RESULTS:** 240 participants were studied. Profile: male (82%); median age, 45 years; history of injection drug use (80%), median CD4 count, 339 cells/μL and currently taking antiretrovirals (70%). The following were negatively associated with a) physical functioning (β; 95% CI): age (–0.72; –1.19, –0.25), living in a shelter (–19.16; –33.18, –5.15); b) role functioning: living in a shelter (–27.68; –46.94, –5.34), low income (–24.76; –41.06, –8.45), sex work (–37.80; –67.34, –8.26), less than high school education (–15.32; –28.20, –2.44), currently smoking (–16.11; –28.75, –3.36), and living alone (–13.03; –25.05, –1.02). Being naïve to ART was the only variable positively associated with physical (18.53; 6.25, 30.80) and role functioning (22.91; 4.30, 41.52). Mental functioning was negatively associated with psychiatric illness (–10.23; –16.14, –4.31), current cocaine use (–6.12; –12.16, –0.07) and APRI ≥2 (–0.89; –1.62, –0.15).

**CONCLUSIONS:** Factors linked to QOL in HIV-HCV co-infected patients are predominately socio-behavioural in nature. While HIV, HCV and other health indicators appear less important, findings suggest a positive impact of early HIV (physical function) and HCV (mental function) disease. Efforts to understand the temporal nature of these factors and impact on QOL will help determine possible interventions. Focusing on practical concerns such as housing and potentially risky and socially destabilizing behaviours may lead to improved in QOL in this population.

## P135

## A PORTRAIT OF HIV-HEPATITIS C CO-INFECTED PERSONS IN CARE IN CANADA: THE CANADIAN CO-INFECTION COHORT STUDY (CCC; CTN 222)

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**BACKGROUND:** The CCC was established to determine the impact of ART and HCV treatment on progression to endstage liver disease (ESLD), a growing cause of morbidity and mortality in the post-ART era.

**METHODS:** 966 HCV-HIV co-infected patients were enrolled prospectively between 2003 and 2009 from 16 centres across Canada. Participants completed questionnaires on socio-demographics, drug use and clinical care and provided blood for biochemical, virologic and immunologic studies every 6 months.

**RESULTS:** 881 patients were analyzed and followed for a median of 1.01 years (0.5-2.06 years); only 3% were lost to follow-up. A majority were male (73%) between the ages of 19-68 years old and born in Canada. At baseline, 38% reported active IDU. Median baseline CD4 cell count was 374 cells/μL and 77% were on ART with median HIV RNA undetectable. While access to ART was high across the country, regional differences exist with respect to socio-demographic characteristics and rates of HCV treatment as shown in the table.

| | Total n=881 | ON n=233 | QC n=370 | BC n=222 | AB n=45 | NS n=11 | P-Value |
|---|---|---|---|---|---|---|---|
| Aboriginal | 15 | 15 | 1 | 39 | 24 | 0 | <0.001 |
| > high school education | 26 | 36 | 22 | 41 | 27 | 36 | <0.001 |
| Gross monthly income >$1500 | 28 | 35 | 14 | 23 | 41 | 60 | <0.001 |
| History of IDU | 81 | 67 | 83 | 91 | 86 | 73 | <0.001 |
| Currently injecting cocaine | 41 | 31 | 53 | 39 | 8 | 25 | <0.001 |
| ART exposure ever | 87 | 90 | 84 | 87 | 98 | 91 | <0.05 |
| PI regimen at baseline | 69 | 65 | 72 | 71 | 56 | 60 | <0.005 |
| HCV treatment ever | 24 | 34 | 21 | 15 | 27 | 70 | <0.001 |

*values are %; P-value excludes Nova Scotia*

Of the first 750 patients, 3% developed ESLD during follow-up (3/100p-y, 95% CI: 2-5) all of whom had received ART but only 14% had received HCV treatment.

**CONCLUSIONS:** The CCC represents one of the largest multi-centre cohorts focused on HIV-HCV co-infection in the world. Long-term follow-up of this diverse cohort will permit the study of the impact of ART and HCV treatment on the natural history of liver disease while accounting for potential confounders such as socio-demographics, drug use and type of care received.

## P136

### RESPIRATORY ABNORMALITIES IN HIV POSITIVE INDIVIDUALS ATTENDING THE IMMUNODEFICIENCY CLINIC AT ST. PAUL'S HOSPITAL IN VANCOUVER, BRITISH COLUMBIA

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**BACKGROUND:** HIV may be a risk factor for chronic obstructive pulmonary disease (COPD). However, its presentation and impact on quality of life are unknown. This study aims to describe chronic airflow limitation and disease-specific health status among HIV+ adults.

**METHODS:** The study will enrol 300 HIV+ adults with risk factors for respiratory illness, but no acute symptoms. For consenting individuals, spirometry is conducted according to ATS standards, baseline sociodemographic and medical information is collected, and a self-administered disease-specific health status instrument, St George's Respiratory Questionnaire (SGRQ), is completed, Chest X-ray and blood tests are obtained within one month.

**RESULTS:** 61 participants were enrolled August-December, 2009: 96% male, median age 49 years (inter-quartile range [IQR] 43, 55.5). 74.6% were past or present smokers, median 22.5 pack-years (IQR 14, 33). All except one were receiving HAART, median CD4 count was 480 cells/mm3 (IQR 320,600), and 61% had plasma viral load <40 copies/mL. SGRQ score (where a mean difference of 4/100 is considered clinically significant) was higher than expected for the general population (mean 22.9 [standard deviation {SD}] 20.2] versus mean 8.41 [SD 11.33]), indicating worse respiratory health status and increased symptoms. 20.3% had forced expiratory volume in one second (FEV1) <80% of predicted and 20.3% had a FEV1 to forced vital capacity (FVC) <70% indicating COPD. In total, 28% had either FEV1 <80% of predicted or FEV1/FVC <70%. Abnormal chest X-ray findings were seen in 16.1% of participants overall: 23% of those with abnormal spirometry and 8.6% of those with normal spirometry.

**CONCLUSION:** The preliminary results of this ongoing study indicate that respiratory symptoms and chronic airflow limitation are common in HAART-treated HIV+ individuals, even those without known COPD. Spirometry may be a useful screening test for detecting abnormalities requiring further investigation and intervention in HIV+ patients at risk for COPD.

## P137

### TREATMENT OF HCV IN INJECTION DRUG USERS (IDUS): AN UPDATE ON A MULTIDISCIPLINARY PROGRAM IN VANCOUVER

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**OBJECTIVES:** IDUs are increasingly being considered as candidates to receive HCV therapy if they qualify for it on medical grounds and the appropriate system of care is in place to deliver it safely and effectively. We have evaluated our record (2004-2009) in the administration of HCV therapy to such patients living in Vancouver's Downtown East Side.

**METHODS:** Beginning in March 2005, patients were recruited to the Pender Community Health Centre (PCHC) to be evaluated for possible treatment for HCV infection. Extensive diagnostic testing was offered for both HIV and HCV, and patients deemed eligible for HCV therapy were offered to be included in our program offering weekly clinic visits (either at the PCHC or an academic clinic in downtown Vancouver), extensive medical, addiction and counseling support, and a standardized, pro-active approach to the management of toxicity. All patients received directly observed therapy with pegylated interferon with self-administered ribavirin. We report the therapeutic response as a sustained virologic response (SVR).

**RESULTS:** To date, 148 courses of treatment have been given (mean age 49 years, 84% male, 10% HIV co-infected, 52% genotype 1, 33% PEG-IFN alpha-2b), with 19 patients receiving treatment outside the PCHC. At baseline, 27% were actively using illicit drugs. Of subjects with an appropriate duration of follow-up, the overall SVR rate was 54% (genotype 1 – 39%, genotype 2 – 75%, genotype 3 – 63%). HIV co-infection was not associated with a lower response to HCV therapy.

**CONCLUSIONS:** Our expanding program (soon to deliver over 100 courses of treatment/year) continues to attract significant numbers of patients into HCV treatment, with good retention and success, despite ongoing illicit drug use in many cases. The flexibility of the program (including the ability to receive care outside of the PCHC) allows us to tailor its delivery to suit individual needs and contributes to its success.

## P138

### A RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED STUDY ON THE SAFETY, TOLERANCE AND ACCEPTABILITY OF THE INVISIBLE CONDOM® IN HEALTHY WOMEN FROM CAMEROON

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**BACKGROUND:** We have developed microbicide intravaginal gel formulations: gel alone and gel containing sodium lauryl sulfate (SLS), called the Invisible Condom® (IC) that can provide both a physical and a chemical barrier to prevent STIs. Phase I trial in 41 women and 23 men in Canada showed that IC was well tolerated and acceptable. We present the safety and acceptability results of the IC for the Phase I/II trial in Cameroon on 480 healthy women.

**METHODS:** Gel SLS (S) and gel alone (G) were tested against placebo (P). In Part A, 260 women were randomized as follows: 37 sexually abstinent women applied gels once daily for 14 days, and 223 sexually active women (applied gels once, twice or three times daily for 14 days. In Part B, 194 sexually active women applied gels twice daily for 8 weeks. Nugent score, pH, general & genital adverse events (AE) were evaluated. Gynecologic and colposcopic examinations were also done.

**RESULTS:** No study product-related serious adverse events were reported. Colposcopy showed neither genital ulceration nor mucosal lesions. No important changes in vaginal flora or vaginal pH were detected. Reported AEs in Part A were well balanced between the 3 gel arms. For Part B, the reported AEs were also mostly similar in the 3 gel arms, except for pelvic pain that was higher in the G and S arms compared to P arm. The majority of AEs (genital itching, burning sensation, dysmenorrhea and vaginal discharge, pelvic pain and dysuria) were mild or moderate. Satisfaction questionnaire showed that the IC and applicator were generally acceptable and comfortable.

**CONCLUSION:** The Invisible Condom® has been showing a good safety and acceptability profile thus far in about 500 women from Canada and Cameroon.

## P139

### DURABILITY OF TREATMENT WITH ATAZANAVIR/RITONAVIR-BASED HAART REGIMEN IN TREATMENT-NAÏVE HIV+ PATIENTS

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**PURPOSE:** To describe the durability of treatment and safety of Atazanavir/Ritonavir (ATV/RTV)-based HAART regimen in treatment-naïve HIV+ patients.

**METHODS:** This was a multi-center retrospective study. Medical charts of antiretroviral naïve HIV+ adults initiated on ATV/RTV (300/100 mg) from January 2004 to December 2007 in Canadian clinics were reviewed. Data were collected from the time of ATV/RTV initiation to the end of the observational study period on May 2009, discontinuation of ATV for toxicity or suboptimal virological control, death or loss to follow-up which ever occurred first. Durability of treatment and time to virological control were estimated with Kaplan Meier functions. The change in viral load, CD4 cell counts and lipid parameters were assessed with linear regression analyses.

**RESULTS:** A total of 176 patients were enrolled, 153 (86.9%) were male

and the majority (52.3%) was aged between 40 and 54 years old. The duration of observation ranged from 1.60 to 56.00 months. The mean (SD) durability of treatment was 33.47 (0.68) months. There were 18 (10.2%) patients who discontinued ATV due to toxicity or suboptimal virological control. There were 169 (96.0%) and 163 (92.6%) patients who achieved virological control defined as HIV viral loads <400 and <50 copies/mL, respectively. The mean (SD) time to HIV viral loads of <50 and <400 copies/mL were 6.63 (0.37) and 4.29 (0.32) months, respectively. At 96 weeks of treatment, least square (LS) mean change in log10 (HIV copies/mL) was –2.94 (P<0.001) and +245 cells/mL (P<0.001) for CD4 cell count. Significant LS mean increases in HDL-C of 0.24 mmol/L (P = 0.007) and total bilirubin of 28.97 µmol/L (P = 0.020) were also observed. A total of 113 adverse events were experienced by 65 (36.9%) patients. The most frequently reported adverse event was increased bilirubin experienced by 29 (16.5%) patients.

**CONCLUSION:** Atazanavir/Ritonavir based first line HAART regimen is durable, effective and safe in treatment-naïve HIV+ patients.

## P140

### COST EFFECTIVENESS ANALYSIS OF ABACAVIR/ LAMIVUDINE VERSUS EMTRICITABINE/TENOFOVIR COMBINATION THERAPY AS PART OF HIGHLY ACTIVE ANTIRETROVIRAL THERAPY IN TREATMENT NAÏVE HIV-INFECTED PATIENTS

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**INTRODUCTION:** Abacavir/lamivudine (ABC/3TC) and tenofovir/ emtricitabine (TDF/FTC) are two commonly used nucleoside analogues coformulation used in the treatment of HIV. Here, we compared the cost-effectiveness of these two alternatives in HIV treatment-naïve patients.

**METHODS:** An economic model was developed using maximal virologic response (MVR) and rate of failure as outcomes measures. Within the model, all patients were assumed to undergo HLA B*5701 genotyping. A cohort of one thousand patients was simulated by starting either ABC/3TC or TDF/FTC. If HLA B*5701 genotype was positive, ABC/3TC patients were to receive TDF/FTC. If HLA B*5701 genotype was positive, ABC/3TC patients were to receive TDF/FTC. Otherwise, they would receive the estimate for suspected and confirmed abacavir hypersensitivity reaction (HSR) as per PREDICT. Outcomes were extracted from HEAT study. Rate of failure was calculated by linear regression analysis at different interim analysis time points. Canadian costs were obtained from published data. Sensitivity analyses were performed on outcomes to account for potential reduced efficacy (ACTG 5202) and increased cardiovascular fatality (D:A:D). Further sensitivity analyses were done on costs and utility values.

**RESULTS:** Using ABC/3TC first-line was cheaper and provided a gain in QALY, making it dominant over TDF/FTC. Results were very sensitive to changes in outcomes but insensitive to costs and utility values. For failure rate, a difference as small as 0.34% per 3-month between the comparators led to TDF/FTC dominance. Similarly, TDF/FTC became dominant when MVR was increased from 66.7% to 71.5%. Correction from potential reduced efficacy overturned ABC/3TC benefit and made TDF/FTC a dominant strategy.

**CONCLUSION:** ABC/3TC was dominant over TDF/FTC in treatment-naïve HIV-infected patients. However, results are extremely sensitive to outcomes.

## P141

### A COLLABORATIVE WORK: "LE GUIDE DE THÉRAPIE ANTIRÉTROVIRALE POUR LES PROFESSIONNELS DU QUÉBEC". RECOMMENDATIONS FOR FIRST LINE THERAPY

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**BACKGROUND:** Antiretroviral therapy is a continuously evolving field. Web-diffused Documented Expert guideline supports long-term learning, academic teaching and clinical care.

**METHODS:** Recommendations were obtained by consensus between Quebec HIV experts: academic, hospital-based, community physicians and pharmacists, HIV community member and a "Conseil du Médicament" representative. They were based on the published literature or data presented at major scientific congresses up to June 2009. They are graded: The letter indicates the strength of recommendation while the numeral refers to the type of evidence on which the recommendation is based. They are available at http://www.pnmvs.org/ including references.

**Recommendations:** HAART should be introduced to symptomatic (including HIVAN) patients (AI), pregnant women (AI), asymptomatic patients with CD4 ≤ 350 (AII) and HBV + patients when HBV has to be treated (AII) . HAART should be individualized for others patients (CIII). The preferred first line combinations should include Tenofovir + 3TC or FTC (AI) or Kivexa (BI) as NRTI backbone, used with a third agent comprising EFV (AI), or either ATV/r, DRV/r, LPV/r, SQV/r, FPV/r BID or RAL (BI), One should consider the lack of data for the following combinations: Kivexa + either DRV/r, SQV/r and RAL and the possible risk of MI when using ABC, LPV/r and FPV/r . Medications should be selected taking into consideration the medications' effectiveness and tolerability profiles, as well as the patient's concomitant conditions and treatment history. Treatment interruption appears to be associated with clinical progression and should generally be avoided in both aviremic patients and those experiencing virologic failure (AI). Instead, the therapeutic regimen should be adjusted as necessary to minimize side effects, promote adherence or achieve a viral load < 50 copies/mL.

**CONCLUSIONS:** Many choices are available for HIV first line therapy. Newer options usually carry better tolerability. Considering long term efficacy and safety, some older regimens remain among the preferred options.

## P142

### STANDARD TREATMENT OF BRAIN TUMORS IS POSSIBLE FOR HIV+ PATIENTS ON HAART. REPORT OF 2 CASES

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**INTRODUCTION:** Optimal treatment of brain tumors for HIV+ patients is unknown in the HAART era. We therefore report 2 cases with a favorable outcome.

A 43 y. o. man HIV+ initiated HAART in Jan 2008 (Truvada/EFV). In April 2008, he was diagnosed with a diffuse infiltrating astrocytoma grade ¾ by biopsy (CD4 count: 360, HIV VL UD). Radiotherapy and standard chemotherapy with temozolomide were proposed even if the latter is associated with selective lymphopenia and OI. PCP prophylaxis and levetiracetam were introduced. He later developed interstitial nephritis attributed to TDF with creatinine peaking at 277 mmol/L. HAART was modified to Kivexa/EFV and the creatinine level returned to normal value. The initial hypodensity in the right frontal operculum of 4.0 × 4.1 $cm^2$ was reduced 21 months later to 2.84 × 3.71 $cm^2$. The patient maintained UD HIV VL during the treatment and as of January 2010 his CD4 count is 360.

A 44 y. o. man HIV+ since 1987 receiving ABC/TDF/DRV/r was diagnosed in July 2008 with a B-cell cerebral lymphoma with CD4 at 360. Previous HAART (AZT/ 3TC/SQV) had been modified due to virological failure. He responded to high dosage methotrexate, leucovorin, dexamethasone and radiotherapy. A De Angelis protocol was applied along with ARA-C and despite a slight cerebellar toxicity a complete regression of the initial lesion of 2.6 × 1.2 $cm^2$ was noted in 11 months. HIV VL has always been UD during follow up and the most recent CD4 count was 450.

**CONCLUSION:** Although both patients presented side effects, possibly due to an increased vulnerability state and drug interactions, they recovered successfully from their bedridden state.

It is therefore possible to treat brain tumors in HAART treated HIV+ patients. (Illustrations of renal and brain biopsies and cerebral MRI and Lymphocytes and VL graphs to be presented.)

## P143

### ART SIDE EFFECTS AMONG THE PREGNANT WOMEN ATTENDING PMTCT CLINIC IN MULAGO HOSPITAL

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**OBJECTIVE:** PMTCT is one of the ways to prevent HIV/AIDS infection among children. Interventions based on neverapine (NVP) are widely used in Uganda. However PMTCT clinic in Mulago also uses HAART to treat immune suppressed pregnant mothers a way of PMTCT.

**METHODS:** Observation study was carried out between Jan 2007 to April 2008 on all possible side effects on pregnant women taking ARV's. All in all, about 500 patients were followed up for the major side effects of ARVs.

**RESULTS:** Of all mothers only 50 patients developed severe side effects majority of the patients developed severe anaemia and were stopped/ switched into another combination 28 patients. 14 patients developed severe skin rash due to neverapine, with 3 who developed Johnson Steven syndrome, 5 developed severe jaundice/Hepatotoxicsy.

**CONCLUSION:** In our setting pregnant mothers on HAART are likely to develop severe anaemia, Neverapine rash and liver toxicity.

## P144

### TRENDS IN THE INCIDENCE OF LIVEBIRTH AMONG HIV-POSITIVE AND HIV-NEGATIVE WOMEN IN SOWETO, SOUTH AFRICA: THE INFLUENCE OF EXPANDING ACCESS TO HIGHLY ACTIVE ANTIRETROVIRAL THERAPY (HAART)

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**BACKGROUND:** Expanding HAART access in HIV-endemic settings promises to reduce the health and HIV transmission risks associated with reproduction among HIV-affected women. We examined the lifetime incidence of livebirth among HIV-infected and uninfected women in Soweto, South Africa and assessed the impact of HAART receipt.

**METHODS:** This retrospective cohort study used survey and chart review data from 748 women (18-49yrs) recruited from the Perinatal HIV Research Unit in Soweto (2007/08). At recruitment, 499 women were HIV-positive (50% receiving HAART, median duration of use=32months [IQR=28,33] and 50% HAART-naive) and 249 were HIV-negative. Livebirth history was self-reported and incidence was determined using person-time methods. Each participant contributed woman-years of follow-up based on date of HIV diagnosis and HAART commencement (as applicable). Multivariate Poisson regression using generalized estimating equations (GEE) was used to estimate associations between HIV status, HAART receipt, and livebirth incidence.

**RESULTS:** Median age was 31yrs [IQR 25,36], 8% were married, and 77% were sexually active. Overall, there were 1062 livebirths over 9822 woman-years of follow-up (incidence=10.8 per 100 woman-years). Incidence of livebirth was 11.1, 15.7, and 2.6 per 100 woman-years during HIV-negative, HAART-naïve, and HAART-receipt time periods, respectively ($p<0.0001$). After adjustment for confounders, compared with the HIV-negative time period, incidence of livebirth was 69% higher in the HAART-naïve time period (adjusted relative risk (ARR): 1.69; 95% CI: 1.48-1.93) but 66% lower in the HAART-exposed time-period (ARR: 0.34; 95% CI: 0.23-0.49). Examining livebirth frequency relative to HIV diagnosis date revealed a potential selection bias whereby women commonly receive their primary HIV diagnosis during pregnancy. This bias likely inflated the reported livebirth incidence during HAART-naïve time periods.

**DISCUSSION:** Incidence of livebirth is significantly lower during HAART-receipt, compared with HAART-naïve and HIV-negative time periods. The availability of HIV testing and HAART services appears to be influencing reproductive trends among HIV-affected women in Soweto.

## P145

### PREVALENCE OF HLA-B*5701 IN INJECTION DRUG USERS AT RISK OF ABACAVIR HYPERSENSITIVITY REACTION

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**OBJECTIVES:** The main adverse effect of abacavir that limits its use is an immunologically mediated hypersensitivity reaction that affects up to 5% to 8% of patients. This reaction is strongly associated with the presence of the host HLA-B*5701 allele. The prevalence of this allele may be different in certain groups of HIV-infected patients, such as injection drug users (IDUs). The aim of this study was to describe the prevalence of HLA-B*5701 and assess its relationship with abacavir hypersensitivity in HIV-infected IDUs receiving abacavir-containing HAART.

**METHODS:** We identified HIV-infected IDUs attending an inner city clinic in Vancouver and in a prospective or retrospective manner screened them for HLA-B*5701 (07/2008 – 11/2009). Clinically suspected abacavir hypersensitivity was defined as occurrences of 2 of the following symptoms within 6 weeks after starting abacavir treatment: fever, rash, or gastrointestinal, respiratory or constitutional symptoms that disappeared after discontinuing abacavir treatment and that could not be explained by other reasons.

**RESULTS:** Overall, 92 IDUs were tested for HLA-B*5701. The mean age was 46.4 years. Sixty-four (69.6%) were male, 84 (91.3%) were HCV-antibody positive, 9 (9.8%) were antiretroviral naïve at the time of testing. Among this group, 5 (5.4%) were found to carry the HLA-B*5701 allele. Of these, three started abacavir-containing HAART before HLA testing results were available, and all three experienced a hypersensitivity reaction. A full clinical recovery followed the discontinuation of abacavir. None of the 27 HLA-B*5701-negative patients who started abacavir had abacavir hypersensitivity reactions.

**CONCLUSIONS:** The prevalence of HLA-B*5701 (and abacavir hypersensitivity) in this population of IDUs was low and comparable to that in the general population. Thus, abacavir can be safely prescribed in this population and serious adverse events associated with its use can be avoided in IDUs by appropriate HLA-B*5701 screening, as is recommended in the general population.

## P146

### REPRODUCTIVE HEALTH COUNSELLING FOR HIV-SERODISCORDANT COUPLES WHO WANT TO HAVE CHILDREN: A HARM REDUCTION APPROACH IN RESOURCE-LIMITED SETTINGS

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**BACKGROUND:** As antiretroviral therapy (ART) restores health and increases life expectancy, many HIV-affected couples are considering options for fulfilling their reproductive goals while minimizing risks of HIV transmission to their partners and children. We sought to develop a harm-reduction approach to reproductive counseling for HIV-serodiscordant couples in resource-limited settings.

**METHODOLOGY:** We conducted a substantive review of the literature regarding lower- and higher-technology strategies to reduce HIV transmission risks within HIV-serodiscordant couples in settings where ART is available but technical fertility services (e.g., sperm washing) are not. Those strategies which are effective at reducing harm are presented as a counseling protocol.

**FINDINGS:** The proposed harm reduction approach seeks to first understand the reproductive goals of the couple and then implement strategies to achieve optimal conception circumstances. Couples who wish to have children should be counseled about associated health and HIV transmission risks including factors affecting HIV transmission, teratogenecity of some ARTs, and alternatives to biological parenthood. Both partners should then undergo clinical evaluation regarding HIV status, eligibility for and use of ART, and treatment of diseases that compromise mucosa. Strategies to minimize horizontal transmission risks include commencement of ARVs among medically eligible patients and delaying conception

until viral load is suppressed, and natural conception timed to most fertile periods. If the man is HIV-negative with an HIV-positive partner, the couple can be taught artificial insemination timed to the woman's fertile period. Peri-conception pre-exposure prophylaxis may offer additional options for risk reduction in the future.
**DISCUSSION:** Simply encouraging HIV-affected couples to abstain from procreation is not a realistic (or arguably necessary) strategy, particularly in communities where biological parenthood is highly valued and ART services are available. In resource-limited settings our understanding of HIV transmission can be shared with patients and communities in a structured way to help mitigate new infections while affording patients more reproductive choice.

## P147
## CHILDHOOD AND BASELINE PREDICTORS OF LATER CRYSTAL METHAMPHETAMINE USE AMONG HIV-POSITIVE (HIV+) AND HIV-NEGATIVE (HIV–) MEN WHO HAVE SEX WITH MEN (MSM)

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**BACKGROUND:** Crystal methamphetamine (meth) use is a potential risk factor for unprotected anal intercourse among MSM. Meth has been found to be used to cope with negative emotions, partially through its effects on increasing one's self-confidence in social situations and one's feelings of being physically attractive. However, the predictors of meth use among MSM are not well-understood. The primary objective of the present study is to examine childhood and adult predictors of meth use among HIV+ and HIV– MSM.
**METHODS:** 304 MSM (50.7% HIV+) were recruited from community and clinical settings. Demographic, childhood harassment, and mental health variables were assessed in a single session at baseline. Simple logistic regressions examined zero-order differences at p<.01 in demographic, negative childhood experiences, and mental health variables between MSM who did and did not use crystal meth in the six months following the baseline assessment. A hierarchical multiple logistic regression was then conducted entering variables significantly associated with later meth use, controlling for demographic differences between groups.
**RESULTS:** Meth users were more likely to be HIV+ than HIV– but there were no other demographic differences. Meth users were more likely to report having been harassed in childhood for their physical appearance and perceived social inadequacies. Meth users also had higher scores on clinician-administered measures of depression, and reported higher loneliness. The final model indicated that higher childhood harassment for one's appearance (OR=1.51, 95%CI=1.02-2.25, P=.04) was associated with later meth use above and beyond depression at baseline (OR=1.75, 95%CI=1.19-2.57, P=.004).
**CONCLUSIONS:** Findings suggest the importance of appearance-related concerns above and beyond poor mood in predicting later meth use. Clinicians treating MSM who use meth may wish to consider psychotherapy or counselling in addition to or as an alternative to antidepressants in order to treat the underlying causes of crystal meth use among HIV+ and HIV– MSM.

## P148
## TDF-CONTAINING ANTIRETROVIRAL REGIMENS IN PREGNANCY: FINDINGS FROM THE ANTIRETROVIRAL PREGNANCY REGISTRY

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**BACKGROUND:** Many guidelines for the treatment of chronic HIV infection recommend TDF-based regimens as the preferred initial regimen, while many guidelines for treatment of HIV-1 infection during pregnancy or prevention of mother to child transmission still recommend ZDV-based regimens. Additional data on use of TDF-containing regimens during pregnancy are needed.
**METHODS:** Data from the APR, an international prospective registry designed to detect major teratogenic effects involving ARV exposure in pregnancy (majority for HIV-1 mono-infection) through voluntary reporting from health care providers, were used to assess prevalence of congenital anomalies in infants following prenatal exposure to ARVs in the Registry. As most exposures involve multiple ARVs, prevalences of congenital anomalies associated with selected regimen exposures were also assessed. APR interim report issued December 2008 collected 11,950 prospective cases (includes data from January 1,1989 through July 31, 2008).
**RESULTS:** Of 10,471 evaluable cases through July 31 2008, 9,948 resulted in live births. Prevalence of anomalies in live births with 1st trimester ARV exposure was 2.9% (95% CI: 2.4-3.5) [126/4329]; 2nd/3rd trimester exposure was 2.6% (2.2-3.0) [145/5618]. These rates are comparable to those from the CDC population-based birth defects surveillance system (1989-2003; 2.7% live births). Prevalence of anomalies with 1st trimester exposure to any TDF-containing regimen was 2.3% (1.3-3.9) [14/606]; 2nd/3rd trimester 1.5% (0.5-3.4) [5/336]. For treatment of HIV mono-infection, overall prevalence for TDF + FTC + EFV was 0/5; TDF + FTC + any third agents (not EFV) 2.2% (0.9, 4.5) [7/321]; any other TDF-containing regimen was 1.4% (0.6, 2.8) [8/556]. Overall, the prevalence of congenital anomalies for all APR-registered drugs over the same period was 2.7% (2.4-3.1) [272/9948].
**CONCLUSION:** Through July 31 2008 no increase in prevalence of congenital anomalies was seen through prospective voluntary reporting to the APR with use of TDF-containing antiretroviral regimens during pregnancy.

## P149
## IS PEAK HEIGHT VELOCITY COMPROMISED IN PERINATALLY INFECTED CHILDREN AND ADOLESCENTS?

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**BACKGROUND:** Age at peak height velocity (PHV), when maximum linear growth occurs, is a reliable, non-invasive tool to assess biological maturity. Our objective was to determine whether the timing of PHV was compromised in perinatally infected children/adolescents on antiretrovirals as compared to healthy children/adolescents.
**METHODS:** We assessed height semi-annually through retrospective chart review in HIV-infected children/adolescents (n=23, age 11–22y) receiving care at Women's and Children's HIV reference centre in British Columbia (Oak Tree Clinic). We calculated age at PHV using cubic spline regression equations (GraphPad Prism, Excel) for participants who had reached PHV (n=16). We used the Mirwald Equation to estimate PHV for participants not at PHV (n=3) or with <5 years of height measures (n=4). We compared results to mean values for PHV by sex from the Saskatchewan Peak Bone Mineral Accrual Study (PBMAS). We obtained antiretroviral histories by chart review.
**RESULTS:** HIV infected boys (n=14; age 13.0–18.6y) achieved PHV at approximately the same age (13.6y; range 11.5-14.9y) as boys in the PBMAS study (n=66; PHV 13.5y ± 1.0 ). HIV infected girls (n=9; age 11.0–21.3y) achieved PHV at approximately the same age (11.4y; range 9.3-13.7y) as girls in the PBMAS study (n=65; PHV 11.8y ±0.9). Median height was at the 50th percentile for both boys and girls. 21/23 HIV infected children/adolescents took antiretrovirals for 113 months, on average; 4 were not on therapy at the time of study.
**CONCLUSIONS:** The growth trajectory of perinatally infected children/adolescents on antiretrovirals for prolonged periods was not compromised compared with healthy children/adolescents. Future studies that assess the magnitude of growth before puberty and at peak and follow these children after puberty are important.

## P150

### KNOWLEDGE ATTITUDES AND PRACTICES TOWARDS PREVENTION OF MOTHER TO CHILD TRANSMISSION OF HIV AMONG ANTENATAL CARE MOTHERS IN ETHIOPIA

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**BACKGROUND:** HIV/AIDS is currently a major public health problem in Ethiopia and mother-to-child transmission (MTCT) is by far the largest source of HIV infection in children below the age of 15 year. For women to take advantage of measures to reduce transmission, they need to know their HIV status.

**OBJECTIVE:** The objective of the study was to assess knowledge, attitude and practice of the PMTCT of HIV among antennal care mothers.

**METHODS:** A health institution based cross-sectional study was conducted in gedio zone from a June to September 2008. A total of 461 pregnant mother were interviewed from three health centers and one hospital. Proportional distribution of samples was carried out to attin the required sample size. Data were entered and processed into the computer using EPI info version 6 and SPSS version 10 statistical packages.

Result almost all the, 457 (99.1%) respondents had heard about HIV/AIDS of which, 419 (92.7%) mentioned the major routes of transmission and 437 (94.8%) knew that HIV could transmitted from an infected mother to her baby. Most of the respondents 433 (93.9%) knew that MTCT of HIV is preventable. Four hundred fifty seven (99.1%) of the pregnant mothers have positive attitudes towards VCT, 323 (84.6%) of the mothers were tested for their current pregnancy and among 301 (78.8%), reason for testing was to protect "MY" child from HIV. Pregnant women with two to three and more than three visits were less likely accepting PMTCT as compared to only first visit [OR=0.10, 95% CI 0.03,0.36], [OR= 0.12,95% CI 0.04,0.38] respectively.

**CONCLUSION AND RECOMMENDATION:** Most mothers knew that HIV could be transmitted from mother to her fetus and its preventive methods. Health education targeted on male partners, and community at large on PMTCT and VCT would have paramount importance using different sources.

## P151

### TRIPLE ANTIRETROVIRAL THERAPY FOR INFANTS AT HIGH RISK OF PERINATAL ACQUISITION OF HIV

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**OBJECTIVE:** There is no consensus regarding treatment of infants of women with inadequately controlled HIV or of women with unknown HIV status with high-risk behaviors (commercial sex work or illicit drug use) during pregnancy. In our institution, post-exposure prophylaxis (PEP) using combination antiretroviral therapy (cART) is prescribed to such infants. We conducted a retrospective chart review to evaluate the safety and tolerability of PEP cART in neonates.

**METHODS:** Infants treated with PEP cART during the first 4-6 weeks of life between January 2005 and August 2009 were included. Data were extracted retrospectively from hospital charts.

**RESULTS:** Forty-five infants received PEP cART; 21 were born to HIV-infected mothers with viral load >50 copies/mL and 24 were born to mothers with unknown HIV status and high-risk behaviors. Median gestational age was 38 weeks (27-41). All infants received 6 weeks of zidovudine and lamivudine in combination with 4 weeks of nevirapine (n=43) or 6 weeks of lopinavir/r (n=1) or ritonavir (n=1). Median maternal viral load and CD4 count for HIV-infected women was 22,000 copies/mL (371-103,008) and 231 cells/μL (120-934), respectively. Median birth weight and head circumference were 2.9 kg (1.1-3.9) and 34 cm (25.5-38.5), respectively. Transient clinical symptoms included irritability (n=4), jitteriness (n=7), loose stools (n=7), and vomiting (n=9). Median hemoglobin, leukocyte count and platelet count at 1 month of age were 110 g/L (87-156), $9.0x10^9$/L (5.4-16.0) and $473x10^9$/L (72-852), respectively; median serum lactate and ALT were 2.6 mmol/L (1.1-4.8) and 21 units/L (3-38). Developmental testing revealed abnormalities in 8 of 36 at 6 months and 6 of 16 at 18 months. Of the 4 infants infected with HIV, 3 tested positive at birth.

**CONCLUSIONS:** PEP cART was safe and well tolerated in neonates. Additional studies are needed to clarify the efficacy and optimal dosing of antiretroviral medications used as PEP in neonates.

## P152

### VITAMIN D SUPPLEMENTATION AND CD4 COUNT IN HIV-INFECTED CHILDREN

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**BACKGROUND:** Vitamin D (vitD) is known to have immune modulating effects both in vivo and in vitro and several retrospective studies have demonstrated a positive correlation between 25(OH)vitD levels and CD4 count in HIV-infected individuals. The purpose of this study was to ascertain whether vitD supplementation increases CD4 count in generally well HIV-infected children.

**METHODS:** HIV-infected children (n=54), aged 3-18 years, were randomized to receive no supplementation (group 1) or vitD 5,600 IU/week (group 2) or 11,200 IU/week (group 3). Viral load, CD4%, CD4 count, 25(OH)vitD, 1.25(OH)vitD and other measures of vitD metabolism were measured at baseline and 6 months later. The primary outcome was change in CD4%.

**RESULTS:** To date, 47 participants have completed the study. Mean age was 10.8±3.7 years, 55% were female and 63.8% were African-Canadian. Mean viral load, CD4% and total CD4 count at baseline were 2953±7747 copies/mL, 32.6%±9.3 and 872.7±363.7 cells/μL, respectively. There was no difference between groups with respect to age, sex, ethnicity, CD4%, or viral load at baseline. The mean serum 25(OH)vitD levels (nmol/L) increased from 59.7±28.7 to 64.7±26.8 (group 1), 50.1±23.9 to 79.9±30.4 (group 2) and 47.7±17.8 to 89.1±31.3 (group 3); the increase was significantly higher for vitD recipients (groups 2 and 3) compared to non-recipients (group 1) (p=0.0002). The mean change in CD4% (CD4 count) between baseline and follow-up for groups 1, 2, and 3, respectively, was +0.2% (+36), +0.7% (–12) and –0.8% (–107). There was no significant difference between groups with respect to change in CD4% (p=0.38), total CD4 count (p=0.14) or viral load (p=0.41). No serious adverse effects of vitD were observed.

**CONCLUSIONS:** VitD supplementation in generally healthy HIV-infected children did not result in significant changes to CD4% (or CD4 count) or viral load. VitD was well-tolerated and resulted in significant increases in serum 25(OH)vitD levels.

## P153

### ANTIRETROVIRAL PHARMACOKINETICS IN HIV-POSITIVE WOMEN WITH FULL VIROLOGIC SUPPRESSION ON CURRENT REGIMENS

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**OBJECTIVES:** Higher antiretroviral concentrations may contribute to increased adverse event rates. Although some studies have shown higher antiretroviral concentrations in women as compared to men, data are limited. We conducted a cross-sectional study of HIV-positive women to determine if PI and NNRTI Cmin and Cmax values are significantly higher in women as compared to the historical general (predominantly male) population and to evaluate variables associated with higher concentrations.

**METHODS:** HIV-positive women with virologic suppression (VL<50copies/mL) on their first antiretroviral regimen were enrolled from 14 sites across Canada. Timed blood samples for Cmin and Cmax were drawn weekly for 3 weeks. Demographic and clinical data were collected. The ratio of each individual's median Cmin&Cmax to the published population Cmin&Cmax mean for the antiretroviral was calculated and assessed using a Wilcoxon sign-rank. Linear regression models were used to identify predictors of log-transformed Cmin ratio.

**RESULTS:** Data from 83 women enrolled between 2/2007 and 11/2008 were analyzed. Median age was 42 years (IQR=36-48), CD4 count was 490/μL (IQR=380-640) and all participants had VL<50copies/mL. The median duration of antiretroviral Cmin and Cmax ratios were 1.17 (IQR=0.73-2.0), p<0.001) and 0.86 (IQR=0.59-1.25), p=0.16), respectively. Median (IQR) Cmin and Cmax by drug were: Atazanavir (n=28): 1.14 (0.74, 1.75) and 0.68 (0.51, 0.84); Lopinavir (n=20): 1.15 (0.79-1.8) and 1.21 (0.87-1.52); Nevirapine (n=19): 1.66(1.06-2.14) and 1.01 (0.81-1.47); Efavirenz (N=16): 0.98 (0.7-2.05) and 0.79 (0.62-1.25). IDUs had significantly lower Cmin ratio and participants with higher CD4>200/μL had a higher Cmin ratio. No other variables predicted Cmin including race, body weight or age.
**CONCLUSIONS:** Cmin ratios were highly variable within and between antiretrovirals. Median ratios were significantly greater than 1 indicating that the Cmin in the women enrolled in this study were higher than historical control data. No relevant predictors of high Cmin were found.

## P154
## PERINATAL TENOFOVIR USE IN PREVENTION OF MOTHER TO CHILD TRANSMISSION

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**INTRODUCTION:** The success of mother-to-child HIV transmission prevention has led to increasing numbers of HIV-infected women choosing to have children. While the preponderance of experience has been with zidovudine-based maternal antiretroviral therapy regimens, first-line treatment recommendations for adults have evolved to include different drugs. An increase in prescribing tenofovir-based regimens to adults has resulted in more women either becoming pregnant on tenofovir treatment or starting it during pregnancy. There is a relative paucity of data on the fetal effects this drug. The proportion of pregnancies in HIV-infected women with reported perinatal tenofovir exposure (PTE) in Canada has increased from 0% in 2003 to 15% in 2008. We examine the available evidence pertaining to the safety of tenofovir use in pregnancy, and present data from infants with PTE.
**METHODS:** The animal and human literature regarding outcomes in perinatal and pediatric tenofovir use was reviewed. Based on these data, 5 exposed infants were screened for evidence of bone and renal toxicity using a combination of hematologic, biochemical and radiographic studies.
**RESULTS:** The animal literature on PTE reports bone toxicity (growth restriction, deformities, increased resorption, and defective mineralization) likely relating to proximal renal tubular dysfunction, hypophosphatemia, and osteomalacia. These findings are largely in the setting of supratherapeutic tenofovir dosing in primates. Studies of pediatric off-label tenofovir usage demonstrate bone (decreased bone mineral content) and renal toxicities similar to adult studies. Perinatal surveillance registries have not reported birth defects or negative outcomes in infants with PTE, but these have not prospectively evaluated bone, renal, or metabolic outcomes. The 5 infants we have assessed have likewise not demonstrated any adverse outcomes; however, the best evaluation of infant bone health is unknown.
**CONCLUSIONS:** Perinatal usage of tenofovir is increasing, though its safety is not yet established. Prospective evaluation of outcomes in infants with PTE is needed.

## P155
## PERIPHERAL BLOOD TELOMERE LENGTH IN INFANTS AND THEIR HIV-INFECTED MOTHERS TREATED WITH ANTIRETROVIRAL THERAPY DURING PREGNANCY

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**BACKGROUND:** Zidovudine (ZDV) is routinely used in antiretroviral therapy (ART) during HIV pregnancy, to prevent vertical transmission. ZDV inhibits telomerase, the enzyme responsible for telomere elongation. We hypothesized that blood average telomere length (ATL) would be shorter in ART-exposed mothers and their infants compared to those who were untreated.
**METHODS:** This retrospective cohort spanning 1990-2000 included HIV-infected pregnant women who were untreated, or treated with mono-, dual- or triple-therapy during their pregnancy. Maternal and infant dried blood spots (DBS) were collected at the last visit before delivery and at 0-6 weeks, respectively. DBS relative ATL was measured by qPCR. ATL were compared between treated and untreated mothers and infants using ANCOVA. Covariates included: maternal age, gestational age, smoking and recreational drug use. In linear regression analyses, additional possible predictors considered included, ART pre-pregnancy, duration of ART in pregnancy, maternal CD4 and pVL at last pre-delivery visit (when available) and age of infant at time of sample (infant ATL only).
**RESULTS:** Infant ATL measured at a median [IQR] 1 [1-4] days of age were longer than maternal ATL (p<0.0001) for both groups. However, ATL were not correlated in mother/infant pairs. No statistically significant difference in ATL was seen between treated and untreated infants (N=81, mean ± SD 7.77 ± 1.54 vs. N=39, 7.90 ± 1.76, p=0.68) or mothers (N=81, 5.93 ± 1.36 vs. N=39, 6.27 ± 1.21, p=0.19), nor between mono/dual/triple therapy. Among the HIV-infected ART-exposed subjects, illicit drug use (ever) was associated with shorter maternal ATL (p=0.04).
**CONCLUSIONS:** No significant differences in maternal or infant ATL by treatment or HIV status were identified. This would suggest that if exposure to HIV/HAART is a risk for telomere attrition, it is less important than illicit drug use, which in turn may reflect Hep B/C virus coinfection, a highly correlated variable for which data was incomplete.

## P156
## MULTIDRUG RESISTANT PROTEIN (P-GLYCOPROTEIN) GENE EXPRESSION IN PLACENTA FROM HIV INFECTED AND HAART-EXPOSED WOMEN

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**BACKGROUND:** In HIV-positive pregnancies, developing fetuses are routinely exposed to HAART. The MDR-1 gene encodes a multidrug-resistance protein, p-glycoprotein, which, when expressed in the placenta, can reduce fetal drug exposure. PIs induce placental MDR-1 expression, but otherwise its role in HAART during pregnancy is unclear. MDR-1 expression in placentae from HIV-infected HAART-exposed (study) and HIV-uninfected (control) women and its relationship with several toxicity markers were investigated.
**METHODS:** Most subjects (26/31) received AZT/3TC/PI. Placenta (fetal and maternal side) and infant blood from study (N=31) and control (N=23) women were collected and frozen immediately. Placental mtDNA, mt-mRNA, and MDR-1 mRNA levels as well as average telomere length (ATL) from blood and placenta were quantified by qPCR. The influence of HAART, prescription and illicit drugs on MDR-1 expression was explored. Pearson correlation and Mann-Whitney test were used for statistical analyses.
**RESULTS:** In the placenta, MDR-1 mRNA levels were not significantly different between study and control groups, but the fetal and maternal side were highly correlated, in the study group only ($R^2$=0.585, p<0.0001). Among mitochondrial toxicity markers, longer newborn blood ATL (median [IQR] 1.0 [1.0-6.3] days) were associated with higher placenta MDR-1 mRNA (on both the fetal ($R^2$=0.21, p=0.021) and maternal ($R^2$=0.17, p=0.038) side). Similarly, placental ATL was also positively correlated with MDR-1 mRNA on the fetal ($R^2$=0.353, p<0.001) but not maternal side ($R^2$=0.017, p=0.51). MtDNA and mt-mRNA levels showed weak correlations with placental MDR-1 mRNA on the maternal (N=28, $R^2$=0.205, p=0.016, and $R^2$=0.229, p=0.012 respectively) but not fetal side. Infant blood lactate levels at 2.8 ± 1.4 weeks (N=24) were not correlated with MDR-1 expression. No clear relationship could be seen between placental MDR-1 expression and duration of HAART, use of other prescription or illicit drugs in pregnancy.
**CONCLUSION:** Although there may be multiple factors influencing MDR-1 expression levels in placenta, our results suggest that MDR-1 induction plays a protective role for developing fetuses against drug-induced toxicity, particularly with respect to telomere shortening.

## P157

### EFFECT OF MICRONUTRIENT SUPPLEMENTATION ON LACTATE METABOLISM AND MITOCHONDRIAL RESPIRATORY CHAIN PROTEIN EXPRESSION IN PERSONS TREATED FOR HIV

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**OBJECTIVES:** Mitochondrial toxicity, one of the mechanisms thought to underlie many of the adverse effects of long-term HIV infection and therapy, is thought to result in elevated levels of serum lactic acid at rest and may contribute to fulminant lactic acidosis. We examined the effect of supplementation with cofactors of the mitochondrial respiratory chain, shown to be beneficial in HAART-related lactic acidosis, on lactate metabolism and mitochondrial protein expression in patients treated for HIV and healthy volunteers.

**METHODS:** Fasting lactate and lactate clearance were measured before and after four to six weeks of supplementation with L-carnitine, thiamine, and riboflavin, in sixteen HIV-infected patients and five controls. Lactate clearance was measured using an exogenous lactate challenge test. Western blotting, with assays for respiratory chain proteins, was used to quantify expression of complexes I-V in peripheral blood cells.

**RESULTS:** HIV-infected subjects on HAART had higher fasting lactate levels than did either HIV-infected subjects not on therapy or controls. Endogenous lactate production during the lactate infusion was also higher in treated patients. No significant change in fasting lactate levels, lactate clearance rates or peak lactate levels were seen after micronutrient supplementation. In contrast, we observed a trend toward increased expression of certain mitochondrial proteins.

**DISCUSSION:** Increased lactate production during the lactate challenge suggests that hyperlactatemia in HAART-treated patients is a result of increased lactate production, rather than decreased lactate clearance. We did not find any significant change in lactate levels or clearance. It is possible that increased expression of mitochondrial chain proteins represents a "recovery phase" which would precede a detectable change in lactate metabolism, thus longer periods of supplementation may be required in order to demonstrate a clinical effect. These findings suggest amelioration by cofactor supplementation at the cellular level, although the clinical significance of these changes remains to be determined.

## P158

### THERAPEUTIC DRUG MONITORING (TDM) OF DIFFERENT DOSES OF ATAZANAVIR/RITONAVIR WHEN CO-ADMINISTERED WITH NON-NUCLEOSIDE REVERSE TRANSCRIPTASE INHIBITORS (NNRTIS) EFAVIRENZ OR NEVIRAPINE

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**BACKGROUND:** Efavirenz and nevirapine have shown to decrease atazanavir levels. The optimal atazanavir/ritonavir dose with an NNRTI is unclear. We examined steady-state plasma atazanavir trough concentrations (Cmin) in patients taking nevirapine or efavirenz with various doses of atazanavir/ritonavir.

**METHODS:** The BC Centre for Excellence in HIV/AIDS Laboratory Database was searched to identify HIV-positive patients ≥19 years who had TDM while taking nevirapine or efavirenz and atazanavir/ritonavir (1-January-2003 through 30-June-2009). Atazanavir plasma concentrations were determined by a validated high performance liquid chromatography method with tandem mass spectroscopy (HPLC-MS/MS) with limits of quantification of 50-10,000 ng/mL. Clinical and laboratory data were obtained from pharmacy and medical records. Samples were excluded for major drug interactions, multiple protease inhibitor regimens, or lack of clinical information. Logistic regression with an unstructured correlation matrix accounting for repeated measures was utilized to make comparisons between doses and NNRTIs.

**RESULTS:** 119 subjects (96% male, median age 49 years [IQR:43-55], CD4+ 445 cells/mm3 [IQR:350-580], 86% pVL <50 copies/mL) representing 168 samples were included in the analysis.

In contrast with the nevirapine group, no difference in atazanavir Cmin was seen across different atazanavir/ritonavir doses in the efavirenz group. Probability of achieving atazanavir Cmin >150 ng/mL was lower for nevirapine versus efavirenz group for the atazanavir 300 mg/ritonavir 100 mg dose only (63% vs. 100%, p<0.0001).

**CONCLUSION:** Although most atazanavir/ritonavir dose combinations with NNRTIs appear to achieve target atazanavir Cmin, TDM and individualized dosing is recommended, particularly with nevirapine.

| ATV/RTV Dose Combination | ATV300/ RTV100 | ATV400/ RTV100 | ATV300/ RTV200 | ATV400/ RTV200 | p-value |
|---|---|---|---|---|---|
| **Efavirenz** | | | | | |
| Median ATV Cmin (ng/mL) [IQR] | 308 [271-581] (n=11) | 447 [307-854] (n=21) | NA | 597 [315-992] (n=17) | NSS* |
| ATV Cmin levels >150ng/mL [%] | 11 [100.0] (n=11) | 19 [95.0] (n=21) | NA | 15 [88.2] (n=17) | NSS* |
| Median total bilirubin (µmol/L) [IQR] | 22 [12-35] (n=10) | 20 [15-28] (n=21) | NA | 22 [13-38] (n=17) | NSS* |
| **Nevirapine** | | | | | |
| Median ATV Cmin (ng/mL) [IQR] | 264 [93-480][a] (n=27) | 390 [277-694] (n=48) | 280 [243-487] (n=11) | 626 [350-977][b] (n=32) | p<0.0001[(a) vs(b)]<br>NSS** |
| ATV Cmin levels >150ng/mL [%] | 17 [63.0][c] (n=27) | 42 [85.7] (n=48) | 11 [100.0][d] (n=11) | 31 [96.9][e] (n=32) | p<0.0001[(c) vs(d)]<br>p=0.0005[(c) vs(e)]<br>NNSS** |
| Median total bilirubin (µmol/L) [IQR] | 14 [11-28] (n=24) | 24 [15-33] (n=46) | 17 [11-25] (n=10) | 29 [17-34] (n=31) | NSS* |

*ATV=atazanavir; RTV=ritonavir; *for comparisons between all doses; **for all other dose comparisons*

## P159

### DRUG INTERACTIONS BETWEEN VORICONAZOLE, DARUNAVIR/R AND ETRAVIRINE IN AN HIV-INFECTED PATIENT

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**INTRODUCTION:** Voriconazole (VCZ) is a potent antifungal agent with activity against Aspergillus species. It is metabolized by and inhibits CYP 3A4 and 2C. Current evidence suggests that VCZ interacts with efavirenz, ritonavir and etravirine. This is a case report on the interaction between VCZ, darunavir/r and etravirine in a HIV-infected patient.

**METHODS:** An HIV-infected patient was admitted to ICU with a diagnosis of Aspergillus fumigatus pneumonia. He was treated with voriconazole 400 mg po q12h for 6 weeks. He had experienced recent treatment failure to HAART and was started on Darunavir/r 900/100 mg daily, etravirine 200 mg BID and tenofovir/emtricitabine 300/200 mg daily three months prior to ICU admission.

Trough levels of VCZ, etravirine, darunavir and ritonavir were performed four weeks after VCZ start and repeated three weeks after VCZ discontinuation. All drug levels were determined using validated assays.

**RESULTS:** In presence of VCZ, darunavir, ritonavir and etravirine levels were 0.54 mg/L, 0 mg/L and 1.5 mg/L. VCZ level was 5.5 mg/L (ref range: 1.0-5.5). After discontinuation of VCZ, darunavir increased to 2.3 mg/L and ritonavir to 0.04 mg/L while etravirine levels decreased to 0.64 mg/L. VCZ led to a 73% reduction of darunavir and a 2.3 fold increase of etravirine concentrations. A previous PK study reported VCZ to increase etravirine by 52%. We hypothesize that the excess change in etravirine concentrations observed in our patient may be in part due to the lower darunavir concentrations. It is known that VCZ can decrease low dose ritonavir exposure by 14%. Similarly in this case, ritonavir level was also decreased which may explain the change in darunavir exposure well to below the population Ctrough of 2 mg/L (darunavir/r 800/100 mg qd). Clinically, the patient responded to antifungal therapy and reached a plasma HIV viral load less than 50 copies/mL. The drugs were well tolerated.

**CONCLUSION:** VCZ significantly increases etravirine and reduces darunavir/r to below the population mean. Intensive pharmacokinetic study of this complex drug interaction is warranted. Use of this combination therapy should be done with caution.

## P160

### USE OF ONCE-DAILY RALTEGRAVIR-BASED HAART IN HIV-INFECTED INJECTION DRUG USERS

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**OBJECTIVES:** Within a prospective observational study, we measured adjustment of methadone doses and responses to treatment after once-daily raltegravir (RGV)-based highly active antiretroviral therapy (HAART) was initiated in injection drug users (IDUs).

**METHODS:** We evaluated HIV-infected IDUs attending an inner city clinic in Vancouver who were receiving RGV-based HAART and methadone within a directly observed therapy program. Follow-up was according to clinical standards, with changes in methadone dose being made as required to achieve clinical stabilization within the first month of HAART. The change in methadone dosing associated with the initiation of HAART was calculated as the difference between the post- and pre-HAART methadone doses. The most recent on treatment CD4 cell count and HIV plasma viral load were used to evaluate HAART efficacy after initiation of therapy.

**RESULTS:** The study included 30 subjects (9 female) with a median follow-up period of 11.7 months. All patients were treatment experienced and co-infected with hepatitis C virus. Most patients received RGV-based HAART along with emtricitabine and tenofovir (n=13) or lamivudine and abacavir (n=9). At baseline, the mean methadone dose, mean CD4 cell count and median plasma viral load were 100 mg/day, 282 cells/mm3 and 223 copies/mL, respectively. At month 3, the mean methadone dose was 101 mg/day with the observed mean methadone dose change from baseline being 1.2 mg/day (p=0.61). In these patients, 7 (23%) required increases, 6 (20%) required decreases, while 17 (57%) required no change in daily methadone dose from baseline. At most recent follow-up, the mean CD4 cell count was 330 cells/mm3 while virologic suppression (HIV RNA <50 and <400 copies/mL) was achieved in 22 (73%) and 26 (87%) of patients receiving RGV-based therapy.

**CONCLUSIONS:** Lack of drug interactions with methadone and improved immunologic and virologic responses support the use of once-daily RGV-based HAART in this population.

## P161

### FACTORS ASSOCIATED WITH SUB-OPTIMAL IMMUNE RECONSTITUTION DESPITE ART INDUCED VIRAL SUPPRESSION AMONG HIV INFECTED INDIVIDUALS IN MANITOBA

**Y Keynan, S Chan, M Becker, K Kasper**
**Winnipeg, MB**

HIV-1 infection is characterized by continuous loss of CD4 T cells, leading to immunodeficiency. In most individuals, initiation of highly active antiretroviral therapy (HAART) results in increased CD4 counts. Both viral and host factors determine CD4 cell responses with approximately 15-30% of individuals having suboptimal increase of CD4+ T cell count, most commonly due to lack of compliance to HAART. A smaller fraction of patients will have sub-optimal CD4 increase despite suppression of HIV replication. We sought to characterize the factors associated with decreased immunological response among Manitoba's HIV patient population.

**MATERIALS AND METHODS:** The definitions used for suboptimal responders were a CD4+ T cell increase from baseline of less than 100 CD4+ T cells/mm3 after 48 weeks of potent HAART (defined by viral load <50 copies/ml) or lack of increase to above 200 CD4+ T cells/mm$^3$. We used the following epidemiologic and clinical data for association: age, sex, ethnicity, HAART regimen, co-infections, co-morbidities, substance use and CD4 nadir.

**RESULTS:** Of >500 patients followed by the HSC HIV clinic, 19 individuals met our inclusion criteria. Fifteen were men and average age was 45.8. None of these individuals were co-infected with HCV and HBV and co-morbidities were uncommon. 10/19 were active cigarette smokers. Self reported ethnicity was 8 Aboriginal, 4 African, 6 Caucasian and 1 other. Nadir CD4 ranged from1-118 cells/mm3, with average of 37.9 cells/mm$^3$ and therapy comprised of combivir backbone in 9 persons, Abacavir in 6 and DDI, Tenofovir and D4T in 1 each. NNRTI based regimen was used in 9 and PI based in 10 persons.

**CONCLUSIONS:** Several factors have been variably correlated with sub-optimal reconstitution of CD4 count. In the population reviewed co-infections and co-morbidities do not seem to play a role in decreased immune response. The low CD4 nadir is a factor previously shown to correlate with poor return of CD4 count and is seen in our cohort. Early case identification and linking to health care are important in decreasing the number of individuals with sub-optimal immune response despite of viral suppression.

## P162

### THE INFLUENCE OF HLA HAPLOTYPE FREQUENCY ON DISEASE PROGRESSION AMONG HIV INFECTED INDIVIDUALS IN THE PROVINCE OF MANITOBA

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The course of HIV infection is characterized by ongoing loss of CD4 cells which determines disease progression and susceptibility to opportunistic infections. The rate of CD4 decline is determined by a combination of viral and host factors. Human leukocyte antigen genes are highly polymorphic genes responsible for expression of cellular surface molecules that present antigens to T lymphocytes. Antigen recognition and ensuing cytotoxic T cell response depend on the context of HLA genes. Several HLA-B genes have been shown to predict rate of HIV disease progression with HLA B53 and HLA B35 associated with rapid CD4 decline while B27 and B57 are associated with a slower rate. We sought to determine the HLA-B genotypes among individuals infected with HIV in Manitoba. We present data on the HLA-B genotypes of 861 individuals. Understanding the genetic background may help to understand the characteristics of the epidemic in the province.

**MATERIALS AND METHODS:** HLA-B typing was done for 861 individuals in the province of Manitoba. HLA typing was performed with LABType (TM) SSO by OneLambda Inc, Canoga Park, California. If any antigen HLA-B57 is identified, further High Resolution MicroSSP (TM) by OneLambda is used to resolve for allele level typing. HLA B haplotypes were correlated with clinical variables.

**RESULTS:** 861 tests were performed. Self reported ethnicity was: Caucasians comprised 369 (42.8%), African descent 154 (17.8%) and Aboriginal 291 (33.8%). The frequency of HLA B35 among our province population tested was 171, representing 19.86% compared to a reported rate of 9.79%. Twelve individuals are possible homozygous for HLA B35. We will present data on clinical features and disease progression among HLA B35+ individuals.

**CONCLUSIONS:** HLA B35 is common in the MB patient population and its frequency may be one of the factors playing a role in cases of rapid progression and in the observed trend towards presentation with relatively advanced disease. These findings add another compelling reason for active case finding and linking individuals to care early.

## P163

### THE FREQUENCY OF HLA-B57 AND ITS INFLUENCE ON DISEASE PROGRESSION AMONG HIV INFECTED INDIVIDUALS IN THE PRAIRIE PROVINCES

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Screening for the HLA-B*5701 allele has decreased the risk of severe hypersensitivity to the nucleoside reverse-transcriptase inhibitor drug Abacavir, with a negative predictive value of 100% and a positive predictive value of 47.9%. More than 11,000 HLA-B*5701 tests have been performed in Canada since 2006, among which 6.3% are positive. Human leukocyte antigen (HLA) genes are responsible for expression of cellular surface molecules that present antigens to T lymphocytes. Antigen recognition and ensuing cytotoxic T cell response depend on the context of HLA genes, and several HLA-B genes have been shown predict rate of HIV disease progression. HLA B57 is associated with a slower rate. We

sought to determine the HLA-B5701* prevalence among individuals infected with HIV in Manitoba and Saskatchewan.
**MATERIALS AND METHODS:** HLA-B typing was done for 1467 HIV positive individuals in the provinces of Manitoba (MB) and Saskatchewan. HLA typing was performed with LABType (TM) SSO by OneLambda Inc, Canoga Park, California. If any antigen HLA-B57 was identified, further High Resolution MicroSSP (TM) by OneLambda was used to resolve for allele level typing. HLA B haplotypes were correlated with epidemiologic and clinical variables including: ethnicity, CD4 at presentation, presenting clinical features, CD4 counts prior to therapy, reconstitution of CD4, and viral suppression.
**RESULTS:** 1467 tests were performed. Self reported ethnicity was: Caucasians 369 (42.8%), African descent 154 (17.8%) and Aboriginal 291(33.8%) in the Manitoba cohort. The frequency of HLA B5701* was 4.3% (37/861) in Manitoba and 4.02% (59/1467) for both provinces combined. HLA B5701* is rare among individuals of Aboriginal descent (3/288) in Manitoba.
**CONCLUSIONS:** HLA B5701* is uncommon in the MB and Saskatchewan patient population and rare among individuals of Aboriginal ethnicity. The absence of this protective allele may be one of the factors playing a role in the observed trend towards presentation with more advanced immunosuppression. These findings add another compelling reason for active case finding and linking individuals to care early.

## P164
## A CASE SERIES OF PRIMARY HIV INFECTION WITH PREDOMINANT NEUROLOGICAL MANIFESTATIONS ASSOCIATED WITH RAPID HIV PROGRESSION AMONG ABORIGINALS IN THE PRAIRIES

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**BACKGROUND:** Neurological manifestations of primary HIV infection (PHI) occur in 4-24% of patients and may be associated with accelerated HIV progression. Recently, a number of cases of acute HIV infection in Manitoba and Saskatchewan have presented with varied and significant neurological involvement requiring hospital admission. These cases have subsequently developed rapid CD4 decline following acute illness.
**METHODS:** We present and describe 5 cases of primary HIV infection with significant and variable neurological manifestations.
**RESULTS:** 5 cases are described, 2 from Manitoba and 3 from Saskatchewan. Ages ranged from 18 to 58 years; 3 were female. All were self-reported aboriginal. There were 2 cases of aseptic meningitis, 1 meningo-encephalitis, 1 aseptic meningitis with peripheral neuropathy and 1 transverse myelitis. Work-up for other causes of neurological disease was negative and HIV serology was positive in all five cases. Mean CD4 count at initial presentation was 489 (range 181 to 867) and initial viral load ranged from 28,641 to 1,930,000 copies/mL. At 6 month follow-up, four patients had CD4 counts with a mean of 214 (range 184 to 258) and one patient was lost to follow-up. Two individuals were started on treatment and 2 have yet to begin therapy.
**CONCLUSION:** In the prairies, PHI in aboriginals frequently presents with a variety of neurological manifestations. All patients with unexplained neurological disease of any type should undergo HIV testing. This case series illustrates that these individuals undergo rapid CD4 count decline shortly after presentation and should be considered for prompt antiretroviral therapy. The similarities among these patients may represent underlying genetic or immunologic factors that predispose patients to neurological involvement with acute HIV infection.

## P165
## AN EVALUATION OF VIRAL LOAD SUPPRESSION AND ANTIRETROVIRAL TREATMENT AMONG PATIENTS IN THE CARE OF THE MANITOBA HIV PROGRAM

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**INTRODUCTION:** The use of antiretroviral therapy (ART) to maximally suppress HIV replication is a key to HIV-1 disease management. Measurement of plasma HIV viral load (VL) is an important surrogate marker for response to antiretroviral treatment and clinical outcomes.
The objectives of the study are to describe the socio-demographics of patients receiving HIV care through the Manitoba HIV Program (MBHP), evaluate virologic suppression of patients currently on ART and describe reasons for non-treatment despite meeting recommended criteria.
**METHODS:** A retrospective chart review of all MBHP patients was conducted to determine if criteria for ART per Department of Human Health Services (DHHS) guidelines were met. Evaluation of virologic suppression (VL < 40 RNA copies/mL), was done and variables collected: age, gender, self-reported ethnicity, urban vs. rural residence, VL, CD4 count, co-infections (HCV, HBV, TB), and ART regimen. For patients not on ART, but meeting DHHS criteria, reasons for non-treatment were collected.
**RESULTS:** 801 patient charts were included in the review. Average patient age was 42 (range 17-86), 67% were male, 88% reside in Winnipeg, and 12% rural MB/NW Ontario. Self-report ethnicities: Caucasian 44%, Aboriginal 32%, African 18% and other 6%. Co-infection rates were 20% HCV, 2% HBV and 2% TB.
697/801 (87%) met criteria for ART, however 75 patients (10%) were not on ART. Reasons for non-ART were described as: 30% due to addictions and non-adherence to clinic appointments, 18% non-adherence to appointments, 11% recent HIV diagnosis/pending investigations, 3% financial, 8% patient and/or MD feels not ready and 30% various.
Overall, VL suppression rate was >75% with variation between gender and ethnicities. 77% of males had VL suppression vs. 71% females. Rates of VL suppression: Aboriginal 62%, African 82%, Caucasian 80% and Other 82%.
**CONCLUSION:** Investigation is warranted to address lower rates of VL suppression in MBHP Aboriginal cohort.

## P166
## PRELIMINARY DATA ON THE HIV QUIT SMOKING PILOT STUDY

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**BACKGROUND:** Cardiovascular disease (CVD) is now a leading cause of morbidity and mortality among people living with HIV/AIDS (PHAs). After controlling for pre-existing disease, cigarette smoking is the most significant predictor of CVD among PHAs. In view of the alarmingly high rate of smoking (35%-70%) among PHAs (e.g. Stein et al. 2008) as compared to the national average (19% in Canada, Health Canada, 2007), quitting smoking is likely the single most effective intervention to reduce mortality due to CVD among PHAs. Unfortunately, smoking cessation programs are rarely delivered in routine HIV clinical care.
**OBJECTIVES:** The main objective of this pilot study is to develop an innovative "HIV quit smoking program" and to evaluate its outcomes.
**METHODS:** PHA smokers (N=50) interested in quitting smoking are recruited during regular HIV clinic visits at The Ottawa Hospital. Validated measures of depression and smoking behaviours are completed at study baseline and follow-ups. Participants receive free nicotine replacement therapy (NRT), smoking cessation and relapse prevention counselling and targeted interventions to reduce depressive symptoms. Smoking status, psychological functioning, immunological measures (e.g. CD4 count), metabolic parameters (e.g. lipid levels) are assessed from baseline through 6 months post "quit date" follow-up.
**RESULTS:** Results from preliminary pilot data at 4 weeks follow-up from the "quit date" indicate significant reductions in smoking behaviour. Additional results on the impact of smoking cessation on psychological factors (depression), CO levels, and barriers to staying quit will be presented.
**CONCLUSION:** Results from this study may assist in influencing health care policy by providing evidence for the benefits of incorporating HIV quit smoking programs into routine HIV clinical care across Canada.

## P167

### RATES OF BASELINE ANTIRETROVIRAL DRUG RESISTANCE IN TREATMENT-NAÏVE, HIV+ PATIENTS AT MAPLE LEAF MEDICAL CLINIC

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**BACKGROUND:** An emerging concern vis-à-vis antiretroviral drug resistance is that of primary drug resistance, which can be transmitted via sexual contact, parenterally, or vertically. It is estimated that the worldwide rate of primary antiretroviral resistance is around 10%, with all major antiretroviral classes affected.

**OBJECTIVES:** To examine the burden of transmitted drug resistance in HIV+ patients by describing the rates of primary resistance in antiretroviral-naïve patients in a large inner city, primary care Canadian clinic.

**METHODS:** Maple Leaf Medical Clinic (MLMC) cares for over 2,600 individuals living with HIV in Toronto. A retrospective review of the MLMC database was undertaken to determine the rate of primary antiretroviral resistance by examining genotypes and virtual phenotypes in treatment-naïve patients. Determination of HIV drug resistance was made using the World Health Organization 2009 List of Mutations for Surveillance of Transmitted Drug Resistant HIV Strains.

**RESULTS:** As of July 16, 2009, there are 746 patients with baseline genotypes. Overall, 101 (13.5%) had evidence of baseline genotypic resistance. 66 (8.9%) had evidence of nucleoside/nucleotide reverse transcriptase inhibitor (NRTI) resistance, with the most common mutations being 41L, 184V. 44 (5.9%) had evidence of nonnucleoside reverse transcriptase inhibitor (NNRTI) resistance, with the most common mutations being 103N, 181C. 30 (4.0%) had evidence of protease inhibitor (PI) resistance, with the most common mutations being 90M, 82A.

**CONCLUSIONS:** Despite major advances and successes in treating antiretroviral-naïve patients, results from this study demonstrate that baseline drug resistance is present in a sizeable proportion of treatment-naïve patients, with numbers comparable to previously reported rates of baseline resistance. These findings further concretize the need to perform baseline genotype testing in order to make the most informed treatment decisions.

## P168

### PRIMARY ANTIRETROVIRAL RESISTANCE IN SASKATCHEWAN

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**Saskatoon, SK**

In Saskatchewan HIV/AIDS is currently an accelerating epidemic. With an increased prevalence comes increased concern of primary resistance. Although in some regions transmitted drug resistance appears to be stabilizing, it is our impression that locally our increased numbers of HIV infected individuals is accompanied by increasing viral resistance. Success rate of current HIV/AIDS treatment in Saskatchewan is comparable to the rest of the country but anecdotal observations of increased clinical failures prompted evaluation of our policies on genotyping prior to therapy. We therefore set out to determine current baseline resistance in our population to better guide treatment decisions.

Our retrospective chart review included all 134 patients presenting to the Positive Living Program from 2006 to August 2009, of which 119 met the following criteria: they were antiretroviral naive and not lost to follow up as of August 2009 and postal codes were known. The remaining 15 had initiated therapy prior to genotyping. All of the genotyping was performed using the commercially available vircoTYPE HIV-1 assay, which includes a list of mutations detected and interpretation of their significance.

Of the 119 individuals, 72 (60%) have had viral genotyping done. Our initial findings showed 7 (10%) individuals with viruses classified as "resistant" (2 patients with single drug resistance to nelfinavir or efavirenz and 5 patients with resistance to 2 non-nucleoside reverse transcriptase inhibitors [NNRTIs], nevirapine and efavirenz), while 23 (32%) individuals showed a "reduced response", 18 to nelfinavir. Geographic resistance patterns were not evident.

Our results support the practice of genotyping HIV prior to starting HAART.

## P169

### GENOTYPIC SCREENING IMPACT IN ARIES [ATAZANAVIR (ATV) + RITONAVIR (/R) + ABACAVIR/LAMIVUDINE (ABC/3TC) FOR 36 WEEKS (WKS) FOLLOWED BY RANDOMIZATION TO ATV +ABC/3TC OR ATV/R+ABC/3TC FOR 48 WKS IN HIV-INFECTED, ART NAÏVE PATIENTS]: LOW RATES OF VIROLOGIC FAILURE

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**BACKGROUND:** HIV genotyping pre-antiviral therapy (ART) initiation is recommended. We examined the impact of genotypic screening on therapy response and mutations arising at virologic failure through 84 Wks.

**METHODS:** HIV population genotype was analyzed at screen. Exclusionary Mutations (Mut) were: RT 65R, 74V, or 115F, ≥2 TAMS incl 210 or 215 Mut or ≥3 PI Mut at 30, 32, 36, 46, 47, 48, 50, 54, 71, 73, 77, 82, 84, 88, and 90. Patients (Pts) with virologic failure (VF) had baseline (BL) and VF genotype/phenotype. VF=either 1) failure to achieve confirmed HIV-1 RNA <400 c/mL by Wk 30, or 2) confirmed rebound ≥400 c/mL at any time. RESULTS: 709 Pts had HIV genotypes at screen; IAS-USA defined Mut included: 4% NRTI; 16% NNRTI; 3% major PI. 515 Pts were enrolled; 22 (4%) met VF criteria. All Pts remained on ABC/3TC/ATV/r though Wk 36; 14 met VF criteria. After Week 36, Pts were randomized to receive either ABC/3TC plus either ATV/r or unboosted ATV. 7 Pts randomized to remain on the ATV/r arm met VF; 1 on ATV (Pt 17).

| VF Population | IAS-USA defined BL mut | IAS-USA defined VF mut |
|---|---|---|
| ≤ Week 36 VF | Pt 1 K103K/R | Pt 1 K103K/R, **M184M/V** * |
| Pre-randomization; | Pt 2 WT | Pt 2 **M184M/I, L210L/W** |
| N=14 | Pt 3 WT | Pt 3 **Y181Y/C** |
| | Pt 4 V179D/E | **Pt 4 V179D/E, M184M/V** |
| | Pt 5 K101P/Q/T, K103K/N | Pt 5 K101P/Q/T, K103K/N, **F77L** |
| | Pt 6 V106I | Pt 6 V106I |
| | Pt 7-14 WT | Pt 7-14 WT |
| Post-randomization | Pt 15, 16 V179D | Pt 15, 16 V179D |
| ( > week 36) VF | Pt 17 K219K/Q | Pt 17 **M184M/I/V*** |
| N=8; 7 on ATV/r arm | Pt 18-22 WT | Pt 18-22 WT |

**3TC Reduced Susceptibility*

**CONCLUSIONS:** Pre-ART HIV genotyping was used to guide patient selection and was associated with a low (4%) rate of virologic failure through 84 weeks of follow-up. No major PI mutations were observed at failure. RT mutation selection at failure was rare (6/22), often in patients with other baseline RT mutations. For 3/6 failures, treatment emergent RT mutations (77L, Y181C, and L210W) were suggestive of outgrowth of archived resistant HIV.

## P170

### MEASUREMENT AND CHARACTERIZATION OF AN ANTIPROTEASE IN THE CERVICAL MUCOSA OF HIV-1 RESISTANT AND SUSCEPTIBLE INDIVIDUALS

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HIV-1 infection is not easy to acquire sexually. Therefore, over 99% of unprotected encounters to HIV-1 do not result in an infection. Our hypothesis is that the presence of an overabundance of antiproteases in the mucosal layer of HIV-1-resistant sex workers is protective by antagonizing protease-mediated enhancement of HIV-1-infectivity. Many proteases

found in the female genital tract, such as Cathepsin, can act as a chemoattractant for macrophages and neutrophils and increase the susceptibility of these cells to acute HIV infection. It can also cleave anti-HIV-1 factors (such as RANTES) to render them less effective against HIV-1. However, the exact concentrations of these antiproteases are unknown in cervical mucosa and this needs to be determined to support a role in HIV-1-infectivity. This study focuses on the determination of the native concentration of a specific antiprotease in HIV-1-resistant and -susceptible women from the Punwami sex worker cohort that has known biological roles in HIV-1-infection. As a pilot study, cervicovaginal lavage (CVL) fluid was collected from 20-negative, 20 resistant and 20 HIV-1 infected individuals from Pumwani commercial sex worker cohort. We measured CVL proteins from each individual by using Standard Bradford Assay. The antiprotease level in CVL fluid was determined by a sensitive ELISA assay. Pooled and individual CVL samples were diluted 1:2 and assayed in duplicate on 96-well plates. This data will be complemented by 1D and 2D gel electrophoresis to determine isoform variation. We will expand this study to include more individuals (n>600) for confirmation. We have found this antiprotease to be at a biologically significant level to inhibit protease-mediated enhancement of HIV-1-infectivity. This data will be correlated to epidemiological information already collected. This work will contribute to a more complete understanding of mechanisms of resistance and susceptibility to HIV infection.

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## P171

### HIGH PREVALENCE OF PRIMARY DRUG RESISTANCE IN BENIN

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**BACKGROUND:** As access to antiretrovirals (ARV) increases in developing countries, identification of optimal therapeutic regimens requires to monitoring the rate of primary resistance and define the molecular resistance pathways involved in non-B subtypes to identify optimal therapeutic regimens.

**METHODS:** Plasma samples were obtained from 98 HIV-1 infected treatment-naïve individuals from Benin. RNA extraction, RT-PCR amplification and genotypic resistance testing were performed using Virco protocols. Subtype determination was done using REGA HIV-1 and 2 Subtyping Tool and drug resistance mutations were identified using the Virco algorithm (Virconet) with HXB2 as the reference sequence.

**RESULTS:** CRF02_AG was the most common subtype representing 68.4% of isolates, followed by subtype G 14.3%, CRF06 at 4.1% and subtype AE-K and AG-G at 3.1%. Other subtypes (A, K, A-AE, AG-AE, A-AG, G-AG et H-J) were also present at 1% each. Drug resistance mutations were found in 9.8% of patients. No NRTI resistance mutations were found although a polymorphism (L210M) was present in 5 patients harboring virus from the CRF02_AG subtype. Polymorphisms at position V118I and Q151P were observed in one patient respectively. 9 patients had resistance mutations for the NNRTI class. Mutations K103N, V106A and V108I were present in 2 patients each. Others mutations E138K, Y181C and G190A were also present in one patient each. Several mutations that can be associated to PI resistance were observed. Several polymorphisms were also observed: V90I, E138A et V179T/E. IP resistance mutation was foun in one patient (L33F) and 24 patients showed minor mutations or polymorphisms in the protease region (L10I/V, V11I, E35G, L89V, K43T, T74S, F53Y).

**CONCLUSIONS:** In patients about to initiate ARV, primary resistance was seen in 10% of subjects. The role of polymorphisms associated with low level resistance in B subtypes is unclear in this predominantly non-B subtype infected populations. Our study reflects the importance to monitor the evolution of resistance and follow the trends of transmitted resistance.

# Epidemiology and Public Health Posters

## P173

### PARASITE DISEASE SCREENING AMONG ASYMPTOMATIC HIV PATIENTS FROM ENDEMIC COUNTRIES IN A TORONTO CLINIC

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**BACKGROUND:** Many North American-based HIV patients originate from parasitic disease-endemic regions. Strongyloidiasis, schistosomiasis and filariasis are important due to their wide distribution and potential for severe morbidity. Of further concern is evidence that HIV replication may be increased with parasitic co-infection.

**OBJECTIVES:** To determine the prevalence, as determined by serological screening, of strongyloidiasis, schistosomiasis and filariasis among patients in an HIV-focused, primary care practice in Toronto, Canada. A secondary objective was to determine factors associated with positive serological screens.

**METHODS:** A retrospective review of electronic patient records was conducted. Results of serological screens for parasites and relevant laboratory data were collected.

**RESULTS:** 97 patients were identified. Mean CD4 count was 450 x 10^9/L (23%), median viral load was undetectable and 68% were on HAART. Most originated from Africa (37%) and South America (35%). 10.4% and 8.3% had positive or equivocal screening results for strongyloidiasis, 7.4% and 4.2% had positive or equivocal screening results for schistosomiasis and 4.3% and 5.3% had positive or equivocal screens for filariasis. Persons with positive Strongyloides serologies were more often female (28 vs 9%, p=0.03), younger (36 vs 43 years, p<0.01), to have been in Canada for a shorter duration (5 vs 12 years, p<0.0001) and have a higher viral load (10,990 vs <50 copies/mL, p<0.001). All patients were asymptomatic. Eosinophilia was not associated with positive screening results.

**CONCLUSIONS:** Utilizing symptoms and eosinophilia to identify parasitic infection is not reliable. As demonstrated in our analysis, screening for strongyloidiasis, schistosomiasis and filariasis among patients with HIV from parasite-endemic countries is simple and benign. The clinical benefits of screening require further elucidation.

## P174

### INCREASED RISK FOR HEPATITIS C AND HIV ASSOCIATED WITH SOLVENT USE AMONG CANADIAN ABORIGINAL INJECTION DRUG USERS

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**BACKGROUND:** Within Canada, injection drug users (IDU) account for a significant proportion of prevalent HIV and other bloodborne pathogens, and are an especially important risk group sustaining endemicity of these pathogens within Aboriginal populations. At the same time, solvent abuse is a particularly destructive issue affecting some Aboriginal subpopulations. Here we examine the association between solvent use and sociodemographic variables, drug-related risk factors, and pathogen prevalence in Aboriginal IDU in Manitoba, Canada.

**METHODS:** Data originated from a larger cross-sectional survey of IDU from December 2003 to September 2004. Associations between solvent use and variables of interest were assessed by multiple logistic regression.

**RESULTS:** A total of 266 Aboriginal IDU were included in the analysis of which 44 self-reported recent solvent use. Aboriginal solvent-users were younger and more likely to be infected with hepatitis C (81% versus 55%: OR: 3.5; 95%CI: 1.3,14.7), to have shared needles in the last six months (OR: 2.6; 95%CI:1.0,6.8), and to have injected talwin and Ritalin (OR: 10.0; 95%CI: 3.8,26.3). Odds for HIV was 2.3 (95%CI: 0.9,6.2) amongst solvent users.

**CONCLUSION:** High hepatitis C prevalence, even after controlling for risky injection practices, suggests that solvent users may form closed networks of higher risk even amongst an already high-risk IDU population. In comparison to both Aboriginal and non-Aboriginal IDU, and although

not statistically significant, at 18%, HIV prevalence was highest in this subpopulation of IDU. Understanding the social epidemiological context of initiation and maintenance of solvent use is necessary to address the inherent inequalities encountered by this subpopulation of substance users, and may inform prevention strategies for other marginalized populations.

## P175
## BACTERIAL GENITAL INFECTIONS IN HIV-POSITIVE AND HIV-NEGATIVE AFRICAN-CARIBBEAN WOMEN IN TORONTO, ONTARIO

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**Toronto, ON**

**OBJECTIVE:** Genital infections, including bacterial vaginosis (BV) and the classical sexually transmitted infections (STIs): Treponema pallidum (syphilis), Chlamydia trachomatis (chlamydia) and Neisseria gonorrhoeae (gonorrhea) may increase HIV acquisition and act as important co-factors in sexual transmission. Their population prevalence is high in sub-Saharan Africa and the Caribbean, as well as in African-Caribbean (AC) women from the US, with BV rates in women at risk of HIV being >50%. We examined the prevalence and correlates of these genital infections among HIV-positive and HIV-negative AC women living in Toronto.

**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. Women completed a detailed survey using ACASI. Diagnostics included serum syphilis screening, chlamydia and gonorrhea testing by urine molecular testing and a vaginal swab for gram stain diagnosis of BV. Prevalence was reported as proportions and compared using the Chi-square test. Correlates were assessed using univariate analyses.

**RESULTS:** We analyzed results from 94 HIV-positive and 229 HIV-negative women with a median age of 48 (IQR36-62) and 38 (IQR29-48) ($p<0.001$), respectively. The prevalence of STIs was low in both groups: 1.1% vs. 0% for syphilis (HIV-infected vs. uninfected; $p=0.30$); 0% vs. 4% for chlamydia ($p=0.04$); and no cases of gonorrhea. The prevalence of BV were unexpectedly low and did not vary with HIV status (18.7% vs. 17.7%; $p>0.5$). Similarly, abnormal vaginal flora did not vary by HIV status (30.8% vs. 28.6%; $p>0.5$). In the HIV-negative population, Caribbean women had higher BV positivity rates than African women (23.7% vs. 10.9%; $p=0.03$).

**CONCLUSIONS:** The prevalence of both classical STIs and BV was relatively low in AC women from Toronto, Ontario, irrespective of HIV status. A high prevalence of these infections is unlikely to account for the increased rates of HIV transmission within this community.

## P176
## CHARACTERISTICS OF PARTICIPANTS RECRUITED FOR AN EPIDEMIOLOGIC STUDY OF HIV AND CO-INFECTIONS AMONG AFRICAN-CARIBBEAN WOMEN LIVING IN TORONTO

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**Toronto, ON**

**OBJECTIVE:** To examine the demographic characteristics of women from Africa and the Caribbean recruited for the first Canadian clinical-epidemiologic study in this population.

**METHODS:** We are in the process of recruiting 600 African and Caribbean women (300 HIV-infected and 300 HIV-uninfected) through the services and programs at Women's Health in Women's Hands, a community clinic in Toronto. We collect data on demographic characteristics and sexual behaviours using an audio-assisted computer assisted self-interview (ACASI). Specimens are collected and tested for HIV, syphilis, HSV-1&2, hepatitis B and C, bacterial vaginosis, gonorrhea, chlamydia and HPV (cervical and anal). The questionnaire, the ACASI system and the specimen collection procedures were pilot tested with 10 participants and modified accordingly.

**RESULTS:** The present analysis is based on 324 women (94 HIV-infected, 230 HIV-uninfected) recruited to date. Interviews lasted a median of 48 (IQR62-34) and 38 minutes (IQR48-29) for HIV-infected and HIV-uninfected women, respectively ($p<0.0001$). HIV-uninfected women were younger (median age 40 years) compared to HIV-infected women (median age 31 years), ($p<0.0001$). 82.4% of HIV-infected women were born in Africa and 14.3% in the Caribbean compared to 42.2% and 43.0% of HIV-uninfected women, respectively ($p<0.0001$). Education levels were similar in both groups. More HIV-infected women earned $10,000 or more annually compared to HIV-uninfected women, (67.5% vs. 41.4%, ($p<0.001$). HIV-infected women were also more likely to have arrived in Canada as refugees (57.0% vs. 40.6%, $p=0.01$)

**CONCLUSIONS:** Our study has been successful in recruiting a diverse sample of African-Caribbean women. The higher income we observed in HIV-infected women may have been due to financial benefits provided to people living with HIV/AIDS. Since HIV-infected women were older and more likely to have been born in Africa, these variables will have to be taken into consideration in the analysis of STI co-infections.

## P177
## EXPLORING DIFFERENCES IN SEXUAL BEHAVIOUR AND INFECTIOUS DISEASE MARKERS BETWEEN YOUNGER AND OLDER MEN WHO HAVE SEX WITH MEN (MSM): RESULTS FROM A NATIONAL ENHANCED HIV SURVEILLANCE SYSTEM 2005-2007

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**OBJECTIVES:** To determine whether sexual behaviours and prevalence of infectious disease markers differ between younger and older MSM.

**METHODS:** M-Track is an enhanced HIV surveillance system to monitor HIV/STBBIs and associated risk behaviours among MSM in Canada. Participants were recruited through convenience sampling (Phase 1, 2005-2007, five sentinel sites) and completed a self-administered questionnaire. A blood sample was collected for HIV, HCV and syphilis (treponemal-specific only) testing. Sexually active men were stratified into youth-MSM (< 30 years) and older-MSM (≥ 30 years). Chi-square tests assessed differences between groups. Selected statistically significant findings are presented ($p < 0.05$).

**RESULTS:** Of 3886 eligible men, 26.1% (1,014) were youth-MSM. Compared to older-MSM, a higher proportion of youth-MSM earned less than $30,000 (65.7% vs. 31.5%) and reported Aboriginal ethnicity (7.2% vs. 5.0%). Conversely, a lower proportion of youth-MSM reported any post-secondary education (49.5% vs. 68.2%) and self-identified as gay or homosexual (77.2% vs. 85.6%). In the last 6 months, a higher proportion of youth-MSM reported a female sex partner (18.8% vs. 8.0%) and looking for sex at raves, in clubs and on the internet (16.6% vs. 7.8%, 30.2% vs. 18.8%, 50.4% vs. 38.4%, respectively). However, a lower proportion of youth-MSM reported multiple casual male sex partners (79.2% vs. 82.7%) and looking for sex in saunas (32.3% vs. 48.5%).

Among youth-MSM, HIV prevalence and markers of HCV and syphilis exposure were lower (4.1% vs. 18.2%, 3.3% vs. 5.5%, 5.1% vs. 18.9%, respectively) but self-reported gonorrhea (previous 6 months) was higher (3.9% vs. 2.4%).

**CONCLUSIONS:** Lower prevalence of infectious disease markers among youth-MSM may reflect the cumulative effect of age on exposure to infections whereas the higher rate of gonorrhea may reflect recent behaviours. Understanding differences in sexual behaviours, like partnerships with women and venues for seeking sex, will inform effective and appropriately targeted prevention programmes.

## P178

### TUBERCULOSIS MORTALITY IN HIV-INFECTED INDIVIDUALS: A GLOBAL ASSESSMENT

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**BACKGROUND:** Tuberculosis (TB) is a leading cause of death in HIV-positive individuals. We sought to compare mortality rates in TB/HIV co-infected individuals at a global level and by country/territory, using publicly accessible global health data.

**METHODS:** TB mortality rates for HIV-positive and HIV-negative individuals were calculated for 212 World Health Organization recognized countries and territories in years 2006-2008. Multivariate linear regression determined the impact of healthcare resource and economic variables on our outcome variable; TB mortality rates in HIV-positive individuals per 100,000 general population.

**FINDINGS:** The highest average rate of HIV-positive TB mortality was in the African Region (AFRH: ≥4% HIV-infection rate in adults aged 15-49 in year 2004) at 86 per 100,000 individuals in 2008. The African Region (AFR), Eastern European Region (EEUR) and Latin America Region (LAMR) had average TB/HIV mortality rates of 13, 4, and 3 respectively per 100,000 individuals in the same year. Further, the African Region (AFRH) had a TB/HIV mortality rate two times greater than its HIV-negative TB mortality rate. Multivariate analyses (2006-2008) revealed a 4% increase in TB/HIV mortality rates with increased private health expenditure (p=0.0002). Multivariate analyses (2008) showed that HIV-positive TB mortality rates were 31 times higher in African countries compared to non-African countries (p<0.0001). Further, increasing the proportion of private health expenditure out of total health expenditure was associated with a 4% increase in TB/HIV mortality rates (p=0.0001).

**INTERPRETATION:** Our results indicate that while African countries have the highest TB death rates in HIV-positive individuals, countries in EEUR and LAMR also have elevated mortality rates. Countries that rely on private expenditure to fund health services, including out-of-pocket spending may increase mortality from both diseases by 4%.

## P179

### VIRAL HEPATITIS TESTING IS DEFICIENT IN HIV SEROPOSITIVE PATIENTS: AN OHTN COHORT STUDY ANALYSIS

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**OBJECTIVE:** To determine whether OCS participant records indicate testing for hepatitis B and C within the first 6 months of care.

**METHODS:** First CD4 or viral load (VL) test was used as a marker of entry into clinical care. OCS participants with a first CD4 or VL test in 2001 or later and at least 2 tests were included. Proportion tested for hepatitis within 6 months of follow up was estimated using Kaplan-Meier methods for hepatitis B and C separately, excluding patients with a positive test prior to first CD4 or VL test. Time to first test was stratified by age, sex, country region of birth, baseline CD4 and risk factor for HIV and compared using the log-rank test.

**RESULTS:** 1235 participants were included: 80% males and 20% females. Median age: 37; 56% Canadian-born. Among males, HIV infection was attributed to MSM for 66%, 5% MSM/IDU, 5% IDU, 1% blood products, 6% HIV-endemic,17% other; for females: 29% heterosexual contact; 11% IDU; 1% blood products; 48% HIV-endemic, 11% other. For hepatitis B, 123 participants with positive tests prior to first recorded CD4 count were excluded. For the remaining N=1112, 52.6% (49.7% to 55.5%) were tested within 6 months. For hepatitis C, 27 with positive results prior to first CD4 count were excluded. For the remaining 1208, 37.0% (34.3% to 39.8%) were tested in the following 6 months Univariate analysis suggested that hepatitis B testing was correlated with HIV risk (p<0.0001), region of birth (p=0.0029) and year of entry into care (p<.0001) and for hepatitis C testing: HIV risk (p<0.0001), baseline CD4 (p=0.02) and year of entry into care (p<.0001).

**CONCLUSIONS:** Results suggest that hepatitis B and C testing within the first 6 months of clinical HIV care at OCS sites falls short of the target of 100%. This represents missed opportunities to protect HIV patients from viral hepatitis. Future research will explore this further, including possible limitations of testing data in the OCS, and multivariate modeling.

## P180

### HCV CO-INFECTION EXACERBATES HIV NEUROPATHOGENESIS: INCREASED SEIZURE FREQUENCY AND NEUROCOGNITIVE IMPAIRMEN

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**[1]Edmonton; [2]Calgary, AB**

**BACKGROUND:** Several studies have reported that co-infection with hepatitis C virus (HCV) worsens neurocognitive performance among HIV-infected persons. However the impact of HCV co-infection among HIV-infected persons on the occurrence and type of neurological disorders remains unknown. Here we investigated the prevalence of 8 major neurological disorders in both HIV mono-infected and HCV co-infected persons.

**METHODS:** Retrospective analysis of demographic and clinical variables was performed for all adult HIV-infected persons diagnosed with neurological disorders during the 1998-2009 period in the two centralized clinics providing HIV care in Alberta, Canada. The variables were analyzed by the Kruskal-Wallis test for non-parametric continuous variables and the Chi-square test for categorical variables.

**RESULTS:** Of 493 HIV-infected patients affected with neurological disorders, 128 (26.0%) were seropositive for HCV. Most HIV patients with HCV co-infection (75%) had a history of intravenous drug abuse and there was a higher percentage of First Nations (Aboriginal, Inuit and Metis) in the co-infected group. Liver dysfunction was similar among both groups measured by abnormal alanine aminotransferase levels. Co-infection with HCV was also associated with an increased mortality rate (p<0.05). The HIV/HCV-infected patients showed a greater reduction in CD4+ levels from the time of HIV-1 seroconversion to nadir levels and the closest time to first neurologic diagnosis (p<0.05). Although the mean number of neurologic diagnoses was similar among HIV mono-infected and co-infected patients, co-infected patients had a higher prevalence of seizures (26.7% vs. 17.4%, p<0.05). HIV/HCV-infected patients also displayed the impaired motor function and a greater severity of HIV-associated neurocognitive disorder, which was associated with severe immunosuppression.

**CONCLUSION:** The presence of HCV co-infection among HIV-infected persons increased neurologic disease burden, underscoring HCV's capacity to infect the nervous system.

## P181

### DESCRIPTION OF FACTORS ASSOCIATED WITH MEDICATION ERRORS IN AN HIV AMBULATORY CARE SETTING: A PILOT STUDY (DEFEAT STUDY)

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**Montreal, QC**

**BACKGROUND:** HIV is a chronic illness with associated comorbid diseases that may require complex pharmacotherapy. The DEFEAT Study is an observational, cross-sectional, pilot project that was conducted to better characterize the medication errors occurring within an HIV ambulatory care setting.

**METHODS:** Pharmacists interviewed patients in order to obtain a detailed medication history including prescription medications and over-the-counter products. The pharmacist-obtained medication history was then compared to the physician and community pharmacy medication records to detect discrepancies and identify errors for each patient. A medication error was defined using the definition of the National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP). Errors were classified as follows: errors that did not reach the patient (i.e. discrepancies), errors that did reach the patient and required no intervention and errors that did reach the patient and required intervention.

**RESULTS:** 102 patients completed study visits: 81% were male, 64% were white, 18% were black and 10% were Hispanic. The mean age was 47.4 years (range: 19-84), the mean HIV infection duration was 12 years (range: 0-26) and mean CD4 count was 390 (range: 36-1654) cells/μL. HIV risk factors reported included men who have sex with men (63%), HIV endemic country of origin (16%) and injection drug use (12%).
1081 errors were identified within 100 of 102 patients with a mean of 11 (range: 0-34) errors/patient; 954 errors did not reach the patient and 127 errors reached the patient. 38 (37%) patients experienced 64 errors that required intervention. Among these patients, the most common errors identified were incorrect frequency (33%), incorrect dose (27%), clinically significant drug-drug interaction (16%) and incorrect dose based on renal function (9%); the most common drug classes were anti-infectives (21%), antiretrovirals (20%), endocrine drugs (10%) inhalers/intranasal drugs (9%), and erectile dysfunction drugs (7%).
**CONCLUSION:** In this sample of HIV ambulatory patients, pharmacists identified a high number of medication errors that reached patients. Further investigation will focus on the identification of risk factors associated with medication errors in order to develop error reduction strategies.

## P182

### AN ANONYMOUS UNLINKED SEROPREVALENCE STUDY OF HIV IN URBAN CANADIAN EMERGENCY DEPARTMENTS

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**OBJECTIVE:** To determine HIV prevalence and the proportion of previously unrecognized infections in a sentinel population and to compare with findings in 1998.
**METHODS:** A prospective cross sectional study enrolled consecutive patients seen at 2 urban Canadian Emergency Departments (EDs), aged 15-54 years, from whom a complete blood count was drawn. Waste/left over blood was prospectively collected and sero-tested for HIV after removal of all personal identifiers. This 2006 study replicated previous (1998) methodology. Prior to unlinking, socioeconomic data were obtained from Alberta Health and Wellness and previous positive HIV results from the Provincial Laboratory of Public Health and HIV Clinic database.
**RESULTS:** Of 2,304 enrolled patients, 1,099 (47.7%) were male, 254 (11.0%) were First Nations and 357 (15.5%) were receiving social assistance. In 2006, 46 (2.0%; 95% CI: 1.4, 2.6) were HIV-infected, of which 45 (97.8%) were previously known and 39 (84.8%) were HCV co-infected. In 1998, 1.3% of patients were HIV seropositive, 82% were previously known to the lab or HIV clinic and 69% were HCV co-infected. HIV prevalence increased ($p = 0.04$) between study periods. Between the 2 studies there was a shift in age distribution of the HIV-infected to an older age group. HIV prevalence was 7.9% among First Nations subjects and 5.0% in subjects on social assistance. In multivariate analysis, HIV seropositivity was significantly associated with HCV co-infection, age 30-44 years, First Nations status, receiving social assistance and male sex. There were no HIV seropositive subjects < 20 years of age.
**CONCLUSION:** The increase in HIV prevalence may be due to increased survival with treatment as well as continued transmission. HIV is strongly associated with indicators of social disadvantage and injection drug use. Unrecognized HIV is very uncommon in this population. Harm reduction interventions should be reinforced and STI control strengthened, especially in marginalized populations.

## P183

### MARGINALIZED POPULATIONS SHOW HIGH LEVELS OF ACTIVATED IMMUNE CELLS: IMPLICATIONS FOR HIV SUSCEPTIBILITY

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**INTRODUCTION:** Previous studies have shown that marginalized populations are at an increased risk of acquiring HIV. From studies of the immune cells which HIV infects, it is known that activated cells are better targets for HIV infection and replication. The objective of this study was to determine if level of immune activation are higher among marginalized populations.
**MATERIALS AND METHODS:** Study participants included a cohort of HIV uninfected commercial sex workers from Nairobi, Kenya (n=58) and a cohort of HIV uninfected marginalized inner city intravenous drug users from Winnipeg, Canada (n=49). The Nairobi cohort consisted of a long-standing group of commercial sex workers from the Pumwani district of Nairobi. The Winnipeg cohort consisted of intravenous drug users from the inner city region of Winnipeg. Multi-parametric flow cytometry was used to assess the cellular phenotypes (CD3, CD4, CD8), activation status (HLA-DR and CD69) and immune memory state (CCR7, CD45RA) from peripheral blood mononuclear cells isolated from the participants. Cluster and multi-parametric analyses were performed.
**RESULTS:** Cluster analyses indicated that both the Nairobi and Winnipeg cohorts could be divided into clusters based on the levels of activated CD4 and CD8 Tcells and specifically the subset of activated effector memory T cells. In the Winnipeg cohort a multivariate analyses demonstrated that factors such as drug use, gender and Hepatitis C were not associated with this clustering while Aboriginal ethnicity was associated with the higher immune activation state.
**CONCLUSION:** Since HIV infects and replicates better in activated immune cells, knowing the immune activation profiles of populations at risk of HIV acquisition is important. This study demonstrates each cohort could be clustered into low and high activation phenotypes and that the highest levels of immune activation were observed among Aboriginal participants. This data suggests that, in addition to many social, epidemiological and cultural factors, there may be biologic factors that predispose certain populations to HIV and that directed interventions are warranted.

## P184

### REGIONAL DIFFERENCES IN DEMOGRAPHICS, ANTIRETROVIRAL USE, VIRAL RESPONSE AND MORTALITY IN HIV+ WOMEN IN CANADA

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**BACKGROUND:** Women represent one of one of Canada's fastest growing HIV-positive populations. Investigating regional trends in order to characterize and better understand this growing epidemic will allow for the creation of more effective and policy-relevant gender-specific programming where most needed. Our objectives are to (1) evaluate the interprovincial differences in demographics and antiretroviral treatment (ART) use of HIV positive women; and (2) evaluate the interprovincial differences in viral response (suppression and rebound).
**METHODS:** ART-naive women in the Canadian Observational Cohort (CANOC) who started combination ART after 31/12/1999 with at least 2 follow-up viral load (VL) measurements were analyzed. Logistic and Cox regression were used to determine proportion of and time to virologic suppression and viral rebound. The primary covariate of interest was province.
**RESULTS:** In total, 904 women (British Columbia (BC) =402, Ontario (ON) =277, Quebec (PQ) =225) were analyzed. Participants' median time in follow up was 37 months (IQR 18-61). Provincial variation was noted in baseline VL (log10), having an AIDS-defining illness at baseline, most recent CD4, most recent VL (log10), HCV status, initial 3rd antiretroviral class, history of IDU, and heterosexual sex as HIV risk factor (all $p<0.001$). No significant differences between provinces in participant's age, baseline CD4 and follow-up time. In adjusted models, viral load suppression status did not differ by province. However, being from ON (HR 0.31, 95% CI 0.18-0.54) or PQ (HR 0.42, 95% CI 0.25-0.69) was associated with a decreased hazard of viral load rebound compared to women in BC.
**CONCLUSION:** Women across Canada vary in terms of risk factors for HIV infection and clinical status of their disease progression but similarly respond to ART.

## P185

### QUALITATIVE FINDINGS FROM THE HEALTH IN MIDDLESEX MEN MATTERS (HIMMM) PROJECT

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**BACKGROUND:** In 2006, the AIDS Committee of London (ACOL) held a LGBT2SQ Health Forum in London, Ontario, initiating discussion around health concerns in local LGBT2SQ communities. Three topics emerged: homophobia (internal and external); isolation and social exclusion; and communication. Little data pertaining to gay, bisexual, and other men who have sex with men (GB-MSM) communities is available to guide prevention work locally. The HiMMM Project was borne from the Forum to examine individual/collective impacts of these factors on HIV and health care within regional GB-MSM communities.

**METHODS:** Twenty (20) interviews with community members and service providers were undertaken to identify knowledge gaps related to aforementioned factors. GB-MSM were identified using purposive sampling based on characteristics including age, ethnicity, HIV status, geographical dispersion, and sexual orientation. Service providers were selected based on their occupations. Interview transcripts were analyzed using modified grounded theory and NVivo 7.0.

**RESULTS:** Interviews occurred over six months. Participants' ages ranged from 17 to 76. Interacting with service providers, GB-MSM were uncomfortable speaking about sexual health, feeling sexual orientation should only be disclosed if relevant to the issue at hand. The Internet was commonly used for meeting other GB-MSM and acquiring health information. Men accessed HIV testing through sources other than primary caregivers (e.g. sexual health clinics). Sex was seen as an important component of health and wellness. Self-defined risky behaviour was common. Participants believed doctors should be more inclusive when providing care, and women had less difficulty accessing social services. Many participants believed ACOL was an important health and support resource for GB-MSM. Gay nightclubs and bars were seen as prominent social bases in the community, despite participants rarely attending these. Respondents relayed that although GB-MSM friends are important, they are difficult to make.

**DISCUSSION:** Interview findings will formulate a quantitative survey delivered to local GB-MSM communities through respondent-driven sampling. Results from all phases of the HiMMM Project will guide local prevention efforts and be utilized to press for greater focus on sexual orientation diversity in local service provider curricula.

## P186

### PREDICTORS OF ANTIRETROVIRAL TREATMENT INITIATION AMONG FOREIGN-BORN HIV PATIENTS IN ONTARIO

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**BACKGROUND:** Inequalities in the provision of antiretroviral therapy (ART) to minorities and foreign-born patients have been documented in the developed world. However, there has been no systematic survey of this phenomenon for heterogeneous populations in Ontario. This study aims to explore whether treatment inequalities exist between Canadian-born and foreign-born persons living with HIV in Ontario by assessing immunologic status at initiation of ART.

**METHODS:** We conducted a retrospective analysis of HIV-infected patients registered in the Ontario Cohort Study. Patients were stratified according to region of birth. Median CD4 cell count at ART initiation was compared for Canadian-born and Foreign-born patients. Bivariate analysis of sex, age at diagnosis, age at ART initiation, most recent CD4 cell count, time from diagnosis to ART initiation and proportion of patients initiating ART at CD4 cell count <200 cells/μl was also undertaken. Socioeconomic status and alcohol and drug use patterns were also compared.

**RESULTS:** 2717 patients were included in the analysis. 1969 were Canadian-born and 747 were foreign-born. The median CD4 cell count at ART initiation was 260 cells/μl for Canadian-born patients and 233 cells/μl for foreign-born patients ($p<0.001$). Canadian-born patients also had greater proportion of males ($p<0.0001$), greater time from diagnosis to ART initiation ($p<0.001$) and earlier age of diagnosis ($p=0.05$). Foreign-born patients are more likely to initiate ART at CD4 cell count <200 cells/μl ($p=0.004$). Immunologic response to ART showed similar increases in CD4 cell count from baseline (ART initiation) for all world region of birth groups ($p < 0.0001$). Illicit substance abuse, advanced age at ART initiation and being born in one of the former Soviet Republic were the strongest independent predictors of initiating ART at a CD4 cell count <200.

**INTERPRETATION:** The findings indicate shifting trends in the population of persons afflicted by HIV and marked differences in immunologic, demographic and socioeconomic characteristics of foreign-born HIV patients in Ontario. New treatment stratagems will have to be implemented to reflect the changing face of HIV in Ontario.

## P187

### MEDICAL WARD ADMISSIONS AMONG PATIENTS INFECTED WITH HIV

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**BACKGROUND:** Despite the use of HAART since the mid 1990's, hospital admissions remain common in the HIV positive population. Canadian data regarding the causes and patterns of admissions over time, as well as patient characteristics, remains sparse.

**OBJECTIVE:** Analysis of all medical ward admissions of patients with HIV from October 2003 to January 2009 in four Winnipeg hospitals focusing on age, sex, ethnicity, duration of illness, comorbidities, CD4 cell count, HAART regimen, admission diagnosis, length of stay, complications and survival.

**METHODS:** Data was gathered using the WRHA Medical Database to identify all HIV positive patients admitted to medical wards and supplemented by hospital chart review.

**RESULTS:** In total, 528 admissions were identified throughout the period, accounted for by 247 individual patients. Of the admitted patients, 66% were self reported Aboriginal, 24% Caucasian and 3% African. The most prevalent admission diagnosis was Pneumonia (37%) followed by sepsis (11%) and soft tissue infection (11%). A chart review and review of microbiology is ongoing to determine the etiologic agent responsible for these infections. Hepatitis C infection was the most common comorbidity, found in 51% of patients, followed by drug and alcohol abuse in 24% and 23%, respectively. A large majority (83%) of admitted individuals were found to have CD4 cell counts below 350 and over half of these patients were not on antiretroviral therapy. Extremely low CD4 cell counts (<50) were identified in 29% of patients. The incidence of admissions appears to be rising in the last 3 years.

**CONCLUSION:** The data demonstrates a trend towards presentation with advanced disease as well as over-representation of the Aboriginal population in admitted patients. Infectious diseases account for almost half of the admissions, with Pneumonia being the most common.

## P188

### THE CEDAR PROJECT: OVER-TIME VULNERABILITIES ASSOCIATED WITH UNSTABLE HOUSING AMONG YOUNG ABORIGINAL PEOPLE WHO USE DRUGS IN VANCOUVER AND PRINCE GEORGE, BC

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**[1]Prince George; [2]Vancouver, BC**

**OBJECTIVES:** This study sought to determine vulnerabilities associated with unstable housing among young, street-involved Aboriginal young people who use drugs in two urban centres in British Columbia.

**METHODS:** The Cedar Project is an ongoing prospective study of Aboriginal young people in Vancouver and Prince George who use injection and non-injection drugs. Unstable housing was defined as sleeping on the streets or living in transitional housing including single room occupancy hotels or 'couch surfing'. This analysis included data collected at baseline and five follow-up visits between October 2003 and July 2007.

Venous blood samples tested for HIV and HCV antibodies. Generalized estimating equation (GEE) modeling identified factors associated with homelessness over the study period. Variables included in multivariable analysis were chosen because of their importance in the literature and they reached statistical significance at the $p<0.05$ level in univariable analysis. Unadjusted and adjusted odds ratios (UOR/AOR) and 95% confidence intervals (CI) were calculated.

**RESULTS:** The proportion of participants who reported unstable housing showed a gradual increase over the study period from 45.7% at baseline to 42.4% at follow-up one, 47.1 at follow-up two, 47.3% at follow-up three, 49.7% at follow-up four and 53.3% at follow-up five. In multivariable analysis factors associated with unstable housing over the study period included living in Vancouver (AOR: 2.87; 95% CI: 2.20-3.74), ever having been taken from biological parents into care (AOR: 1.45; 95% CI: 1.11-1.90), injecting drugs in the last six months (AOR: 1.46; 95% CI: 0.98-2.17) and incarceration in the last 6 months (AOR: 1.62; 95% CI: 1.28-2.05).

**CONCLUSION:** Young Aboriginal people who are vulnerable to unstable housing situations may be coping with unresolved historical and lifetime trauma, including the impact of the foster care system. Young Aboriginal people must be involved in the design and implementation of safe spaces that are available 24 hours per day.

## P189

## THE CEDAR PROJECT: LONGITUDINAL ANALYSIS OF ACCESSING VANCOUVER'S SAFE INJECTION SITE AMONG YOUNG ABORIGINAL PEOPLE WHO USE INJECTION DRUGS

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**[1]Vancouver; [2]Prince George, BC**

**OBJECTIVES:** To identify factors associated with using Vancouver's Safe Injection Site (SIS) among young Aboriginal people who use injection drugs over a five-year study period.

**METHODS:** The Cedar Project is an ongoing cohort study of Aboriginal young people in Vancouver and Prince George who use injection and non-injection drugs. This analysis included only participants from Vancouver and those who reported using injection drugs between the baseline questionnaire and three follow-up interviews between 2005-2007. Venous blood samples tested for HIV and HCV antibodies. Generalized estimating equation (GEE) modeling was used to identify factors associated with using the SIS at least once per month over the study period.

**RESULTS:** A total of 133 participants were eligible for inclusion in this analysis, and they contributed 276 observations over the study period. Among them, 95 (71%) had used the SIS; 61% of which were female. In univariable analysis participants who had used the SIS were more likely to inject cocaine, speedballs and opiates daily or more in the previous six months, to have ever been incarcerated, to have ever been paid for sex, to be HCV positive, and less likely to have ever attempted suicide or to be in a relationship in the last six months. In multivariable analysis, SIS users were less likely to have ever attempted suicide (AOR: 0.39, 95%CI: 0.20-0.78) or to be in a relationship in the last six months (AOR: 0.46, 95%CI: 0.24-0.89), and were more likely to inject opiates daily in the last six months (AOR: 2.5, 95%CI: 1.1-5.63) and to have ever been incarcerated (AOR: 2.00, 95%CI: 0.97-4.12).

**CONCLUSIONS:** Vancouver's SIS is an important source for harm reduction among young Aboriginal people who use injection drugs. Expanding access to these young people and bringing this strategy to northern communities in British Columbia should be considered.

## P190

## THE CEDAR PROJECT: CORRELATES OF ACCESSING HIV TESTING AMONG YOUNG ABORIGINAL PEOPLE WHO USE NON-INJECTION AND INJECTION DRUGS IN VANCOUVER AND PRINCE GEORGE, BC

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**[1]Vancouver; [2]Enderby, BC**

**OBJECTIVES:** To explore factors associated with HIV testing among young Aboriginal people who use non-injection and injection drugs in Vancouver and Prince George, BC.

**METHODS:** The Cedar Project is a cohort study of young Aboriginal living in Vancouver and Prince George. This analysis utilized data collected at baseline by Aboriginal interviewers from 605 participants between 2003-2005. Venous blood samples were drawn and tested for HIV/HCV antibodies. Pre- and post-test counseling was carried out. Multivariable logistic regression analysis was carried out to identify factors associated with having ever been tested for HIV. Unadjusted and adjusted odds ratios (OR) and 95% confidence intervals (CI) were calculated.

**RESULTS:** Three hundred participants (49%) resided in Vancouver, 292 (48%) were female and the median age of participants was 23 years (IQR: 20-26). At enrolment, 440 (73%) participants reported having ever had an HIV test during their lifetime, of which 185 (42%) were tested at least once per year. In multivariable logistic regression analysis, participants who had ever been tested for HIV were more likely from Vancouver (AOR: 2.25, 95%CI: 1.4,3.6), to be female (AOR: 2.6; 95%CI: 1.4-4.7), to inject drugs (AOR: 1.6, 95%CI: 1.0-2.6), to have ever overdosed (AOR: 1.8, 95%CI: 1.0-3.2), to have ever been incarcerated (AOR: 2.5, 95%CI: 1.5-4.1), to have ever been in sex work (AOR: 1.9, 95%CI: 1.1-3.3), to have ever had an STI (AOR: 4.1, 95%CI: 1.3-12.4), and to have ever had addiction treatment (AOR: 1.6, 95%CI: 1.6-2.5).

**CONCLUSIONS:** Expanding access to testing and treatment strategies based on Indigenous strategies for healing is essential for young Aboriginal people who use drugs. Young Aboriginal men and women must be involved in the design of social marketing programs aimed at increasing access to HIV testing. Barriers to HIV testing among young Aboriginal men in particular should be explored in future research.

## P191

## THE CEDAR PROJECT: SEXUAL VULNERABILITIES OVER TIME AMONG ABORIGINAL YOUNG PEOPLE INVOLVED IN ILLEGAL DRUG USE IN TWO CANADIAN CITIES

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**Vancouver, BC**

**BACKGROUND:** Very little information exists on the use of condoms as protective barriers to HIV/AIDS and other sexually transmitted infections among Aboriginal people in Canada. This analysis explores predictors of inconsistent condom use over time among the Cedar Project cohort; an ongoing prospective study of Aboriginal young people in Vancouver and Prince George who use injection and non-injection drugs.

**METHODS:** This analysis includes data collected between October, 2003 and April 2005. Inconsistent condom use was defined as not always using a condom during insertive sex. Due to the serial measurements for each study subject, generalized estimating equations (GEE) modeling with logit link was used to accommodate the temporal correlation within the subjects.

**RESULTS:** Young women who experienced sexual abuse within the last 6 months were 2.02 (95%CI: 1.16, 3.49) times more likely to use condoms inconsistently. The young men and women of the Cedar Project who used condoms inconsistently were more likely to not be single, live in Prince George, smoke crack on a daily basis, and have a history of sexually transmitted infection(s). Among participants who used injection drugs, sexual vulnerability was associated with sharing rigs.

**CONCLUSIONS:** An examination of the availability and effectiveness of current sexual health services in both rural and urban localities must be prioritized for Aboriginal people. The design of culturally safe prevention, treatment, and harm reduction programs requires the meaningful involvement of young people.

## P192

### THE CEDAR PROJECT: INVESTIGATING DRUG USE HISTORY AMONG YOUNG ABORIGINAL PEOPLE WHO REPORTED HIGH FREQUENCY INJECTION DRUG USE IN VANCOUVER AND PRINCE GEORGE, BC

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**[1]Vancouver; [2]Enderby, BC**

**OBJECTIVES:** The objective of this study was to investigate injection drug use patterns among young Aboriginal people who transitioned to using injection drugs on a daily basis over a five-year study period.

**METHODS:** The Cedar Project is an ongoing cohort study of Aboriginal young people in Vancouver and Prince George who use injection and non-injection drugs. This analysis included only participants who reported using injection cocaine, heroin and methamphetamine on a daily or more basis between the baseline questionnaire and five follow-up interviews between 2003-2007. Venous blood samples tested for HIV and HCV antibodies. Descriptive statistics were used to characterize patterns of drug use over time.

**RESULTS:** In total 605 participants were recruited for the baseline questionnaire, 456 (75%) of whom completed at least one follow-up questionnaire. Among participants who completed at least one follow-up, 183 (40%) reported high frequency injection (one or more times daily) of cocaine, heroin or methamphetamine, 66% of which were women, and 60% were from Prince George; the median age was 24 years (IQR: 21-27). Over the study period, 42 (23%) injected both cocaine and heroin, 47 (26%) injected heroin only, 54 (30%) injected cocaine only, 19 (10%) injected methamphetamine only, and 21 (11%) injected another combination of the drugs. For all types of drug use, more women than men reported high frequency injection except in the case of methamphetamine, which was more frequently used by men. Participants from Vancouver were more likely to inject at a high frequency for all drug types except for cocaine, which was more frequently injected among participants from Prince George.

**CONCLUSION:** The transition to periods of high frequency injection drug use appears to be a relatively common event among young Aboriginal people in Vancouver and British Columbia that places users at particularly high risk of experiencing adverse health outcomes.

## P193

### IMPACT OF HIV/AIDS ON CANADIAN DEATH RATES BY PROVINCE AND AGE GROUP

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**Burnaby, BC**

**OBJECTIVE:** To assess the impact of time on HIV-related death rates in Canada.

**METHODS:** The number of people for whom HIV infection or AIDS was listed as the underlying cause of death in Canada and all provinces from 1987 to 2005, as reported by Statistics Canada, was collected and crude and standardized death rates were calculated. Specific patterns of death were also explored.

**RESULTS:** From 1987 to 2005 a total of 16,069 deaths from HIV infection and AIDS occurred in Canada, of which 14,598 (90.8%) occurred in males and 1,471 (9.2%) in females. The standardized rate of death in males peaked in 1995 at a 9.47 deaths per 100,000 population and steadily declined to 1.60 deaths per 100,000 population in 2005. However, over the same study period the female death rate has remained relatively unchanged. Persons aged 25 to 49 years had the highest rate of death due to HIV infection during this period. The crude rates of death in Quebec and British Columbia for both sexes were consistently higher than the national average (1.60 and 3.29 deaths per 100,000 population in 2005 respectively, compared to 1.45 deaths per 100,000 population).

**CONCLUSION:** From 1987 to 2005 the rate of death from HIV infection and AIDS was notably higher in British Columbia and Quebec than the national average. The female rate of death has failed to decline during this time. Future HIV/AIDS interventions, especially increased HAART use, are needed to further reduce mortality, particularly among women and in some provinces.

## P194

### HIGHER RISK OF MORTALITY IN SMOKERS IN THE OHTN COHORT STUDY

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**Hamilton, ON**

**OBJECTIVE:** To estimate the association of smoking with death in HIV infected subjects.

**METHODS:** We performed a secondary data analysis within the Ontario HIV Treatment Network Cohort Study (OCS). The OCS is a prospective multi-centre cohort database. We analyzed subjects 18 years of age or older, and examined the association between smoking status and subsequent mortality using Cox proportional hazards models.

**RESULTS:** Thirty-two hundred and ten OCS subjects were diagnosed as HIV positive at a mean (SD) age of 35 (9) years between 1980 and 2007. Mean (SD) follow-up was 10 (5) years and 32,998 person-years were observed. There were 2,791 (87%) men and 2,531 (79%) were white. Highly active antiretroviral therapy (HAART) was used by 2,933 (91%) subjects. Mean (SD) baseline CD4 T-lymphocytes count was 344 (253) $\times 10^9$ cells/ml. One thousand and nineteen (32%) subjects used street drugs. Annual smoking prevalence was 67-69% between 1995 and 2001, and then decreased gradually to 60% in 2007. Six hundred and forty-five (20%) subjects died between 1995 and 2007. The annual mortality rate was 2.1% in 1995, peaked at 5.5% in 1996, dropped to 3.2% in 1997, and then decreased to 0.9% in 2007. There was a statistically significant interaction between smoking and suppressed viral load in predicting death (p=0.008). In 1,865 (58%) subjects who had undetectable viral load at least once, smokers had a hazard ratio (HR) for death of 2.4 (95% confidence interval [CI]) 1.1, 5.2) for current versus never smokers, after controlling for age at HIV diagnosis, sex, race, HAART use, baseline CD4 count and substance use. Former smokers had an HR of 2.3 (0.9, 5.9) versus never-smokers.

**CONCLUSIONS:** In HIV infected subjects, current smokers were at higher risk of death comparing to non-smokers, while former smokers may be at higher risk. High smoking prevalence in HIV infected subjects highlighted the importance of smoking cessation program specially designed for them.

## P195

### REPORTING OF PATIENT CENTERED OUTCOMES WITH ORAL HIV TESTS: TO GRADE OR NOT TO GRADE?

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**Montreal, QC**

**BACKGROUND:** Recently published GRADE recommendations caution against use of diagnostic accuracy and call for a shift in focus to patient centered outcomes (PCO) as the basis of recommendations. In this context, we evaluated the quality of evidence on PCO reporting with oral HIV rapid and point of care tests.

**METHOD:** We systematically searched three electronic databases (i.e., MEDLINE, EMBASE, WEB OF SCIENCE) for the period January 1986-October 2009 for all studies reporting PCO with all oral fluid based HIV tests.

**RESULTS:** Of 127 full-text articles reporting any outcomes, 31 (24%) reported PCO, classified into seven broad categories: acceptability, preference, feasibility, impact, cost-effectiveness, prevalence, concordance, barriers, and challenges. Of 31 studies, less than 1% defined these outcomes; thus most outcomes were inferred. Although oral tests scored very well on patient acceptability, preference, and feasibility, inconsistency in definitions and in use of these outcomes across studies was observed. Only impact, prevalence, and concordance outcomes were clearly defined. Barriers and challenges (i.e., logistical, psychological barriers, lack of awareness), were elucidated, while costs were inadequately addressed.

**CONCLUSION:** In sum, PCO were inconsistently defined and incompletely documented limiting our ability to meta-analyze them. In the light of GRADE, a clear framework for documenting, reporting and assessing the quality of PCO outcomes is urgently needed.

## P196

### HIV STIGMA AMONG MIGRANT CONSTRUCTION WORKERS IN SHANGHAI, CHINA: UNDERSTANDING THE EPIDEMIC AND STRENGTHENING PREVENTION EFFORTS

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**OBJECTIVE:** To assess HIV stigma and its correlates in order to develop and evaluate intervention programs to reduce stigma.

**METHODS:** A randomized controlled trial of three community-based interventions was conducted among 1,871 randomly selected construction workers in Shanghai. Baseline and two post-intervention follow-up surveys were conducted. HIV and STI testing was done. Stigma was measured as level of agreement to three statements using a 4-point Likert scale, resulting in a summary stigma score from 0 (low) to 9 (high). We used descriptive statistics and regression analysis to identify variation in the stigma score by socio-demographic characteristics, HIV transmission knowledge, and perceived personal risk.

**RESULTS:** Stigma was high; mean score was 5.2 of 9 (range=0-9). Only 16% felt that HIV+ persons deserve our sympathy; 87% were afraid of HIV+ persons; and 82% felt that HIV+ persons are disgusting. HIV transmission knowledge was high for some modes but very low for others. The mean score was 6.3 of 10 possible correct answers. Participants were highly knowledgeable about shared needles, unprotected sex, multiple sex partners and mother-to-child as sources of infection (mean=93% correct), but incorrectly felt that one could become infected by mosquitoes, coughing, kissing, shaking hands, sharing food, and sharing towels or toilet facilities with an HIV+ person (mean=35% correct). Factors associated with lower levels of stigma in the regression analysis included: higher education ($p=0.03$), younger age ($p=0.0003$), being unmarried ($p=0.006$), higher level of HIV transmission knowledge ($p<0.0001$); higher perceived personal risk of becoming infected ($p=0.004$); and ever had an HIV-test ($p=0.002$). No-one tested HIV+.

**CONCLUSION:** Levels of HIV stigma among migrant construction worker were high. Education to correct misperceptions about HIV transmission and personalizing HIV through testing and exposure to HIV+ persons may contribute to reducing stigma. Post-intervention results will indicate their effectiveness and offer transferable lessons for the Canadian setting.

## P197

### A SOCIAL NETWORKING APPROACH TO HIV CASE FINDING: NEW TOOLS TO TACKLE THE CONSTANTLY CHANGING EPIDEMIOLOGY WITH LIMITED RESOURCES

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**OBJECTIVE:** This novel approach to HIV investigation resulted in the elucidation of the largest cluster of newly diagnosed HIV infections among IDUs in Saskatoon in 2006. This approach is thought to better direct prevention and testing efforts.

**BACKGROUND:** Social Network investigation is all about breaking from the old model of just doing outreach. A main goal of social network investigation is to prevent HIV. What is put into the community in terms of knowledge and awareness is better than just random testing of people.

**METHODS:** In May 2005, two individuals were newly diagnosed with HIV in Saskatoon. Routine follow-up elicited a large number of IDU and sexual contacts, and several new HIV diagnoses. Sexual Health staff expanded their case-finding by asking all individuals newly diagnosed with HIV infection ("cases") to identify others in their social circle whom they believed to be at risk for HIV infection ("social contacts"), in addition to their direct needle-sharing or sexual partners. A risk behaviour questionnaire was offered to cases, their social, sexual or IDU contacts in the course of follow-up and counselling. Individuals who agreed to complete the survey were compensated $10.

**RESULTS:** A cluster of 54 linked individuals was illustrated. The mean age was 31.4 years, and 50% were female. Among questionnaire respondents, 44% were HIV positive and 78% injected drugs daily. 43% of females had engaged in commercial sex work in the past 6 months, and 93% of all respondents had ever been incarcerated. 67% of respondents had ever used another person's needle or gear, and 63% usually injected drugs with other people.

**CONCLUSIONS:** This expanded cluster investigation identified several new HIV cases, and provided valuable information on risk behaviours and barriers to safe injecting practices. This approach has been time- and human resource-intensive but may represent the best possible mechanism to encourage testing and risk reduction in a hard-to-reach population.

## P198

### ASSOCIATION BETWEEN UTILITY SCORES AND CD4 COUNTS

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**INTRODUCTION:** A common measure of health benefit in technology assessments is the quality adjusted life year which incorporates morbidity and mortality using both time and utility values. Anchored by 0 (death) and 1 (perfect health), utility scores can be measured indirectly with a number of questionnaires. Recent economic models for HIV have defined health states by CD4 counts. To facilitate these models, the association between CD4 counts and utility scores is crucial.

**METHODS:** The Ontario HIV Treatment Network (OHTN) Cohort Study collected utility scores from the HUI3 and EQ-5D quality of life questionnaires (N=1051). Linear regression models were fit to determine the association between utility scores (dependent variable) and CD4 counts (independent variable). Separate models were fit for the HUI3 and EQ-5D derived utility scores. Age and sex were also included as independent variables. Ten-fold cross-validation was performed to assess the models.

**RESULTS:** A non-linear relationship between CD4 counts and utility scores was observed. CD4 counts were rounded to the nearest 100. CD4 counts ranged from 2 to 1631 and utility scores ranged from –0.25 to 1 (HUI3) and 0.11 to 1 (EQ-5D). CD4 counts were statistically significant for both the HUI3 and EQ-5D based models ($p<0.01$). However, the HUI3 model did not perform as well for CD4 counts >1,000. Age and sex were not statistically significant in both models. Based on the cross-validation, both models had similar mean absolute errors (0.00016 with the HUI3 versus 0.00017 with the EQ-5D).

**CONCLUSION:** More complex models may be necessary to better predict utility scores given the non-linear relationship between CD4 counts and utility scores. However, the preliminary models demonstrate the possibility of predicting utility scores based on CD4 counts. Utility values can then be incorporated into economic evaluations.

## P199

### AN OLDER, CHANGING FACE: HIV/AIDS TRENDS AMONG CANADIANS 50 YEARS OF AGE AND OLDER

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**OBJECTIVE:** To identify trends in HIV/AIDS among Canadians aged 50 and older, a population increasingly represented in national HIV and AIDS case reports.

**METHOD:** Data from the national HIV and AIDS surveillance databases, housed within the Centre for Communicable Diseases and Infection Control, was analyzed to examine risk category and ethnic distributions, in addition to age group comparisons.

**RESULTS:** Over the past ten years, a general upward trend has been observed in the percentage of HIV and AIDS diagnoses among Canadians aged 50 and older. During this time period, HIV cases for this age group have risen 4.5% and AIDS cases have risen 5.7%. In addition to increased representation, analysis also reveals significant changes in the demographics and reported routes of transmission within this age group. Among males aged 50 and older since 1999, the percentage of HIV cases attributed to heterosexual transmission more than doubled compared to the time period from 1989 to 1998. Comparing females aged 50 years and older from 1989-1998 to 1999-2008, the percentage of cases attributed to heterosexual

contact has increased by 8.3% and the percentage of cases attributed to IDU has increased by 8.4%.
Among AIDS reports in older Canadians with known ethnicity, the percentage attributed to White ethnic groups decreased by 9.9% over the last ten years in comparison with the 1989-1998 time period, while the percentage attributed to Aboriginal groups increased by 7.3%, a seven-fold increase over the last 20 years.
**CONCLUSIONS:** Surveillance data indicates a continued growing epidemic among older Canadians, with increased HIV transmission risk due to heterosexual contact and an increased proportion of Aboriginals among AIDS diagnoses. These trends highlight the need to include older persons in HIV/AIDS policy and programs, with particular focus on the sub-groups who are experiencing heightened risk.

## P200
## PEOPLE WHO INJECT DRUGS: A PROFILE OF THOSE WHO HAVE BEEN TESTED FOR HIV VS. THOSE WHO HAVE NOT: RESULTS FROM A NATIONAL ENHANCED HIV SURVEILLANCE SYSTEM

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**OBJECTIVES:** To explore the differences between IDU who have ever been tested for HIV and those who have not, in a population-specific HIV surveillance system.
**METHODS:** I-Track is an enhanced surveillance system that monitors risk behaviours associated with HIV and hepatitis-C virus (HCV) among people who inject drugs (IDU) in selected centres across Canada. Through face-to-face interviews (Phase 2, 2005-2008, ten sentinel sites), information was collected on demographics, drug-use, sexual and HIV/HCV testing behaviours. Blood or saliva was collected for HIV/HCV testing. For analysis, participants were divided into two groups: testers (those who reported ever having been tested for HIV); and non-testers (those who reported never being tested). Chi-square tests assessed differences between groups. Only statistically significant findings are presented ($p<0.05$).
**RESULTS:** Of 3250 eligible respondents, 91.9% had ever been tested for HIV; of which, 60.2% had been tested at least once in the past two years.
Statistically significant differences between testers and non-testers were: HIV positive (14.4% vs. 4.8%) and HCV antibody positive (71.4% vs. 42.7%) from blood/saliva testing, injecting frequency of >3 times/week (49.4% vs. 36.6%), use of needle exchange programs (87.2% vs. 74.2%), Aboriginal ethnicity (24.3% vs. 34.1%), aged <30 (23.2% vs. 33.5%), and those who completed high school (47.5% vs. 35.2%).
Three common reasons for never having been tested for HIV were: "I am at a low risk for infection" (21.2%), "I never thought about it" (21.2%) and "I do not want to know" (18.2%).
**CONCLUSIONS:** Within this population of accessible IDU, there were HIV-infected individuals who had never undergone diagnostic testing for HIV. Information generated from these results can inform strategies that increase HIV testing uptake among this specific IDU sub-group who have never tested, increase testing frequency among IDU in general, and connect them to prevention/treatment services.

## P201
## A SEX-BASED PROFILE OF USING/LENDING USED INJECTION EQUIPMENT: RESULTS FROM A NATIONAL ENHANCED HIV SURVEILLANCE SYSTEM

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**OBJECTIVES:** To determine if there are any sex-based differences in injecting behaviours among a national sample of people who inject drugs.
**METHODS:** I-Track is an enhanced surveillance system that monitors risk behaviours associated with HIV and hepatitis C virus (HCV) among people who inject drugs (IDU) in selected sites across Canada. Through face-to-face interviews (Phase 2, 2005-2008, ten sentinel sites), information was collected on demographics, drug-use, sexual and HIV/HCV testing behaviours. Blood or saliva was collected for HIV/HCV testing. For analysis, participants were divided into two groups: male and female. Chi-square tests assessed the differences between groups. Only statistically significant findings are presented ($p<0.001$).
**RESULTS:** The study sample consisted of 3273 participants: 2249 males and 1024 females. The HIV prevalence was 11.4% among females and 13.9% among males; 68.8% of females and 69.1% of males were HCV antibody positive.
Compared to males, a higher proportion of females reported borrowing used needles/syringes to inject drugs (26.2% females versus 20.0% males), lending used needles/syringes (29% versus 19.8%) and lending used injection equipment (45.1% versus 34.5%). When asked who they borrowed from most often, females reported borrowing used needles/syringes from their regular sex partners (58.6% versus 33.9%) whereas a higher proportion of males reported borrowing from their close friends (39.7% males versus 28.9% females), people they don't know well (19.1% versus 6.0%) and people they don't know at all (4.8% versus 2.4%). With regard to education, a higher proportion of males reported completing high-school (23.5% males versus 18.1% female) and had some post secondary education (25.4% versus 23.0%).
**CONCLUSIONS:** These analyses showed important sex-based differences in risk behaviours among this IDU population, particularly in the pattern of lending and borrowing needle/syringes/equipment, which supports the need to develop sex-specific prevention approaches, messages and/or programmes for IDU.

## P202
## A SURVEY OF HIV-HCV CO-INFECTION RESEARCH CONDUCTED BY SERVICE PROVIDERS IN ONTARIO

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**Ottawa, ON**

**INTRODUCTION:** The present level and types of research related to HIV-HCV co-infection (CI) conducted by Canadian-based health service provider sites is unclear. Research helps to improve patient care and determine how best to utilize healthcare resources. An Ontario-based task force consisting of HIV and HCV service providers and community advisors was formed in 2008 and worked through 2009 to assess current research activities related to HIV-HCV co-infection at Ontario-based health service provider sites.
**METHODS:** A survey of CI care, treatment and support services available across Ontario was developed and administered via e-mail to individuals and organizations providing HIV and HCV services. To increase the sample and breadth of expertise surveyed, contacts were asked to forward the survey to colleagues within their workplace. Survey Monkey was utilized to capture and tabulate median results.
**RESULTS:** Overall, 101 individuals participated in this survey. Responses related to research activities from 74 respondents (50 sites) were evaluated. A majority of sites do not have any ongoing or planned research in the CI population (76%). Academic sites were more likely to be conducting or planning to conduct CI research (3 of 7: 43%) compared to community-based / other sites (4 of 41: 10%) ($p=0.035$). Hospital-based sites were most likely to pursue research in the CI population (5 of 10: 50%), followed by community health clinics (3 of 9: 33%), AIDS service organizations (1 of 25: 4%) and public health clinics (0 of 6: 0%) ($p=0.024$).
Fields of research include clinical research (18% of sites), epidemiology (16%), social sciences (14%) and basic science (4%). All research was conducted at urban-based sites (12 of 46: 26%) vs (0 of 4: 0%) ($p=0.24$). Little to no community-lead research was identified.
**CONCLUSION:** The volume of CI-specific research in Ontario is suboptimal. There is little HIV community-conducted research occurring. Research in the CI population by academic and community-based service providers should be facilitated.

## P203

### PROMOTING NEW HIV TESTING OPTIONS TO MSM IN MONTREAL: SPOT'S COMMUNICATIONS CAMPAIGN

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**BACKGROUND:** SPOT offers a new way for gay, bisexual, and other and other MSM in Montreal to access HIV testing, in particular men at risk of having recently been infected. Health communication research suggests that an effective promotional campaign for SPOT will emphasize the credibility of the research team and the advantages offered to participants.

**METHOD:** SPOT's communications campaign emphasizes the availability of free, anonymous rapid HIV testing as its key message. Visuals were designed to stand out from other advertising and to appeal to several distinct sub-cultures. Promotional activities have included distribution of promotional items in social and community venues, advertising, outreach activities, special events, and information sessions for community leaders. In September 2009, a media and community launch were held and a SPOT website was activated.

**RESULTS:** The project has obtained significant media coverage. Participants (n=142) report hearing about SPOT from: friends (16.9%), promotional items (16.2%), outreach workers (15.5%), magazine ads (15.5%), news articles (12.7%), the SPOT web site (3.8%), healthcare professionals (1.4%), community organization websites (1.4%), condom packets (0.7%), and online profile websites (0.7%). 7% of participants report hearing about the project in multiple ways. 55.6% of participants were recruited after the community launch. Those recruited after the launch were less likely to have heard about SPOT from a community worker (27% vs. 6.3%, p=0.001) and more likely to have met sexual partners over the Internet (65.8% vs. 46%, p=0.02), in public places (32.9% vs. 19%, p=0.06), at circuit parties (20.3% vs. 4.8%, p=0.007), and in after hours venues (22.8% vs. 4.8%, p=0.003). The SPOT web site has generated 2,844 visits with 37.5% resulting from typing the site URL directly into a browser. Additional emphasis on online promotion of SPOT is likely required as well as outreach aimed at diversifying the range of participants who are recruited. An upcoming evaluation of the communications campaign should provide additional insights.

## P204

### IMPROVING PARTICIPATORY PRACTICES FOR SEX WORKERS' INVOLVEMENT IN BIOMEDICAL HIV PREVENTION TRIALS

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**OBJECTIVES:** UNAIDS/AVAC developed Good Participatory Practice Guidelines for Biomedical HIV Prevention Trials (GPP) in order to provide systematic guidance regarding researchers' roles and responsibilities toward participant communities. As sex workers are a population frequently targeted for involvement in biomedical HIV prevention trials, this project investigated sex workers' reactions to involvement in such trials in general, and knowledge of the GPP's core guiding principles specifically.

**METHODS:** A 33-question survey addressing 10 core principles of GPP were conducted in English, French, and Spanish. Most were self-completed unless low literacy levels required otherwise. Self-identified sex workers were recruited through peer networks. Responses were received electronically, in person and on paper. No incentives were offered.

**RESULTS:** 74 sex workers responded to the survey. Of those indicating region of residence, 10% were from the Asia Pacific, 15% from Latin America, 18% from Europe and 57% from North America. 30% of participants reported first hand involvement in biomedical HIV prevention trials. Many participants were not opposed to co-operation with trials, but would want to learn more about research before committing. Many would consider involvement in prevention trials provided they were confident a trial was ethical and participatory. Improving effective communications between trial sites and community stakeholders was identified as key. 'Respect' for members of the community was the most important GPP principle identified by sex workers.

**CONCLUSION:** In this convenience sample of sex workers, there was varied understanding of the workings of biomedical HIV prevention trials. There was, however, considerable understanding of the stigma and disrespect that could be experienced by sex workers within such trial contexts. Taken together, results suggest trial participation can be improved through techniques to help develop greater respect for trial participants, more attention to research capacity building, and continued translation of both standard and more complex research processes into local languages using non-technical terms.

## P205

### THE BLACK, AFRICAN AND CARIBBEAN CANADIAN HEALTH (BLACCH) STUDY: PHASE I PRELIMINARY FINDINGS

**SM Baidoobonso, RM Longman, GR Bauer, M Nleya-Ncube, M Abdelkader, D Pugh, E Lawson**
**London, ON**

**BACKGROUND:** Most HIV and health studies in African, Caribbean and Black (ACB) communities occur in large urban centres and rarely examine how the interactions between racism, gender, HIV-related stigma and multiple forms of oppression affect health and HIV vulnerability. This lack of information negatively impacts HIV prevention efforts for ACB communities.

**OBJECTIVES:** To inform the development of the BLACCH survey instrument and provide evidence that will aid the design of more effective HIV prevention and care programs for ACB communities.

**METHODS:** Using a community-based approach, a purposive sample of 30 persons (7 health and support services providers, and 23 ACB community members) were interviewed to collect information about health-related experiences in London, Ontario's ACB residents. ACB persons involved in the interviews represented a cross-section of these communities. The interview topics included: gender; migration; general health; religion; culture; HIV-related beliefs, behaviours, knowledge, stigma and services; social networks; socio-economic status and housing. The interviews were analyzed using a modified grounded theory approach to identify emergent health-related themes.

**RESULTS:** We learned that: health is viewed holistically, and participants largely classified themselves as healthy; HIV is considered an important health issue in ACB communities; most participants believe their risk of contracting HIV is low; ACB persons are not utilizing HIV services; HIV-related education is needed; service organizations need multiple employees from ACB communities with different ethnicities; service organizations need to build trust with ACB communities; and rather than asking ACB persons to seek HIV-related resources, service providers should bring these resources to ACB communities.

**DISCUSSION:** This qualitative study builds the capacities of the BLACCH Study team to conduct epidemiologic research to address the needs of ACB communities. These interviews help stakeholders gain a better understanding of the HIV-related experiences of ACB persons who reside in areas with small ACB populations and limited HIV/AIDS resources.

## P206

### EVALUATING THE FEASIBILITY OF POINT OF CARE TESTING IN MANITOBA

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**Winnipeg, MB**

**BACKGROUND:** Currently research into Point-of-Care HIV testing (POCT) demonstrates that this is an appropriate and feasible model for increasing uptake of HIV testing particularly among hard to reach or underserved populations. With this argument, Nine Circles Community Health Centre was successful in obtaining support from provincial authorities for a demonstration project of POCT in Manitoba to begin in February 2008. An evaluation of the project was conducted mid-2009.

**OBJECTIVES:** The objectives of the POCT Demonstration Project were to determine whether POCT is an acceptable alternative to standard test-

ing and, clients' and service providers' level of satisfaction with POCT.
**METHODS:** In order to assess the objectives a number of methods were used. Among these were a documentation review of the number of HIV tests and data from the client demographic forms completed during testing. In addition, a Client Satisfaction Survey was used to assess client's experiences. Finally, focus Groups with Nine Circles nurses were conducted to assess items such as service provider and perceived client satisfaction with POCT.
**RESULTS:** There was high satisfaction with the POCT testing process among all respondents.
Clients are just as likely, or more likely, to utilize a POCT. Overall, those in Winnipeg's inner city, those who were seeking a rapid HIV test, those with a new partner, and those under the category of Men Having Sex with Men (MSM) employed the POCT option more often than standard HIV testing.
**CONCLUSIONS:** At-risk and marginalized groups testing needs are being further met with the availability of POCT, such as inner city clients and the especially high-risk group of MSM.
The high accuracy and reliability of POCT has been demonstrated, as POCT tests have shown to be accurate, and we can presume that parallel testing is no longer necessary.

## P207
## COULD WE? IF SO, SHOULD WE? EXPLORING THE INTRODUCTION OF SAFETY-ENGINEERED SYRINGES WITH STREET-INVOLVED PEOPLE WHO INJECT DRUGS

**P Oickle**
**Ottawa, ON**

**OBJECTIVES:** To assess the feasibility and suitability of implementing safety-engineered syringes within Ottawa Public Health's (OPH) needle and syringe program (NSP).
**METHODS:** In 2002, following an initial phase to familiarize injection drug users with the retractable syringe technology, it was decided to abandon the trial with clients of the NSP due to significant concerns, which included: Safety and suitability of syringe for one-handed intravenous use; high risk of syringes being discarded unretracted; liability issues and cost. In recognition of the strong community interest in the use of safety-engineered syringes within the NSP as a means of reducing the potential exposure to communicable diseases from community-acquired needle stick injuries, OPH recently embarked on its second feasibility study to investigate the voluntary use of safety-engineered syringes by clients of OPH's NSP. In September 2007, an international scan was conducted to ascertain whether or not safety-engineered syringes were used by NSPs. In January 2008 and in September 2009, an extensive product market search was first conducted by OPH staff and subsequently validated by a consulting firm, KPMG.
**RESULTS:** While several safety-engineered syringes showed some merit, none met all of OPH's requirements at a price consistent with conventional technology. However, all identified manufacturers have committed to work on their product design to meet the needs of NSP clients.
**CONCLUSIONS:** It is recommended that OPH proceed with the implementation of a feasibility study to assess potential suitability of current safety-engineered products that could meet the needs of the NSP.

## P208
## BUILDING A COLLECTION OF EVIDENCE-BASED HIV FRONT-LINE PRACTICES: THE PROGRAMMING CONNECTION – SHARED EXPERIENCE, STRONGER PROGRAMS

**C Johnston, E Jackson, L Challacombe, L Edmiston**
**Toronto, ON**

**THE CHALLENGE:** In 2008, CATIE conducted national consultations to develop an action plan to address the knowledge needs of front-line agencies. Informants recommended that CATIE seek and identify Canadian "best practices", and synthesize practices into a database. Identifying a program as a best or promising practice is a challenge in the Canadian context given the national landscape of HIV front-line program evaluation.
**OUR APPROACH:** In response to these recommendations, a bilingual toolkit of program development and delivery information (The Programming Connection) is in development. This initiative will: provide case study descriptions of successful programming in HIV and HCV; provide programming resources and; offer training for and encourage networking between service providers. This collection will facilitate the revitalization of current and development of new programs.
**KEY FINDINGS:** The field of programming in HIV and HCV is moving increasingly toward 'evidence-based practice'; some have constructed definitions and frameworks for developing a best practice. While large-scale interventions often rely on systematic evaluation to determine efficaciousness, the practices evaluated may not be easily adopted by or appropriate for CBOs. In Canada, a major challenge in identifying programs that should be labeled as 'best' is the lack of appropriate evaluation of community-driven small-scale programs, and thus evidence of effectiveness.
Development of a best practices collection required a new approach to evidence, one based on practice-wisdom and informed by research. The Programming Connection will use practice-based evidence to identify diverse examples of success in front-line work, and support the uptake of these practices through the dissemination of knowledge tools.
**IMPACT ON POLICY AND PRACTICE:** The Programming Connection will stimulate the implementation of new front-line practices and raise practice standards by providing CBOs with easy access to information on lessons learned from practice, research and theory. It will also facilitate national dialogue and partnership building, and support the identification of gaps in knowledge to support the development of new research questions and front line programs.

## P209
## A NEW APPROACH TO ENCOURAGE HIV TESTING IN HIGH-RISK POPULATIONS AT THE CLINIQUE L'ACTUEL

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**Montréal, QC**

**INTRODUCTION:** In Québec it is estimated that 1/3 of those infected do not know their HIV status, that HIV is diagnosed late in 41%, and that sex during primary infection is an important driver of the epidemic. In late 2008 Clinique l'Actuel launched a testing campaign tailored to MSM in Montréal using free rapid tests with the goal of increasing early diagnosis of HIV.
**OBJECTIVE:** Evaluate the feasibility of and potential impact of facilitated access to rapid HIV-testing.
**METHODS:** Rapid HIV-tests offered through dedicated clinics were widely advertised in Montréal's MSM community. Patients calling for testing deemed at high risk were given appointments within 2 weeks, where they filled out a short questionnaire, received medical consultation routine STI screening, pre- and post-test counselling and their HIV test results within the hour. Ongoing support, care, and treatment were offered to those testing positive.
**RESULTS:** Over 9 months 2500 received HIV testing. 98% were men and median age was 34 (IQR=26-41). Of these patients, 42% were new to the clinic, 10% had never been tested previously, and 29% had not been tested within the past two years. 93% reported they were more likely to undergo repeat screening because of rapid testing. 2% were found to be HIV positive. Of these, 60% cited the rapid test as the primary reason for undergoing screening. 33% of those testing positive were in primary infection, as compared to 18% the previous year at Clinique l'Actuel (p=0.062) and 11% in Québec.
**CONCLUSION:** Facilitated access to rapid HIV testing can increase uptake in high-risk patients. This may increase early HIV diagnosis and intervention to decrease transmission.

## P210

### WHERE INJECTION DRUG USE AND CRACK SMOKING OCCUR: IMPLICATIONS FOR SAFER CONSUMPTION SITES IN TORONTO

**P Millson, J Jairam, L Challacombe, S Hopkins, C Strike, A Bayoumi**
**Toronto, ON**

**OBJECTIVE:** Deciding if, where and how many supervised consumption sites (SCS) are needed requires an understanding of locations and patterns of drug use. As part of a feasibility study for SCS in Toronto, we describe patterns and location of drug use.

**METHODS:** We analyzed data from the 2006 Toronto I-Track Survey, which included 257 current injectors and 220 crack smokers (no injection within 6 mo.) at 5 needle exchange programs. Participants were asked about drug use in the past 6 months, including: types, modes of consumption and locations of use.

**RESULTS:** Most commonly injected drugs were cocaine/crack (47% of injectors) and opiates (43%). Most commonly used non-injection drugs for current injectors were cocaine/crack (58%) and oral or transdermal opiates (14%). Among crack smokers, 39% reported a drug other than crack as their most common non-injected drug. Other drugs were used at least once by many participants, including alcohol (82%), marijuana (80%), and amphetamines (18%), with similar patterns among injectors and smokers. Injectors were more likely than smokers to report most common area of use as home or other private location (67% vs. 53%, absolute difference 14%; 95% confidence interval 5 to 23) or public place (13% vs. 5%, difference 8% [3 to 13]) but less likely to report the street as most common (10% vs. 31%, difference –21% [–29 to –13]). Crack smokers were more likely to have used drugs at least once in a schoolyard (30% vs. 13%, difference 17% [9 to 25]) or park (70% vs. 37%, difference 33% [24 to 43]).

**CONCLUSION:** Our data show a mixed pattern of types of drug, and indoor versus outdoor locations of drug use, with crack smoking often outdoors in parks and schoolyards. These results suggest that a SCS in Toronto for crack smoking may be particularly valuable to reduce risks and public concerns associated with outdoor drug use.

# Social Sciences Posters

## P212

### ENGAGING ACADEMIC RESEARCHERS IN HIV/AIDS COMMUNITY-BASED RESEARCH: A KEY ROLE FOR COMMUNITY-BASED RESEARCH FACILITATORS (CBRFS) IN CANADA

**T Howard[1], P Migliardi[2], L Narciso[3], F Anderson[4], M Amirault[4]**
**[1]Vancouver, BC; [2]Winnipeg, MB; [3]Toronto, ON; [4]Dartmouth, NS**

An oral presentation panel of Canadian Community-Based Research Facilitators (CBRF) including Aboriginal and non-Aboriginal representatives will discuss the process of engaging academics with an interest in HIV/AIDS CBR; the challenges of working with multi-culture HIV communities; ensuring scientific rigour while protecting diverse regional HIV population's interests; and the role of the CBRF as broker for this process.

**PANEL PRESENTATION OBJECTIVES:**

1. Development of a greater understanding and uptake of the community-based research (CBR) process among academic researchers.
2. Discuss the challenge of ensuring scientific rigour when utilizing CBR methodology while allowing for organic community process within an established research framework.
3. Increasing the pool of CBR-informed academic researchers available to participate in community-driven initiatives.
4. Defining the role of CBRFs for academic researchers as a broker to establish, develop and maintain the partnership between community and academician while ensuring adherence to CBR principles.

The CBRF facilitates the academic/community relationship from the development of a research question- through the funding process-project delivery and finally, the dissemination of findings and uptake of research for action and policy development while protecting community interests and ensuring scientific rigour in the results. Particular examples and challenges in partnering academic researchers and diverse HIV communities such as the Aboriginal, IDU, and MSM communities will be explored. The entire field of HIV/AIDS CBR benefits from developing a pool of informed, available academic researchers that can be matched to community groups with a desire to conduct research within their community.

## P213

### BARRIERS AND EFFECTIVE RECRUITMENT STRATEGIES FOR HIV+ WOMEN BASED ON AN ONTARIO CROSS-SECTIONAL STUDY ON PREGNANCY PLANNING NEEDS AND DESIRES

**S Mohammed[1], K Salam[2], K-I Masinde[1], M Muchenje[1], P Hove[1], G Linklater[3], L Soje[1], F Ongoiba[1], P Panzo[1], TA Hart[1], S Gregorovich[4], M Loutfy[1]**
**[1]Toronto; [2]Ottawa; [3]Thunder Bay; [4]Hamilton, ON**

**OBJECTIVES:** To address recruitment barriers and identify successful recruitment strategies for HIV-positive women based on an Ontario cross-sectional study.

**METHODS:** A survey was sent by email to all site coordinators who recruited and enrolled study participants in a study assessing the pregnancy needs and desires of HIV-positive women of childbearing age and living in Ontario. The survey consisted of questions regarding the important recruitment barriers and instituted population- and gender-specific successful recruitment strategies used.

**RESULTS:** Completed surveys were received from 34 of 39 (87%) site coordinators from 38 enrolling study sites across Ontario. Ninety-one percent (31/39) of the respondents were women. The most important recruitment barriers identified were: sensitivity of the research topic (59%), time/availability constraints (59%), language barriers (53%), HIV disclosure/stigma issues (47%), lack of trust of research personnel (41%), inaccessibility to child care and transportation (41%) and fear of research studies (41%). The respondents indicated that it is important to use recruitment strategies that are unique to women so that more women are involved in research (88%). They also felt the most important factor for recruiting HIV-positive women is trust between her and the research personnel (85%). For successful recruitment, a strong rapport between the research personnel and the participant (88%) which is facilitated with empathetic (100%) and flexible (82%) research personnel was identified.

**CONCLUSION:** The most important issues identified for recruiting HIV-positive women were the sensitive nature of the research topic and time/availability constraints for the study participants. For successful recruitment, a strong rapport between the research personnel and study participants is important. This rapport is facilitated by having study personnel who are empathetic, flexible, and trustworthy. In combination with other recruitment strategies, effective recruitment of HIV-positive women is possible. The use of population-specific recruitment strategies is important to ensure generalizability of study findings to minority groups such as women.

## P214

### "HIJACKING DISCOURSES": LESSONS LEARNED FROM TWENTY-EIGHT YEARS OF AIDS-IN-AFRICA RESEARCH?

**S Roberts**
**Saskatoon, SK**

The current explosion of HIV incidence among the Aboriginal population in Saskatchewan has drawn considerable attention in recent months. During the twelve-year period from 1984-2006 there were a total of 235 new cases of HIV reported in Saskatchewan. In 2008 alone there were 174 new cases of HIV, most of which occurred among young Aboriginal women. Analyzing the global AIDS pandemic historically may provide some insight and understanding into the spread of the virus in Saskatchewan. This is especially significant in accounting for which populations are most affected by the disease, and the factors that contribute to the transmission: poverty, gender, and perceptions of race. My paper will suggest that there is a great need to understand the history of HIV/AIDS research in Africa in order to more adequately address the epidemic in Saskatchewan. By analyzing the social science literature on AIDS-in-Africa, and focusing on what

has been omitted from this literature, a more complete understanding of transmission can be garnered. Most research on HIV/AIDS transmission in Africa has focused on the heterosexual spread, and, more recently, the political-economic factors. My master's thesis research, from which this paper is drawn, has shown that this early narrowing of the focus taken by researchers has omitted a significant route of transmission - the iatrogenic transmission occurring through unsterile injections. My research shows that this can be traced to the structural adjustment programs and their harsh system of conditionalities, which led to medical budget cuts in the 1980s and early 1990s. This research has important lessons for Canada and urges us not to allow the same premature narrowing of research foci as happened on the African continent.

## P215

### THE SOCIAL TECHNOGRAPHICS OF MEN WHO HAVE SEX WITH MEN: IMPLICATIONS FOR HIV PREVENTION RESEARCH, EDUCATION AND OUTREACH IN CANADA

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**[1]Toronto; [2]Hamilton, ON**

**OBJECTIVES:** Recent literature characterizes differential patterns of the use of social media as social technographics (Li and Bernoff, 2008). This paper applies this concept to HIV/AIDS work in Canada. It explores four diverse data sets in order to demonstrate how understanding patterns of social media use can inform this work.

**METHODS:** Analyses were conducted on the (1) North American Technographics Benchmark Survey (2008), (2) Canadian Internet Use Survey (2007), (3) M-Track Ontario [Lambda] (2007) and (4) Ontario Men's Survey (2002). SPSS was used to explore the associations of men's age and urban/rural geographical context with social media use for sexual and non-sexual purposes.

**RESULTS:** The concept of social technographics suggests new media users can be classified on multi-point hierarchies. Analysis of data sets 1 and 2 suggest that in Canada, the social technographics of MSM are structured primarily by age, with younger men more likely to be creators, innovators or active consumers of social content and older men more likely to be spectators or inactive consumers. Analyses of datasets 3 and 4 suggest evolving patterns in the use of social media to seek sexual partners. While trends associated with geography were clearer than those associated with age, trends associated with both age and geography were more evident in the 2007 than the 2002 dataset.

**CONCLUSIONS:** HIV/AIDS work for MSM can benefit from social technographic analysis. These results indicate that HIV research, prevention and education that employ social media have a better likelihood of impact when targeted to younger men in Canada, whereas, activities aimed at older men will have a greater likelihood of impact when utilizing more traditional forms of communication. These analyses suggest MSM's patterns of social media use for social as well as sexual purposes in Canada will continue to evolve as different and more varied social media communication applications become available.

## P216

### EXPLORING RELATIONSHIPS BETWEEN DIMENSIONS OF DISABILITY: A REVISED MEASUREMENT MODEL

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**[1]Hamilton; [2]Toronto; [3]Ottawa, ON**

**PURPOSE:** To assess how items measured in the Ontario HIV Treatment Network Cohort Study (OCS) represent disability.

**METHODS:** We lay the foundation for Structural Equation Modeling, a method that explores complex relationships between constructs. We conducted confirmatory factor analyses on a sample of 913 participants to test hypotheses that measures in the OCS represent dimensions of disability in the Episodic Disability Framework.

**ANALYSIS:** We used MPlus statistical software and weighted least square methods of estimation to determine the relationships between the latent variables in the framework and measures in the OCS. We considered a Root Mean Square Error of Approximation (RMSEA) <0.08 as an overall indication of model fit (criteria used for large samples and non-normally distributed data). We considered variables with factor loadings of >0.30 as representing a given dimension of disability.

**RESULTS:** We developed a measurement model consisting of 4 latent variables and 52 indicator OCS variables: 1) physical symptoms/impairments (represented by 24 OCS variables); 2) mental health symptoms/impairments (represented by 11 OCS variables); 3) difficulties with day-to-day activities (represented by 7 OCS variables) and 4) challenges to social inclusion (represented by 10 OCS variables). The overall goodness of fit measure included a RMSEA of 0.076 (ideal is <0.08). Forty-four of the 52 indicator variables represented our hypothesized dimensions of disability (factor loadings >0.30). Results also demonstrated relationships between all four disability dimensions with correlations ranging from 0.58 (between challenges to social inclusion and difficulties with day-to-day activities) and 0.79 (between physical and mental health symptoms/impairments).

**CONCLUSIONS:** Measures in the OCS represent physical symptoms/impairments, mental health symptoms/impairments, difficulties with day-to-day activities, and challenges to social inclusion. These findings help increase our understanding about how items in the OCS represent the construct of disability and lay the foundation for developing future measures for clinical and health services research.

## P217

### ASSESSING THE SENSIBILITY OF A NEW HIV DISABILITY QUESTIONNAIRE

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**[1]Hamilton; [2]Toronto, ON**

**OBJECTIVE:** To assess the sensibility of a new HIV Disability Questionnaire (HDQ) to describe the presence, severity and episodic nature of disability experienced by people living with HIV (PHAs).

**METHODS:** We developed a draft self-reported HDQ using the Episodic Disability Framework. We individually administered the HDQ to 22 PHAs and 5 clinicians who work in HIV care, followed by a questionnaire and a structured interview to assess its sensibility. We specifically asked participants about how well the HDQ captures disability and how to refine the HDQ to better capture the HIV-disability experience. We considered the HDQ sensible if median scores on the sensibility questionnaire were ≥5.0 for PHAs and ≥4.0 for clinicians (on a 7 point Likert Scale) for at least 80% (14/17) of the items. We analyzed the interview data using directed qualitative content analytical techniques and a coding scheme that addressed the following areas: overall impressions and purpose of the HDQ, face and content validity, ease of usage, response options, overall format, ability to capture the episodic nature of disability, and the questionnaire title.

**RESULTS:** Participants considered the HDQ to be sensible with questionnaire scores ≥5.0 for 88% (15/17) of the items and ≥4.0 for 100% (17/17) of the items for PHAs and clinicians, respectively. Themes that emerged from the analysis indicated participants felt the HDQ demonstrated face and content validity in all disability dimensions, possessed adequate response options, was easy to complete, and adequately captured the episodic nature of disability. Participants had mixed responses on retaining the term 'disability' in the questionnaire title. Recommendations to revise the HDQ included: refining specific item wording, and adding items to capture the causes of HIV-related disability and strategies used to address HIV-related disability.

**CONCLUSION:** The HDQ possessed sensibility from the perspective of PHAs and clinicians. Results provide considerations for future HDQ revision.

## P218

### EVALUATING THE IMPACT OF A NEW HIV INTERPROFESSIONAL MENTORSHIP PROGRAMME FOR REHABILITATION PROFESSIONALS IN ONTARIO: A PILOT STUDY

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**[1]Hamilton; [2]Toronto, ON; [3]Calgary, AB**

**OBJECTIVE:** To evaluate the impact of an interprofessional mentorship programme on HIV/AIDS with rehabilitation professionals in Ontario.

**METHODS:** We recruited six mentors (three rehabilitation professionals and three people living with HIV (PHAs) with expertise in HIV and rehabilitation) and six rehabilitation professional mentees from Ontario to participate in the six-month programme. Participants met for a face-to-face introductory workshop providing interprofessional HIV education, followed by five monthly teleconferences. Participants collaborated on case-based learning with opportunities to connect informally throughout. We conducted interviews and focus groups with mentors and mentees to explore baseline level of HIV knowledge and personal learning goals (pre-programme interviews); and strengths and challenges associated the mentorship implementation (midway and post-programme focus groups).

**RESULTS:** Three of the six mentees and all six of the mentors completed the programme. Baseline level of knowledge and experience working in HIV among mentees ranged from novice to experienced in HIV care. Goals of participants included increasing their knowledge about HIV/AIDS, increasing their confidence working with PHAs, and developing a network in HIV and rehabilitation. Reported strengths of the mentorship programme included its organization, level of PHA involvement, face-to-face opportunities for mentorship, and the development of an increased understanding of the experience of living with HIV. Reported challenges included difficulties recruiting and sustaining mentee involvement, finding the time and support to reduce current clinical practice to participate, scarcity of mentorship interactions that occurred informally outside the scheduled teleconferences, and the limited ability for some mentees to work with PHAs and implement their new knowledge in the workplace.

**CONCLUSION:** An interprofessional rehabilitation mentorship programme can facilitate learning and increase the capacity of rehabilitation professionals to provide HIV care. Lessons learned suggest ease of access to mentoring sessions and opportunities to integrate new learning into practice in a timely way are important for success.

## P219

### WELLNESS RETREATS FOR HIV+ WOMEN: MOVING BEYOND THE CLICHÉ – WHY RETREATS ARE AN EFFECTIVE TOOL FOR WOMEN-CENTRED SUPPORT

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**Vancouver, BC**

**ISSUES:** HIV is a highly stigmatized disease and this stigma presents challenges for everyone living with HIV, but for women these challenges are compounded by multiple factors. These include women's invisibility in research, sexual stigma and stereotypes, unequal economic power, multiple family roles, an unsympathetic medical system, power imbalances in relationships, and fear of disclosure. The complex issues women with living with HIV contend with can negatively affect their efforts to maintain and enhance their health. In particular, women of Aboriginal ancestry, who are young, from endemic countries, using drugs, working in the sex trade, in prison, or transgender can have increased social isolation and poorer health.

**DESCRIPTION:** For over 15 years, Positive Women's Network (PWN), a women-exclusive AIDS Service Organization in British Columbia (BC), has organized weekend wellness retreats as a way for a diverse group of women living with HIV to come together safely. All costs, including transportation, are covered by PWN. The program combines gender specific healthcare strategies and information with recreational activities that address the social determinants of health, including social support networks, education, personal health practices and coping skills, gender and culture through workshops, complementary therapies and capacity building.

**LESSONS LEARNED:** To date, PWN has organized over 20 weekend wellness retreats. On average at each retreat, 25 women attend, over 50% have not attended a retreat before, over 40% are from outside the city centre and over 30% identify as Aboriginal. Given the number of Aboriginal women who are living with HIV and make up PWN membership, PWN holds an Aboriginal women's retreat every other year. PWN has produced a Retreat Planning Toolkit resource. During the evaluation phase women repeatedly express how the retreat encourages empowerment, increases health literacy and serves as a catalyst for creating new informal support networks.

**NEXT STEPS:** Our results indicate that a multi-faceted retreat program which encourages peer based support and education and addresses gender specific issues related to HIV/AIDS significantly improves quality of life for women living with HIV/AIDS.

## P220

### BOUND BY BOUNDARIES: THE INFORMAL/FORMAL CARE DIVIDE IN THE HIV/AIDS FIELD

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**Winnipeg, MB**

Networks of HIV/AIDS support vary dramatically depending on the population in question. For some populations, the families and friends take on the brunt of this work. For some of the highly stigmatized individuals in Winnipeg and Regina there is a much heavier reliance on the formal care systems - doctors, nurses, therapists, outreach workers, etc. While the formal systems take this on during the course of their work, they are not necessarily prepared for the impact of this demand, or for the complications that come when clients shift from needing professional support and care to needing more interpersonal and "informal" care. Where do the boundaries sit?

In this presentation we explore how formal caregivers develop relationships, ways they establish and manage professional/personal boundaries, and the role that health care organizations can play in supporting staff. The findings provide an opening for a discussion on the tension between professional work practices and ethics and community-building. Data come from a qualitative study of caregiving with marginalized people living with HIV/AIDS in Winnipeg and Regina. This community-based study was funded by the Canadian Institutes of Health Research.

## P221

### PARTICIPANTS' PERCEPTIONS AND REPRESENTATIONS AFTER DENDRITIC CELL IMMUNOTHERAPY AND HAART DISCONTINUATION IN THE CTN 239 STUDY

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**BACKGROUND:** Little is known about patient perceptions and representations of stopping successful HAART. A multicenter phase II trial (CTN 239) assessing dendritic cell immunotherapy (AGS-004) safety and efficacy included a 12 week HAART structured treatment interruption (STI). This provided an opportunity to examine participants' perceptions and representations of immunotherapy, HAART discontinuation and quality of life (QoL) on and after stopping HAART.

**METHOD:** Structured questionnaires (HIV-MOS, sexual health), face-to-face interviews and word association testing were carried out. Word association tests were performed by asking participants to quickly provide 3 words in response to 6 inductor words (HIV, vaccine, QoL, HAART, trial's advantages and disadvantages). Results were analyzed with multiple correspondence factor analysis (MCFA) to represent associations between these words (categorized) and participants (classified according to their study results at W12: STI, CD4 and VL), within small-size spaces described by factor axes. Factor axes were characterized by variables whose importance in building the axis was shown by test value. Only variables whose test-value exceeded 2.5 (absolute value) were considered.

**RESULTS:** In the ten participants, MCFA on all answers revealed 2 factor axes of the correspondence analysis, explaining 17.25% and 12.16% of inertia. The first factor axis included all participants around 2 poles:

1- balancing vaccine safety and its benefits on QoL and HAART's negative effect on QoL; and 2- balancing loss of QoL associated with HIV infection and discomfort of the vaccine injections with the benefits of trial participation (close monitoring, healthcare team's availability). The second factor axis produced 2 groups: 1- those for whom the immunotherapy was effective (STI >=12W, CD4>350 and VL<10000) recognized the superiority of the vaccine relative to HAART on their QoL improvement; and 2- those for whom immunotherapy was partially effective (STI<12W, CD4<350 and VL>10000), indiscriminately recognized the benefits of HAART and vaccine as therapy against HIV infection.
**CONCLUSION:** Despite vaccine injection discomfort, risks and the trial's constraints, participants appeared satisfied with their participation by indicating an improved QoL following their HAART discontinuation.

## P222
## EVALUATION OF A STUDENT-INITIATED PRECLERKSHIP HIV ELECTIVE AT THE UNIVERSITY OF TORONTO

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**BACKGROUND:** The literature indicates that most North American medical students do not receive adequate training in HIV but believe it should be a part of their curricula. In response, University of Toronto medical students developed the Preclerkship HIV Elective (PHE) aimed at increasing HIV knowledge, addressing important issues in HIV care and preparing students to serve affected populations. Developed in partnership with the Ontario HIV Treatment Network, community organizations and faculty members, the PHE was inaugurated in November 2008 as a student-run supplement to medical curriculum content.
**METHODS:** Eighteen second-year medical students participated in the PHE, which included lectures, small group sessions, clinical observerships, community placements, reading assignments, and a counselling/testing workshop. Upon completion of the PHE, participants were asked to complete an open-ended survey on their satisfaction with the program. Questions included what participants liked best about the PHE, what they gained from the experience, and suggestions for improvement.
**RESULTS:** Thirteen of the participants completed the satisfaction survey. Participants who answered the question "What did you like best about the PHE?" expressed enthusiasm for interactive teaching models, especially clinical observerships and small group sessions. Participants felt they gained an appreciation of a diverse range of HIV-related issues and that they were better prepared to discuss HIV and provide care to affected populations. Suggestions for improvement included shifting the program to favour small group sessions and practical observerships over lectures, and better integration of the program with the core medical curriculum schedule.
**DISCUSSION AND CONCLUSION:** Student-run initiatives can supplement medical curriculum content. The interactive learning models employed were preferred by students over didactic teaching. This novel elective can be used to address HIV prevention, treatment, and care in Canada. Data from this initiative can be used to expand PHE programs in medical schools and support trainees interested in HIV medicine.

## P223
## BUILDING POSITIVE CONNECTIONS: MANITOBA HIV PROGRAM OUTREACH SERVICES EVALUATION

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**BACKGROUND:** As a vital component of the community-based program of the Manitoba HIV Program, Nine Circles Outreach and Social Support team works with clients to facilitate access to HIV education, care and treatment; provide support; facilitate skills-building and empowerment; and reduce the barriers to care.
To do this, team members with clients to conduct client-centered risk assessments and share information; work with care teams to improve the quality of care provider relationships; make appropriate referrals to clinical and social service organizations; participate in health care planning and implementation; implement strategies to promote healthy practices; conduct one-to-one and community education sessions; create a network of social support services; and promote adherence through frequent follow-ups for medication and appointment keeping. This team works with the larger context of clients' lives by promoting strategies to help clients live healthy with HIV.
**OBJECTIVES:** The objectives of the Outreach Program evaluation were to determine whether clients improved health and wellbeing as a result of their participation and to what extent short and long-term issues are identified and addressed.
**METHODS:** In order to assess the objectives, client interviews were completed along with an analysis of documented program contacts.
**RESULTS:** This program plays an important role in retaining clients' connections to HIV medical care, improving adherence to antiretroviral therapy, and helping clients establish a network of support services in the community. Working from a client-centered perspective, the team facilitates improved access to health and social support services.
**CONCLUSIONS:** The majority (88%) of clients in the sample felt their health has improved since being connected with their worker. Some clients attributed improvement in their health to the fact that they are in contact with a Worker and a doctor and/or nurse and this broader network of support has helped to improve their health and life situation.

## P224
## IMPLEMENTING DOMESTIC ABUSE SCREENING IN A MULTIDISCIPLINARY, PRIMARY HIV-CARE SETTING

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**BACKGROUND:** A violent incident within our patient population prompted the implementation of a standard domestic violence screening process at the Southern Alberta HIV Clinic (SAC). Domestic abuse is a serious and dangerous situation, can be a barrier to care and is associated with poor health outcomes. Primary HIV-care sites are optimal screening locations due to their multi-disciplinary approach and long-term follow-up. A domestic violence questionnaire was developed and implemented in clinical practice to identify those at risk. We evaluated the effectiveness of the questionnaire in identifying domestic abuse.
**METHODS:** We incorporated a standardized short survey into our regular HIV practice at SAC, adapted from Calgary Health Region Guidelines, followed by an open discussion with all patients at their clinic visit. Each patient disclosing abuse was further questioned about the type of abuse (physical, emotional, sexual, financial, neglect, and isolation) at any point (i.e. childhood or adult). When a patient disclosed abuse, they were asked if they felt safe in their current situation in order to identify patients at "high-risk". Each patient disclosing abuse was offered a same-day social work consultation and other professional referrals.
**RESULTS:** Implementation of the survey was simple and feedback was positive from both staff and patients. Only 80 of 810 consecutive patients seen between May 27 and November 27, 2009 did not complete the survey due to overriding health issues, language barriers, the presence of a partner, or time constraints. 35% of patients reported current or previous abuse. Some patients disclosed abuse only during an informal discussion after initially denying abuse in the initial screening question. Nine patients reported feeling unsafe and were referred to a clinic social worker.
**CONCLUSION:** Domestic abuse screening at primary HIV-care sites is a simple and well-received method of improving care and can lead to meaningful interventions.

## P225
## INCORPORATION OF AN HIV-MEDICINE WHEEL INTO ABORIGINAL HIV CARE

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Incidence rates of HIV in Canadian Aboriginal populations continue to grow, despite an overall reduction in HIV prevalence of the Canadian population as a whole. Reasons for the increased Aboriginal HIV incidence are varied, but include socio-economic issues, addiction, and limited

access to healthcare, all of which have been perpetuated by a history of colonization and marginalization. With this context in mind, it is not surprising that the difficulties of managing HIV – a disease which involves complex treatment regimens and wide variations in health status – can create unbearable burdens on people infected (and affected by HIV/AIDS). Such complexities, variations, and burdens can cause a breakdown of client-provider relationships, and ultimately, the discontinuation of care. This presentation will analyze case studies of the incorporation of an HIV medicine wheel into the professional practice of a Registered Nurse working in an HIV clinic in Northern British Columbia serving Aboriginal, at-risk, and marginalized populations. The objective of this presentation is to identify whether the client-provider relationship is enhanced through the use of the HIV medicine wheel, and whether the resulting healthcare outcomes are perceived as beneficial by the clients.

**Keywords:** HIV, Aboriginal, client-provider relationships, community nursing, healthcare outcomes.

## P226

### DEVELOPMENT AND EVALUATION OF CLINICAL PHARMACY SERVICES FOR THE MANITOBA HIV PROGRAM

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**OBJECTIVE:** The Manitoba HIV Program recently established pharmacy services with a 1.0 full time employee (FTE) clinical pharmacist. We sought to quantify clinical pharmacy services, evaluate satisfaction with these services, and compare available services to other Canadian HIV programs.

**METHODS:** During a two month period (June-Aug, 2009) the pharmacist kept detailed documentation of services. An anonymous survey was distributed to all Manitoba HIV Program physicians and nurses. The annual client satisfaction survey included questions about all community health centre services, including the HIV pharmacist. Data from existing surveys to members of the Canadian HIV/AIDS Pharmacists (CHAP) Network was compiled to benchmark HIV clinical pharmacy services (ratio of clients:FTE).

**RESULTS:** The pharmacist provided care to 342 clients (84% ambulatory, 16% admitted). Most (69%) activities were conducted outside of scheduled clinic appointment times. The most common pharmacist activities included: medication reviews (38.3%) and interdisciplinary client care meetings (19%). Most communications were made to the HIV care team (45.1%) and client/caregiver (28.9%). 14/17 (82%) health professionals responded to the survey (64% nurses, 36% physicians); the majority were satisfied with pharmacist availability and felt that the pharmacist provided benefit to staff, clients and the Manitoba HIV program. 7/33 (20%) clients who responded to the satisfaction survey accessed the HIV pharmacist services; nearly all indicated high levels of satisfaction with HIV pharmacist. The Manitoba HIV pharmacist is funded at a ratio of 900 clients per FTE. 17 pharmacists (9 provinces) responded to the CHAP survey; 75% provided care to fewer clients (median ratio of clients:FTE 685, range 75 -1300).

**CONCLUSION:** Within one year, the Manitoba HIV pharmacist has provided clinical pharmacy services to numerous clients with HIV and made many recommendations to the health care team. Satisfaction with existing services was high. Many other Canadian jurisdictions fund clinical pharmacists at lower client:FTE ratios.

## P227

### LABOUR MARKET OUTCOMES, HIV AND THE IMPACT OF HARM REDUCTION SERVICES ON EMPLOYABILITY AMONG PEOPLE WHO INJECT DRUGS

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**BACKGROUND:** Employment has been associated with social-psychological well-being, which has potentially important implications for persons living with HIV/AIDS (PLWHA) or those at risk for contracting HIV/AIDS. Prior research suggests that PLWHA demonstrate systematic labour market disadvantage, yet little is known about the employment disadvantage of people who inject drugs (IDU) as a population at risk for HIV/AIDS.

**OBJECTIVES:** To explore the relationship between employment and HIV infection among IDU and the impact of services designed to decrease the probability of HIV sero-conversion on employment participation.

**METHODS:** This study utilized multivariate longitudinal statistical analyses and data from the Vancouver Injection Drug User Study (VIDUS) and the Scientific Evaluation of Supervised Injecting (SEOSI). Generalized estimating equations (GEE) and discrete time event history analyses assessed the relative impact of HIV infection on employment among IDU and the impact of harm reduction services on labour market outcomes.

**FINDINGS:** In multivariate models that included a range of intrinsic, acquired, behavioural and circumstantial factors, results show that HIV infection was the factor with the largest negative association with employment (adjusted odds ratio [AOR]=0.32, 95% confidence interval [CI]: 0.22-0.46). Analyses also found that regular use of the supervised injection facility in Vancouver did not adversely impact employment outcomes (AOR=1.05; 95% CI: 0.88-1.27). When transitions into employment were compared between those not in treatment and those accessing substance use treatment, methadone maintenance therapy (MMT) had a significant negative relationship with employment transitions (AOR: 0.73; 95% CI: 0.59 - 0.91) while non-MMT treatment modalities had a significant positive relationship (AOR: 1.69; 95% CI: 1.39 - 2.04).

**CONCLUSIONS:** These findings emphasize the multiple barriers that PLWHA or individuals at risk for HIV/AIDS who also inject drugs face in the labour market. Given the stabilising impact of employment, there is a pressing need to address these barriers and integrate specialized employment programming with other services. The effect of harm reduction and addiction treatment services on employability is potentially significant, underscoring the need to evaluate the impact of service design on target populations.

## P228

### "THE ONLY DIFFERENCE IS THAT YOU ARE PROTECTED": MEANINGS ATTACHED TO CONDOM USE IN AN ABSTINENCE-PLUS HIV PREVENTION PROGRAMME IN SOUTH AFRICA

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**BACKGROUND:** Research has highlighted the limitations of abstinence-only approaches and early support for abstinence-plus interventions as HIV prevention strategies. Research also demonstrates that condoms are socially-mediated, reflecting diverse norms. However, there is silence regarding how condoms are understood by those delivering and receiving abstinence-plus programmes. This matters because advocates of a comprehensive approach to HIV prevention have cautioned that abstinence-plus programming may undermine confidence in condom use.

**OBJECTIVE:** To analyze social meanings attached to condom use by stakeholders in a primary and junior-high school-based abstinence-plus HIV prevention programme in a resource-deprived, peri-urban community in South Africa.

**METHODS:** Eleven focus groups (n=104) were held with students, parents, teachers and programme staff. Focus groups were recorded, transcribed verbatim, translated into English, and cross-checked for quality. Data were analyzed using a critical social science approach and a collaborative analytic technique. The coding framework was iteratively developed and refined. Coded data relating to condom use and abstinence were collaboratively analyzed using preset analytic questions.

**RESULTS:** Results demonstrate diverse meanings attached to condom use, including: condoms as second best to abstinence; condoms as a gendered response to HIV; condoms as a source of mockery; condoms as futile in a high-prevalence setting; condoms as part of conspiracy beliefs along racial lines; and, condoms as popular in HIV prevention because they can be counted.

**IMPACT:** This study represents the first qualitative exploration of how condoms are perceived by at-risk youth, their parents, their teachers and programme staff in an abstinence-plus HIV prevention programme. The

results have particular bearing for abstinence-plus HIV prevention programmes, which face the double challenge of: (1) engaging with condom promotion in a way that takes into account their diverse social meanings, and (2) promoting condoms within their hierarchical framework of options in a way that does not inadvertently discourage their use.

## P229

## AFFECT DYSREGULATION AS A MEDIATOR BETWEEN CHILD SEXUAL ABUSE AND RISKY SEX AMONG HOMELESS YOUTH

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**BACKGROUND:** HIV prevalence is disproportionately high among homeless youth in Canada. Child sexual abuse (CSA), a known risk factor for later risky sexual behaviours, is also common in this population. Despite the established association between CSA and risky sex, the mechanisms explaining this relationship remain unclear. Previous research suggests that affect dysregulation is one possible consequence of CSA that may have later implications for health risk behaviours. However, research has not explored affect dysregulation as a mechanism in the relationship between CSA and risky sex. The current study explored two components of affect dysregulation (affect instability and affect skills deficits) as mediators in the relationship between CSA and unprotected vaginal intercourse (UVI) among homeless youth.

**METHOD:** 196 homeless youth (59% male) aged 16-21 completed self-report questionnaires examining CSA severity, affect dysregulation, and UVI in the past 6 months. Using logistic regressions with UVI as the dependent variable, CSA severity was entered on Step 1, and affect dysregulation variables (affect instability and affect skills deficits) were entered on Step 2.

**RESULTS:** CSA severity (OR= 1.07, 95%=1.02-1.13), affect instability (OR= 1.10, 95%=1.04-1.18), and affect skills deficits (OR= 1.07, 95%=1.02-1.13) were associated with increased UVI prevalence. CSA severity was associated with higher affect dysregulation. Both affect instability (Sobel test statistic=2.41, p=.007) and affect skills deficits (Sobel test statistic=2.42, p=.007) partially mediated the relationship between CSA and UVI.

**DISCUSSION:** This is the first study to examine the role of affect dysregulation on sexual risk behaviours in this highly vulnerable population. This study is consistent with previous research outside of HIV indicating that affect dysregulation places survivors of CSA at increased risk for later maladaptive risk behaviours. Future HIV prevention strategies should support homeless youth to reduce the affect dysregulation that may arise from CSA, in order to reduce sexual risk behaviours in this population.

## P230

## SPOT-MONTREAL, A RAPID HIV TESTING INTERVENTION FOR MSM IN A COMMUNITY SETTING ATTRACTS A HIGH PROPORTION OF MSM BORN OUTSIDE OF CANADA

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**CONTEXT:** SPOT has attracted a high proportion of MSM born outside of Canada (MSM-BOC) since July 2009 even though no specific outreach efforts targeting this population took place in the early recruitment period.

**OBJECTIVES:** Present preliminary data characterizing these study participants and draw comparisons with MSM born in Canada (MSM-BIC).

**METHODS:** We conducted statistical analysis of questionnaires completed by 142 participants (July-November 2009) during their first visit at the testing site to compare MSM-BOC vs. MSM-BIC on diverse sociodemographic, psychosexual and behavioral variables.

**RESULTS:** 31% of participants were MSM-BOC and have been in Canada for 9.78 years on average (range 0–38 yrs, median 7yrs) vs. 61% born in Quebec and 8% born elsewhere in Canada. This proportion is significantly high in comparison with ARGUS (BOC=14%) and OMEGA (17%). MSM-BOC came from 22 different countries such as France, Mexico, Haiti, Australia and African and Middle East countries. MSM BOC were significantly younger (33.2 y.o. vs. 37.4 y.o., p=0.03), less likely to identify as gay or homosexual (75.0% vs. 91.8%, p=0.006), more likely to report "having taken a risk" as a reason for getting tested (93.2% vs. 73.5%, p=0.007), and more often reported meeting sexual partners in bars (56.8% vs. 36.7%, p=0.03) and private parties (43.2% vs. 23.5%, p=0.02). Internet came in second for MSM-BOC with 54.4% but was first for MSM-BIC (58.2%). MSM-BOC also reported "not having a doctor" as a barrier to getting tested (61.5% vs. 25.0%, p=0.05, n=29 on a sub sample). There were no significant differences between the two groups for at risk behavior, number of partners or partner type.

**CONCLUSION:** SPOT has attracted an unusually high proportion of MSM-BOC seeking testing after taking a risk but having otherwise few differences with MSM-BIC. This data is preliminary and should be interpreted with caution.

## P231

## FACTORS ASSOCIATED WITH DISCLOSURE AMONGST HIV POSITIVE INDIVIDUALS ON TREATMENT IN BRITISH COLUMBIA AND THE RAMIFICATIONS FOR PREVENTION

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**BACKGROUND:** Disclosing one's HIV-positive status to sexual partners has become an increasingly complex issue. Our study explores how demographic and clinical variables, and factors such as understanding of viral load suppression, and sexual behaviours, may influence one's decision to disclose.

**METHODS:** The Longitudinal Investigations into Supportive and Ancillary health services (LISA) cohort is a prospective study of HIV-positive persons on HAART. Participants are ≥19 years of age and recruited through the Drug Treatment Program (DTP) at the BC Centre for Excellence in HIV/AIDS. Explanatory variables are collected through a comprehensive questionnaire, and clinical variables through linkages with the DTP. A multivariable logistic regression model was used to examine factors associated with disclosure. Participants were dichotomized as those who disclose (always, usually) and those who do not (sometimes, occasionally, hardly ever).

**RESULTS:** Of 521 participants included in this analysis, 432 (83%) reported disclosing their status to sexual partners. Median age of participants was 45 years (IQR: 40-50). In the multivariate analysis, women were half as likely to disclose [Adjusted odd ratios (AOR): 0.51, 95% CI: 0.29, 0.89] than men; gay/lesbian/bisexual were 40% less likely to disclose [AOR: 0.59, CI: 0.35, 0.99] than heterosexuals, and those who had sex with casual partners or strangers were 34% and 66% less likely to disclose [0.66, 95% CI: 0.29, 1.53, and 0.44, 95% CI: 0.21,0.90] than those who did not. Sexual risk behaviors were not significantly associated with partner's decision to disclose, nor were clinical variables or participant perception about suppression and transmissibility.

**DISCUSSION:** Our findings indicate that disclosure may not be based on individual beliefs about suppression and transmissibility or participant clinical characteristics. Rather the decision to disclose may be more context dependent. Nonetheless, our findings, which demonstrate that women and gay/lesbian/bisexual individuals are less likely to disclose, can inform targeted prevention and education strategies for positive people living on therapy.

## P232

## INTER-RACIAL SEX AMONG GAY AND BISEXUAL MEN IN TORONTO: IMPLICATIONS FOR HIV PREVENTION

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Data from the MaBwana Black Men's Study among African, Caribbean and Black (ACB) gay and bisexual in Toronto (2006-2009) suggest how sexual relations and expectations among gay communities are racialized. A purposive sample of 168 men was recruited for the survey component, of whom 134 were sexually active (i.e., had sex with another man in the previous 12 months). Sexually active participants were asked about anal

sex and condom use with other ACB men, white men and men of other ethnoracial backgrounds, including whether they were mostly insertive, mostly receptive or versatile with men from each ethnoracial group. Similar issues were discussed in semi-structured interviews with 24 ACB men. Compared to participants who had sex with other ACB men (n=90), those who had sex with white men (n=68) or other ethnoracial men (n=49) were more likely to be the insertive partner (p=0.009 and p=0.008 respectively). 47 participants reported anal sex with both ACB men and white men, and 36 reported anal sex with both ACB and other ethnoracial men. Those who were mostly receptive or versatile with ACB men reported significant role switching in their sexual encounters with white and other ethnoracial men - 33% (p = 0.001) and 50% (p = 0.039) indicated that they were mostly insertive with white men and other ethnoracial men respectively. Evidence from the semi-structured interviews suggests that this insertive shift may signify differences in how Black and other bodies are interpreted and desired. 50% - 70% of participants reported always using condoms depending on the ethnoracial background of their sexual partners and whether they were receptive or insertive. These patterns of different and shifting sexual positions among ACB men, and their experiences of inter-racial sex, may complicate HIV prevention efforts for ACB gay and bisexual men.

## P233

### AN HIV DISCLOSURE INTERVENTION FOR AFRICAN AND CARIBBEAN WOMEN: WHAT FACTORS IMPACT A WOMAN'S DECISION TO DISCLOSE?

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**BACKGROUND:** African, Caribbean and Black (ACB) women are disproportionately affected and infected by HIV and AIDS. Within the HIV-endemic exposure category in Canada, women represented 54.2% of new HIV diagnoses and 41.8% of AIDS cases reported between 1998 and 2006. In Ontario, women from this population are also overrepresented, accounting for 50.8% of all HIV-positive results reported among women in 2005. Meanwhile the criminalization of non-disclosure of HIV status has become a highly racialized issue, with the majority of cases reported in the media being black men. This initiative explores the unique challenges and experiences faced by HIV-positive ACB women contemplating disclosure.

**OBJECTIVE OF THE PRESENTATION:** We discuss the development of an evidence-based and culturally appropriate HIV disclosure intervention for ACB women.

**METHODS:**

1. A literature review was conducted to explore the factors that facilitate and inhibit disclosure.
2. Focus groups were conducted with HIV-positive ACB women at various stages of the disclosure process and with service providers.
3. Key-informant interviews were conducted with four women from different African countries. Focus groups and interviews were transcribed verbatim and analyzed thematically.

**RESULTS:** Results from the focus groups and interviews indicate that the following factors influence how ACB women approach and experience the disclosure process: education; empowerment and self-acceptance; internal and external sources of stigma; support systems; treatment and disease progression; violence and safety; legal and ethical issues; culture and community; as well as spirituality.

**CONCLUSION:** A culturally appropriate and adaptable disclosure framework can facilitate the disclosure process for women and their service providers by identifying current supports and resources, while underlining areas where further attention is required. The next phase of this project will involve the development of an evidence-based disclosure intervention that will be pilot tested among ACB women under the support and supervision of qualified service providers.

## P234

### MOVING BEYOND HIV KNOWLEDGE TO ADDRESS STIGMA: THE IMPACT OF PERSONAL RELATIONSHIPS WITH PLWHA IN REDUCING STIGMA AMONG EAST AFRICANS IN TORONTO

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**OBJECTIVES:** Stigma may negatively impact health, access to services, and disclosure. But how can stigma be addressed? This analysis examines HIV stigma in East Africans living in Toronto and factors that contribute to it.

**METHODS:** We conducted interviews with 456 people from Toronto's East African communities recruited through community venues, organizations, and snowball sampling. HIV knowledge and stigma were measured using 13 true-false and 6 agree-disagree statements respectively. Summary scores for knowledge (0-13) and stigma (0-6) were created; higher scores meant higher degree of stigma or knowledge. Bivariate statistics were used to explore variations in knowledge and stigma scores by sociodemographic characteristics and knowing an HIV-infected person.

**RESULTS:** Mean knowledge score was 11.3 (range 5-13) and mean stigma score was 1.7 (range 0-6). Knowledge was negatively correlated with stigma ($p<0.001$). However, knowledge was not always correlated with tolerance or lack of stigma. Although 95% (n=433) agreed that one could not get HIV from attending school with an HIV+ person, 32% (n=148) would not, or did not know if they would allow their child in a classroom with an HIV+ student and 20% (n=91) did not think, or were unsure if, an HIV+ teacher should be allowed to teach. Participants who knew an HIV+ person had lower stigma scores than those who did not (1.2 vs. 2.2, $p<0.0001$). Participants who had an HIV+ family member had lower stigma scores than those who knew a non-family HIV+ person (0.9 and 1.3 vs. 1.8, $p<0.0001$).

**CONCLUSION:** Participants from Toronto's East African communities generally understood how HIV was transmitted but this did not necessarily correlate with acceptance of or willingness for contact with PLWHA, whereas personal relationships with PLWHA seemed to have greater impact. Anti-stigma initiatives should reach beyond education and consider innovative approaches that engage, facilitate and/or evoke the role of personal relationships with PLWHA.

## P235

### THE POTENTIAL USE OF SUPERVISED CONSUMPTION SITES: PERSPECTIVES FROM YOUNG AND OLDER TORONTO DRUG USERS

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**OBJECTIVE:** To describe Toronto drug users' willingness to use a supervised consumption site (SCS) and their preferred service models.

**METHODS:** We analyzed data from the 2006 Toronto I-Track (n=257 injectors, n=220 crack smokers) and the 2009 SHOUT Street Youth Survey (n=34 injectors, n=57 crack/crystal methamphetamine smokers).

**RESULTS:** In I-Track, more injectors were willing to use a supervised injection facility than crack smokers who formerly injected drugs (79% vs. 68%, difference 11%, 95% Confidence Interval 0 to 21%). Injectors who smoked crack were less willing to use a supervised smoking facility than smokers (58% vs. 70%, difference –12% [–3 to –21]). Street youth injectors were more willing to use a SCS than youth smokers (79% vs. 63%, difference 16%, [–3 to 35]). I-Track participants would use a SCS primarily to be safe from crime (81% of injectors and 63% of smokers); youths' primary reason was safety from police (79% of injectors) and to use drugs privately (62% of smokers). The most important SCS service for I-Track drug users was nursing (80%). Many I-Track injectors (72%) and smokers (70%) were willing to take public transit to a facility, but most could not afford it. Many injectors and smokers would not travel more than 1 kilometer to a SCS (72% vs 60%, difference 12% [3 to 21]). I-Track drug users indicated a high acceptance rate for most SCS models, but mobile vans and outreach to places where drugs are used were the least preferred alternatives.

**CONCLUSION:** Self-reported potential to use a SCS among drug users in Toronto is high, but injectors and crack smokers have different design preferences and adults and youth have divergent reasons for using sites. Many users would not travel far to a SCS or can't afford public transportation, suggesting that Toronto might benefit from multiple SCS models or sites.

## P236
## HOW TO DEAL WITH BREASTFEEDING PRESSURE: HIV POSITIVE AFRICAN/CARIBBEAN MOTHERS IN TORONTO SHARE THEIR STRATEGIES

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**PLAIN LANGUAGE SUMMARY:** Breastfeeding alternatives are recommended to HIV+ve mothers in Canada to prevent mother-to-child-transmission of HIV. Following this recommendation can be challenging for HIV+ve African/Caribbean and Black (ACB) mothers due to significant socio-cultural pressure to breastfeed. Data from the Optimizing Prenatal HIV Testing In Ontario (OPHTIO) Study was analyzed. Findings indicate that all chose infant formula despite experiencing this pressure. Employed strategies include false statements and isolation.

**OBJECTIVE:** To characterize the breastfeeding pressure that HIV+ve ACB women in Toronto face and determine the strategies they employ to address it.

**METHODS:** To participate, women had to have accessed prenatal care in Ontario since 1999 and be unaware of their HIV status prior to receiving prenatal care. Analysis consisted of a thematic review of the interview transcripts.

**RESULTS:** Of the 14 HIV+ve OPHTIO participants, 3 were excluded because of postnatal diagnosis of mother and children, pregnancy termination and miscarriage. All remaining participants (n=11) were immigrants to Canada living in Toronto. Mean age(range): 28.3yrs (24-38yrs). Marital status: single (n=4, 36.4%), married/common-law (n=5, 45.4%), separated/divorced (n=2, 18.2%). Mean number of live-born children per participant (range): 2.2(1-3). All identified as Christians who were at least moderately religious (n=9, 82%) and attended services at least monthly (n=6, 55%).

All (n=11) experienced breastfeeding pressure and still chose infant formula. Pressure was reported (a) FROM family (n=6, 55%), other women (n=8, 73%) or everyone generally within their social circle (n=10, 91%) (b) DURING social gatherings and visits, (n=5, 45%). Most employed false statements (n=10, 91%) and isolation (n=6, 55%) to address it. Some reported negative psychological impact of these strategies (n=6, 55%). Their partners and service providers (people who knew their status) provided support.

**CONCLUSION:** Despite strong cultural pressures to breastfeed, HIV+ve ACB mothers have developed strategies – particularly isolation and multiple false statements – to address this pressure, formula feed their children and not disclose their HIV status. The potential negative impact of these strategies, particularly the loss of social support and psycho-spiritual health of these women, requires further study.

## P237
## MANAGEMENT OF HIV IN PROVINCIAL CANADIAN PRISONS: OBSTACLES AND SOLUTIONS

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There is agreement that prisoners are entitled to comparable health care programs as the one's provided to the community. For that purpose, many countries have implemented strategies to alleviate the spread of HIV/AIDS within the prison system. These strategies are not only crucial in limiting prevention and transmission of HIV/AIDS, but also contribute in optimizing quality of life within the prison system (Polonsky, 1994). Most Provincial Canadian prisons have failed to provide appropriate measures to limit HIV/AIDS epidemic in prisons. The purpose of this paper was (1) to compare protective measures between federal and provincial prisons, and then (2) to establish functional administrative management suggestive reforms for Provincial Canadian prisons based on Canadian and international prison standards. Provincial prisons have high turnover rates which makes intervention programs challenging but feasible. This paper argues that fostering a favorable prison environment starts with re-establishing safety, basic health needs, education and integration. Provincial prisons need structured treatment and monitoring procedures, and impart strict human right actions. The main intent of this particular intervention program is to create a positive prison environment encouraging safety, confidentiality, and implementation of new proven intervention methods such as distribution of condoms and needle exchange programs still lacking systemically within the Provincial prison system. Undoubtedly, such a program would make federal and provincial prisons comparable with constructive ramification within the community.

## P238
## HIV-RELATED BEHAVIOURAL RISK IN ONTARIO'S TRANS COMMUNITIES: TRANS PULSE PROJECT

**G Bauer[1], T Coleman[1], R Travers[2], R Hammond[3], K Anjali[5], M Kaay[4], N Redman[5], K Tokawa[5], A Travers[4]**
**[1]London; [2]Waterloo, ON; [3]Halifax, NS; [4]Toronto; [5]Ontario**

**BACKGROUND:** Few attempts to assess HIV-related risk in trans communities have taken place, primarily within urban, street-active communities outside of Canada. High prevalence rates have been observed (from 2% to 86%). Risks related to sexual practices involving trans bodies are not easily captured by cissexual thinking around HIV risk.

**METHODS:** A multi-mode survey containing trans-appropriate items on sexual experiences and HIV-related risk was circulated to Ontario trans people age 16+ via respondent-driven sampling. We present preliminary unweighted results from 165 female-to-male spectrum (FTM), and 142 male-to-female spectrum (MTF) participants.

**RESULTS:** 66% had ever had an HIV test; of these, 46% were tested within the past year. Reasons for lack of testing included sex-segregated services and fear of transphobic experiences. 0.4% indicated they were HIV positive; 18% did not know their status. 18% of FTMs and 23% of MTFs had ever done sex work or exchange sex. Median lifetime number of sex partners for FTMs was 10 (IQR: 4, 25) and for MTFs was 6 (IQR: 2, 15). 12% of FTMs and 10% of MTFs had 50 or more lifetime partners. 80% of FTMs and 63% of MTFs had a sex partner in the past year, with a wide range of sexual behaviours reported. Of those currently on hormones, 61% take them by injection, with needles acquired primarily from doctor's offices, pharmacies, needle exchanges and friends. Approximately 2% had injected drugs for non-medical reasons in the past year, and 0.4% injected silicone. Only 1% of participants had ever used previously used needles; this was for hormones and silicone. Many who reported needing services from AIDS service organizations were unable to access them.

**CONCLUSION:** Levels of behavioural risk for HIV in trans communities in Ontario were lower than suggested by studies based on convenience samples from primarily urban environments. Risk levels of individuals were highly heterogeneous; some segments of trans communities remain at very high risk for HIV, and improvements in access to HIV-related services for trans people are needed.

## P239
## CONDOM NEGOTIATION AND HIV-STI RISK AMONG YOUNG QUEBECERS OF HAITIAN ORIGIN

**M Beaulieu, A Adrien, JI Lebounga Vouma**
**Montréal, QC**

**OBJECTIVE:** To document the context of condom negotiation and its contribution to HIV and sexually transmitted infections risk among young Quebecers of Haitian origin in Montreal.

**METHOD:** From May to October 2008, we conducted in-depth interviews with 15 males and 15 females aged 15 to 25, born in Haiti or having at least one parent born in Haiti (YQHO). Participants were recruited by staff members from community groups doing HIV prevention interventions for vulnerable youth in Montreal. A content analysis of transcribed and coded material was performed.

**RESULTS:** Over half of YQHO, mostly males, report being responsible for condom use (16) and for putting the condom on (16). Some YQHO noted that condom use is up to both partners (12). However, a few YQHO, mostly females, think their partner is responsible for condom use (10) and putting on the condom (13). Although many YQHO have a positive image of a partner who asks to use a condom or who has condoms (20), a number of them, mostly males, distrust such partners (16). Most YQHO noted the different reasons used by their partners to convince them not to use a condom (24). Several YQHO see this as negative and distrust partners who refuse to use condoms (21). When it comes to negotiating condom use, half of YQHO bring up the subject before engaging in a sexual relation (15). However, many YQHO wait until intercourse before asking for condom (10).
**CONCLUSION:** The context in which condom use is negotiated reveals the greater vulnerability of females of Haitian origin. Results also suggest that a number of YQHO negotiate condom use when the sexual relation is well underway. Interventions designed for YQHO should aim to reduce gender inequities and encourage YQHO to discuss condom use before reaching a point of no return.

## P240
## MOTHERS, LOVERS AND FRIENDS: USING SOCIAL NETWORKING FOR HIV PREVENTION AIMED AT WOMEN IN MIDLIFE

**J Madsen**
**Vancouver, BC**

In the sexual education and HIV prevention sphere, most information is directed at youth, and those who are midlife and beyond may feel alienated by the youth focus of STI prevention education. For perimenopausal or post-menopausal women, the entanglements of youth relationships and physical concerns (such as reproductive questions) may be in our past, but the realities of safer sex and STI prevention aren't. How do we create engaging messaging to talk about sexual health among midlife women? Positive Women's Network set out to do that through an online project using various tools. Developing a unique web presence through a website (www.youshouldknow.ca), employing Facebook and Twitter, and participating in a number of sites and forums aimed at women in midlife, we are distributing sexual health info that is age-specific, sex-positive and aimed at creating a community where midlife women can find diverse information. The You Should Know site features blog posts and resource pages that focus on the biological, psycho-social, and emotional aspects of sexuality in midlife and beyond. Women in midlife have specific wishes when interacting online, as shown in our pre-campaign survey. This poster will report on the preparatory steps taken within the community and provide examples from the online campaign, including challenges and triumphs, considerations when representing an organization in personal forums, and lessons learned.

## P241
## THE PROVISION OF SERVICES FOR PEOPLE WHO USE SUBSTANCES AMONG AIDS SERVICE ORGANIZATIONS IN CANADA: A NEEDS AND ASSETS ASSESSMENT

**RL Walisser[1], L Belle-Isle[1]**
**[1]Ottawa, ON; [2]Victoria, BC**

**OBJECTIVES:** The provision of services for people who use substances is a critical component of HIV prevention. We undertook a needs and assets assessment with AIDS service organizations (ASOs) nationally as a means of exploring the successes and challenges in the provision of services for people who use substances from the perspective of service providers.
**METHODS:** Phase 1: On-line survey questionnaire, comprised of multiple choice and open-ended questions, conducted in French and English with Canadian AIDS Society (CAS) member organizations. Phase 2: In depth, 45-minute, semi-structured interviews in French and English conducted with front-line service providers, peer workers, and managers/supervisors purposively sampled from Canadian ASOs. Survey data was analyzed using univariate descriptive statistics and narrative thematic techniques. Narrative thematic analysis was undertaken with interview data. A National Advisory Committee provided input and direction throughout the research process.
**RESULTS:** Participants: Phase 1 – (n = 43 organizations) 6 Pacific, 4 Prairie, 20 Ontario, 4 Quebec, 7 Atlantic, 2 National; Phase 2 – (n=10 participants) 5 front-line workers, 1 peer worker, 4 managers/supervisors. Data revealed ASOs possessed key assets with respect to the provision of services for people who use substances, including a harm reduction approach to service provision, an emphasis on client-centered care, a commitment to peer involvement in service design and delivery, strong community partnerships, and resourcefulness. Ongoing challenges facing service providers include emotional strain related to nature of the work, barriers to service access for specific sub-populations, tensions among diverse client populations, resource limitations, and political and community resistance.
**CONCLUSIONS:** Findings indicate that ASOs have multiple and diverse needs and assets with respect to the provision of services for people who use substances. Key recommendations for enhancing the capacity of ASOs to provide services for people who use substances include increasing availability and access to networking opportunities for service providers in the harm reduction field, and improving communication and knowledge exchange among ASOs nationally.

## P242
## DO SENIOR CITIZENS TALK TO THEIR DOCTORS ABOUT SEXUAL RISK? RESULTS FROM THE CANADIAN SNOWBIRD PILOT STUDY

**SL Bullock, K Mairs, P Nancy, L Jessup**
**Waterloo, ON**

**OBJECTIVE:** Little is known about HIV risk-behaviour among older adults, what we know comes mainly from American research and Canadian men who have sex with men. HIV rates are increasing in Florida; Canadians who winter there are very socially active. Yet we do not know if they socialize with Floridians, what their HIV risk-level is or whether they are even aware of the sexual risks they face. This presentation identifies the predicators of communication with a doctor, specifically about sexual risk.
**METHODS:** A broad cross-section of snowbirds were surveyed (N=299). Eligible participants were: aged 50+, visited Florida in the past 12 months, stayed for 1+ months, and live in Canada for at least six months each year. Multivariate logistic regression analysis (N=279) was used to assess factors associated with risk communication with a physician.
**RESULTS:** In total, 23/299 snowbirds reported talking with a doctor about sexual risk since age 50. Of 56 seniors reporting dating in the past 5-years, 32% discussed sexual risk with a doctor; though health professionals were the preferred source of information (49.5%). Snowbirds who had spoken to doctor were unmarried (OR=8.4), had dated in the past 5 years (OR=3.2), were proactive discussing sexual intimacy with a physician (OR=12.6), and had an STI in the past 5 years. The likelihood of talking to a doctor about sexual risk was decreased (OR=0.16) for seniors reporting sexual dysfunction.
**CONCLUSION:** Snowbirds in this small convenience sample rarely spoke to physicians about sexual risk; when they did, it was related to already having an STI. Seniors do speak of sex when they experience sexual dysfunction, yet doctors do not discuss sexual risks when this opportunity arises. Most participants who had discussed sexual risk were unmarried; however, almost 10% of our married sample had dated recently, even while in long-term marriages. This research supports the need for a large-scale study to further understand senior-doctor communication, and the social and sexual interactions of Canadian snowbirds in general to their HIV/STI risk.

## P243
## SEXUAL RISK BEHAVIOUR AMONG CANADIAN SNOWBIRDS WHO WINTER IN FLORIDA: WHO IS HIV TESTING?

**SL Bullock, K Mairs, L Jessup, P Nancy**
**Waterloo, ON**

**OBJECTIVE:** A small-scale pilot study was conducted to examine the social interactions and sexual risk-behaviour of Canadian snowbirds in Florida in order to determine the level of HIV risk among Canadian

seniors. This presentation describes the Snowbirds' sexual behaviour and focuses on predictors of HIV testing.

**METHODS:** A broad cross-section of snowbirds were surveyed (N=299). Eligible participants were: aged 50+, visited Florida in the past 12 months and stayed for 1+ month on their latest trip, and live in Canada for at least six months each year. Multivariate logistic regression analysis was used to assess factors associated with HIV testing.

**RESULTS:** In total, 47 snowbirds (17.7%) reported ever having been tested for HIV (test results were not surveyed). 23.1% of the snowbirds reported dating in the past five years, and 45.5% had dated at least one Floridian. Odds of HIV testing were increased for the unmarried (OR=4.95), those aged 50-65 years (OR=2.07), those having talked to a doctor about sexual risk-behaviour since age 50 (OR=4.41), and those who felt sex was important (OR=2.46). A gender-by-dating interaction was observed, with dating males more likely to test than non-dating males (OR=2.15). Dating females were not more likely to test (OR=0.10) than non-dating females; and males who dated were 13.6 times more likely to test than females who dated. HIV testing was unrelated to: dating specifically in Florida vs. Canada, number of dating or sexual partners, frequency of intercourse, condom use, STI diagnosis, social desirability and other general health-related variables.

**CONCLUSION:** Research indicates that only a small proportion of Canadian seniors have ever been tested for HIV. Therefore, the true HIV rate within this population is unknown. Measures of HIV/STI risk, including sexual risk-behaviour (e.g., number of sexual partners and condom use), were not significantly associated with HIV testing. This research supports the need for a large-scale study to further understand the social and sexual interactions of Canadian snowbirds to determine whether they are at increasing risk of HIV similar to that seen in Floridian seniors.

## P244

## HIV CASE MANAGEMENT: REDUCING BARRIERS TO SERVICE DELIVERY IN THE CORE COMMUNITY

**SJ Gibson, L Johnson, C Frenchman, L Shirley**
**Saskatoon, SK**

The Saskatoon Health Region (SHR) Positive Living Program provides clinical care, education and support for HIV positive clients. The number of HIV cases registered with this program continues to climb with up to 80% of these cases engaging in IVDU in the last three years. In addition 50-75% of the new cases are Aboriginal. This HIV case-management project was developed in partnership with the Saskatoon HIV/AIDS Reduction (in harm) Program (SHARP) through the Saskatoon Tribal Council Health & Family Services to provide self-management support, assisting clients to address and engage in services and actions that will improve their health and quality of life. The SHARP Support Coordinator, along with the SHARP team, works closely with the Positive Living Program team to engage HIV positive individuals within their community, meeting their social care needs as a pre-requisite to meeting their health care needs.

The Support Coordinator receives referrals from and refers to the Positive Living Program, Public Health Services, and community providers. The Coordinator provides individualized assessments, meeting clients in their own environment, and establishing and implementing care plans based on the clients' unique and diverse needs and issues. Care is coordinated through case conferencing with referring agencies. Intake tools and a patient focused care plan was developed through consultation with a community program utilizing case management models. An impact and effectiveness evaluation was developed through a client survey.

We encountered many challenges as we identified and addressed the issues which surfaced in this community, but are working through these difficulties through the development of partnerships with our community agencies. We have successfully engaged clients through crisis management and supporting their daily needs resulting in a number of clients choosing to engage in services and actions to improve their health.

## P245

## REVIVING THE WORK OF LISTENING: COMMUNITY INTERPRETATIONS OF TESTIMONIALS BY PEOPLE LIVING WITH HIV IN CANADIAN MEDIA

**MN Mensah, T Haig, T Waugh, R Légaré, M Bernier, ME Gauvin, V Leduc, B Curran, M-E Manseau-Young**
**Montreal, QC**

**BACKGROUND:** In Canada as around the world, people living with HIV/AIDS from many walks of life have shared their experiences using various media forms since the early days of the pandemic. These testimonials articulate important messages about the disclosure of a stigmatized identity, public education, community activism and the creative process. This presentation draws from an ongoing action-research initiative, the VIHSIBILITÉ project, focused on "the culture of testimony" associated with first-person media accounts and the impact of these accounts on people's lives (SSHRC 2008-2011).

**METHODOLOGY:** Discourse analysis of qualitative data was undertaken in two ways. First, 20 of the most important Canadian films and videos (1985-2005) that provide first-person accounts of living with HIV were released as a new DVD compilation. Second, an "interpretive community" process was used during a one-day meeting held in Montreal in 2009. Sixty participants from various settings and communities shared opinions and experiences in relation to the reception of media testimonials by HIV-positive people. These discussions led to an inventory of the resources (economic, cultural, emotional, political) needed to ensure that first-person accounts of living with HIV are better heard and to extend the circulation of these stories.

**RESULTS:** This project raises questions regarding the processes though which HIV-positive men and women can give public voice to their stories, and which audiences they tend to reach. Reception analysis underscores the cultural, social, and political factors that have an impact on the manner in which testimonials are heard. Our findings show that the "work of listening" provides some counterbalance to voyeuristic spectatorship and to legal obligations to disclose one's HIV status. Reviving this interpretive work by, for and with community stakeholders makes new tools available for the critical assessment of how HIV-positive people can be better heard as they speak about their lives.

## P246

## FAMILY SUPPORT AMONG PEOPLE LIVING WITH HIV/AIDS IN THE PRAIRIES

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**[1]Winnipeg, MB; [2]Regina, SK**

The nature of family support for marginalized people living with HIV or AIDS is complex and often limited. In this paper we report on a sample of respondents who lived in Winnipeg or Regina in 2008. Using a variation of Photo Voice we used qualitative methods to analyze the stories the participants narrated about the pictures they had taken.

Three themes emerged from the data analysis: First, family separation was shown across the life cycle, due to the adoption of their respondents themselves or of their children, illness or death of parents, siblings or offspring; and physical displacements. Second, for many family support was absent. Third, presence of physical, sexual and psychological violence in many of the families was common; in fact, violence formed a context around which many family issues were discussed.

The paper reflects on the implications that these issues have on the quality of life of those receiving and providing care in the context of HIV. It concludes with suggestions for service providers and social supporters working with marginalized persons, as well as suggestions for programmatic changes.

## P247

## PEOPLE LIVING WITH HIV RESPOND TO THE CRIMINALIZATION OF HIV TRANSMISSION

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**[1]Toronto; [2]Ottawa; [3]Waterloo, ON**

This first report from the study of Impacts of criminal prosecutions for HIV exposure and transmission on people living with HIV shows responses to

the question, "How do you feel the current public climate around HIV and the law is affecting HIV-positive people?" 122 PHAs were recruited from 4 sites of the broad-based OHTN Cohort Study. Interviews were transcribed, coded, and sorted into themes through a constant comparative process facilitated by NVivo8. A wide range of themes emerged: (1) Significant numbers of study participants felt unaffected because they (a) always disclosed their sero-status in sexual encounters, (b) openly negotiated sero-status often preferring sero-concordant partners, (c) felt that disclosure of sero-status was the morally right thing to do regardless of the law, or (d) were not having sex anyway. Other PHAs took a more situational or conditional strategy, believing that disclosure was unnecessary if safe sex were practised, assessed how safe they felt before disclosing, or disclosed only if a relationship had potential to be more than casual. The largest number of respondents believed that (2) criminalization had unfairly shifted the burden of proof so that PHAs were held to be guilty until proven innocent and that (a) PHAs were now caught in a difficult he-said/(s)he-said situation of having to justify their actions, (b) disgruntled partners now had a legal weapon to wield against them regardless of the facts, and (c) the onus now fell on women whose male partners could ignore their wishes. In terms of general impact, many respondents reported: (a) a heightened sense of fear and vulnerability, but others felt that (b) the climate of acceptance was still better than in the early days of the epidemic, or that (c) the prosecution of the high profile cases was justified and these PHAs were giving all PHAs a bad name.

## P248

### A PHENOMENOLOGICAL STUDY TO DESCRIBE AND UNDERSTAND THE EXPERIENCE OF DISCLOSURE AS PERCEIVED BY QUEBEC-BORN WOMEN LIVING WITH HIV

**G Rouleau, J Côté, C Cara**
**Montréal, QC**

Disclosure of seropositivity is a constant concern in women living with HIV; a situation further complicated by social stigma. Knowledge on this topic remains fragmented. Studies show certain patterns – such as to whom and how often women disclose this information – the reasons for disclosure, the positive and negative consequences as well as the predisposing factors of disclosure, all of which limit the global understanding of this phenomenon. Inspired by Parse's nursing theory (1998, 2003), the purpose of this study is to describe and gain a better understanding of the experience of disclosing the information of being seropositive as perceived by Quebec-born women living with HIV. The phenomenological method was chosen for data collection from seven participants through a semi-structured interview. Data analysis rested on two research activities suggested by van Manen (1997): reflection and writing, which allowed identification of the following seven themes: 1) Having self-respect while choosing confidants; 2) Feeling apprehension; 3) Exercising control to ensure protection; 4) Deliberately engaging in a process of revealing-concealing; 5) Exposing oneself to stigma and social exclusion; 6) Internal suffering; 7) Benefiting from the positive effects of such a decision. These themes contributed to the formulation of the essence of the phenomenon which can be read as such: Living the ambivalence of a paradoxical process of revealing-concealing, within a profound suffering intensified by stigma, while being enriched by the benefits attained. We believe that these results could have positive effects to guide nursing practice in supporting women during their experience of disclosure.

## P249

### CEDAR & SAGE: HONOURING THE TRADITIONAL APPROACH TO HEALING

**F Katzman**
**Saskatoon, SK**

Faye Katzman, M.Ed, facilitates an experiential workshop featuring the Medicine Wheel as a powerful, personalized, and renewable healing tool. This fun, practical session/workshop is customized to reflect the realities and interests of PLWAs as well as community workers, health care providers, and family members. The purpose of this session/workshop is two-fold: participants use insights to improve their personal situation while at the same time creating a learning tool to use in their communities and workplaces.

**METHODOLOGY:** The Medicine Wheel model provides a solid framework for the four-part workshop which begins and ends with guided meditation. The facilitator provides a relaxed environment and encourages participants to identify immediate and practical steps which lead to enriched spiritual, emotional, physical and intellectual lives. Various topics are introduced: emerging face of HIV/AIDS, stigma and discrimination, community, treatment compliance, nutrition, recreation, communication skills, neurobiology, relationships, decision-making, relaxation, etc. Whenever time and space permit, sharing circles are featured.

**DISCUSSION:** Western medicine is moving slowly towards integration with traditional healing. When we can learn to tell our stories with integrity and without shame, and when health care providers can listen with compassion and without judgment, healing partnerships can be forged. Until then, each of us is responsible to create the best possible conditions to cultivate spiritual, emotional, physical and mental health. One of the most powerful tools available to us is the Medicine Wheel.

## P250

### THE POSITIVE LEADERSHIP DEVELOPMENT INSTITUTE: AN EVALUATION OF A CANADIAN INITIATIVE TO ENSURE MEANINGFUL INVOLVEMENT OF PEOPLE LIVING WITH HIV/AIDS

**LA Narciso, T Egdorf, B Costey, M Desbiens, R Julien, C Samuels, S Cleverly, M Tangelder**
**Toronto, ON**

The Positive Leadership Development Institute of the Ontario AIDS Network, in partnership with the Pacific AIDS Network, was launched in 2006 with the goal of supporting people who are HIV positive to realize their leadership potential and increase their capacity to participate in community life. In 2009, the Institute underwent an evaluation of its programs to assess their impact on the lives of participants, their communities and the HIV/AIDS sector in Ontario. The evaluation examined conditions that influence participants' ability to use their leadership skills to take action and to identify areas for program development.

This study is grounded in a participatory action research model and included in-depth interviews with Institute graduates (n=20); an electronic survey completed by Institute graduates (n=65; 37% RR); and an electronic survey completed by AIDS service organization (ASO) staff from across Ontario (n=31; 29% RR).

Findings indicated that the Institute is growing: 75% of ASOs reported that 1 to 5 Institute graduates participate in their organizations. The Institute has had a deep impact on the lives of graduates: 80% reported a greater sense of self-worth as a result of their participation; 85% reported improved confidence; and 72% reported improved ability to give feedback in certain settings. Reports on these measures by ASO staff were similar. Ultimately, 75% of graduates reported that they felt more meaningfully involved in the HIV/AIDS movement as a result of their participation and, significantly, participation also improved confidence about HIV status disclosure.

Respondents were almost unanimous in their recommendation to expand the Institute and many respondents indicated the need to further increase participation of marginalized groups. This evaluation demonstrates that: the Institute is an outstanding model with a significant impact on individuals and communities and with the capacity to act as a method for advancing the MIPA principle.

## P251

### ENTRAIDE POSITIVE 2007-2010

**S Beaudry**
**Montréal, QC**

Entraide positive est un service de prévention des ITSS, ciblant les HARSAH vivant avec le VIH. Il se fonde sur l'approche de l'éducation par les pairs. Suivant ce principe, des HARSAH sélectionnés par entrevue (appelés « pairs aidants ») suivent une formation continue et déterminent par eux-mêmes les actions d'éducation et de prévention à mener.

À l'automne 2007, les pairs aidants ont déterminé trois moyens d'atteindre leurs objectifs :

1) Soutien individualisé : Lorsqu'un HARSAH vivant avec le VIH vit des difficultés en lien avec sa séropositivité, il a la possibilité de demander d'être accompagné individuellement par un pair. Il peut s'agir de difficultés en lien avec n'importe quel aspect biopsychosocial de la vie avec le VIH : médication, dévoilement, effets secondaires, isolement, etc. Le pair aidant s'engage à accompagner le demandeur d'aide dans une relation d'aide limitée dans le temps (maximum de 10 à 15 rencontres), dans un esprit encourageant l'auto-développement de la personne.
2) Groupe de soutien : Le groupe vise à mettre en contact des HARSAH séropositifs, vivant toutes sortes de difficultés, questionnements ou inquiétudes en lien avec leur statut sérologique. En plus de permettre de rompre l'isolement, ce groupe permet l'échange d'informations et d'expériences vécues.
3) L'escouade de visibilité : Ce service cherche à donner de la visibilité à des modèles positifs de HARSAH vivant le VIH, dans l'espace public. Les pairs aidants intéressés sont amenés à développer diverses stratégies artistiques, communicationnelles, ou autres, pour atteindre cet objectif : distribution de tracts, performance artistique lors des festivités gaies, etc. En s'affichant dans l'espace public comme des modèles positifs de HARSAH vivant avec le VIH, les pairs aidants espèrent abattre les préjugés et les tabous subsistant toujours au sujet du VIH, et ainsi contribuer à l'amélioration de la qualité de vie des personnes vivant avec le VIH.

## P252
## SEX IN THE SAC: WHO IS DOING IT AND WHO IS NOT? SEXUAL ACTIVITY WITHIN A REGIONAL HIV INFECTED POPULATION IN REGULAR CARE

**HB Krentz, J Gill**
**Calgary, AB**

**BACKGROUND:** Regular sexual activity is associated with higher levels of well being and quality of life. Having HIV infection, however, is associated with decreased sex, due to low self-esteem, social stigma, difficulty in finding partners, and concerns of HIV transmission. We wished to examine the extent of current sexual activity within a large heterogeneous HIV population in regular care (re: Southern Alberta Clinic), and evaluate its association with quality of life.
**METHODS:** Every 4 months, during routine care, data are collected on every patient's perception of their current health, smoking alcohol and substance use, living arrangements, and recent sexual activity since last clinic visit. Routine clinical data (i.e. CD4 count, VL, co-morbidities etc.) are also collected. Data from 1/1/2009 to 12/30/2009 were evaluated. Statistical analyses were performed comparing patients reporting some or no sexual activity.
**RESULTS:** 95% (1065/1116) of patients provided data on their sexual activity Recent sexual activity was reported by 51% of the patients. There were no differences between genders or ethnicity, however, younger (<40 years) individuals and MSM reported higher rates ($p<.01$). Married or common-law couples, and individuals living in shared accommodations reported higher levels ($p<.001$), as did nonsmokers ($p<.001$), and individuals who reported no or moderate levels of alcohol use ($p<.001$). Patients reporting sexual activity stated more often that their health was excellent or very good ($p<.01$). Patients with low CD4 counts (<200/mm3) were less likely report sexual behaviour. There was no difference in the sexual activity between HAART-naïve/HAART-experienced patients. Patients diagnosed more recently report more sexual activity.
**DISCUSSION:** Sexual activity is common occurring in over 50% of our HIV population. Sexual activity was strongly associated with excellent or very good self reported quality of life. Recognition and support of responsible sexual activity in HIV populations is important and discussion should be included in routine care.

## P253
## SAFE OR NOT SO SAFE? UNPROTECTED SEXUAL ACTIVITY IN AN HIV INFECTED POPULATION

**HB Krentz, J Gill**
**Calgary, AB**

**BACKGROUND:** Unprotected sexual activity is generally discouraged for individuals living with HIV. We wished to determine the frequency of unprotected sex in an HIV+ population in regular care and receiving repeated education regarding the rationale and benefits of protection in sexual encounters.
**METHODS:** Between 1/1/2009 and 12/31/2009, all consecutive patients attending the Southern Alberta HIV Clinic were asked about their current lifestyles including sexual activity over the last 3 months and whether any reported sex was "safe". Routine clinical data were also collected. Univariate analysis was performed comparing patients who reported protected vs. unprotected sexual activity.
**RESULTS:** 1065 of 1116 (95%) of patients provided information on sexual activity. 51% reported sexual activity. 11% of all clinic patients had at least one episode of unprotected sex, (i.e 22% of sexually active patients). There was no statistical difference in protected/unprotected sexual activity based on gender, age, ethnicity, HIV risk factor, marital status, or substance use. Individuals who shared accommodations (married or not) were more likely to have unprotected sex ($p<.05$). Patients with high levels of alcohol use had higher rates of unprotected sex ($p<.0001$). Patients with CD4 counts <200/mm3 reported higher rates of unprotected sex ($p<.05$) as did patients seropositive for syphilis ($p<.01$). HAART-experienced patients were more likely to have unprotected sex than HAART-naïve patients ($p<.001$). Although not statistically significant, 24% of patients having sex with viremia >1000copies/mL engaged in unprotected sex.
**DISCUSSION:** In this well-educated HIV+ population across all risk groups, ages and ethnicities, nearly 11% engaged in unprotected sex. We likely underestimate the actual number as patients may be reluctant to reveal behaviour perceived as 'negative'. In many circumstances unprotected sex may pose little risk, however 1 in 4 patients engaging in unprotected sex had detectable viral loads. Different approaches beyond simple education may be required.

## P254
## TRACING BOOKS FOR PHAS – A DIARY WITH A DIFFERENCE

**TM Smith**
**Toronto, ON**

**BACKGROUND:** Tracing books are patient-oriented tools designed to track wellness and illness. CATIE and its African partner REPSSI have used this tool with 30 HIV positive women in Zambia and Tanzania from 2006-2008. Tracing books are a bio-medical and psycho-social tool that can assist patients to better understand HIV, drug side-effects, OI's, adherence, disclosure, empowerment, and communication with health-care providers.
In October 2009 CATIE-REPSSI conducted a Tracing Book evaluation in Lusaka, Zambia.
**OBJECTIVE:** The evaluation measured the impact of keep a Tracing Book and whether or not they advantageous tools in the lives of PHAs.
**METHODS:** A quasi-experimental comparison group design was used to evaluate the outcomes of the project through both quantitative and qualitative data. A project group and a control group were established.
**RESULTS:** The findings show that the tracing book process can impact in a significant way on the lives of PHAs.
- They give PHAs a simple adaptable tool for monitoring their health.
- Tracing books give PHAs a sense of power over the virus. They play this role for children too allowing them to participate in keeping their parents healthy.
- Use of a tracing book reduces emotional stress.
- Keeping a tracing book improves relationships between PHAs and their partners and children. It facilitates disclosure, communication and support. It empowers children with a sense of power over their parent's illness.
- Tracing book users are more likely to seek out community interaction and support. They are more likely to encourage others to go for testing and to support the newly diagnosed.
- Keeping a tracing book empowers PHAs to communicate more effectively with their health professional.

**CONCLUSION:** Tracing Books offer a simple tool for tracking one's health and have the potential to be extremely useful among populations who are new to Canada and have various levels of English proficiency, to groups of people who have lower literacy levels, and also to health care professionals who wish to advance their relationships with their patients.

## P255
### A GATHERING OF SUPPORT: DEVELOPING AN ABORIGINAL GRASSROOTS RESEARCH NETWORK ON HIV/AIDS

**A Isaac**
**Regina, SK**

Being a network of Aboriginal people, organization and agencies, we respectfully strive to provide support and services to our First Nations, Métis and Inuit families, and communities who are experiencing HIV/AIDS. Research has always been on the agenda of the Network. The Network held a two day workshop in Regina which consisted of Aboriginal people living with HIV/AIDS (APHA's), community services providers, academics, professionals, and students. As a Network in Saskatchewan, we invited members from Regina, Saskatoon, and Prince Albert.

The workshop highlighted several initiatives including lived experience of APHA's, community based organizations' perspectives, importance of research following OCAP ethical principles of Ownership, Control, Access and Possession, group research activity, future Aboriginal HIV/AIDS research projects. Specifically, we asked the participants:

1) What is your knowledge about HIV/AIDS among Aboriginal people?
2) How do you think our research can assist in reducing rates of HIV/AIDS among Aboriginal people?
3) What kinds of services or supports regarding HIV/AIDS and Aboriginal people exist in your area? What kinds of services or supports would you like to see?
4) What should our research priorities be over the next year? Three years? Five years?

The community-based workshop was digitally recorded, transcribed and coded and themed using grounded theory. The workshop was attended by Elders who provided the guidance and traditional ceremonies need to complete the circle. The workshop was based on Aboriginal ways of knowledge and was conducted in methods that were respectful to all.

## P256
### INCREASING COMMUNITY KNOWLEDGE OF HIV AND LEGAL DISCLOSURE IN AN ERA OF CRIMINALIZATION

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**Toronto, ON**

**BACKGROUND:** In CATIE's 2008 national needs assessment, 70% of front-line staff of AIDS service organizations expressed a high level of need for information on legal issues. In response CATIE, in partnership with the Canadian HIV/AIDS Legal Network, delivered a national HIV Disclosure & the Law (HDL) project to increase community knowledge of the legal and ethical issues on HDL.

**OBJECTIVE:** To investigate the impact of CATIE's HDL community forums and service provider trainings on participating PHAs and service providers.

**METHODS:** CATIE held 7 community forums (282 attendees) and 8 service provider workshops (164 attendees) across Canada in 2009. A legal expert developed and presented the information. The community forums were aimed at PHAs, service providers, public health practitioners and other community members. The staff training workshops were aimed at staff, board members, community partners and service providers. Attendees evaluated the events; simple frequency descriptives were compiled to determine impact and a paired t-test was performed to investigate self-reported change in knowledge.

**RESULTS:** Over 95% of community forum and service provider workshop participants felt that participation increased their knowledge of the law regarding HIV disclosure. Roughly 95% of community forum and service provider workshop participants reported that they will apply the knowledge gained when making decisions about HIV disclosure or when assisting others in making such decisions. On average, community forum participants rated their knowledge of HDL before the event at 5.7 (on a 10 point scale) – this increased significantly to 7.9 after the forum ($P<0.01$). On average, service provider workshop participants rated their knowledge of HDL before the event at 5.4 – this increased significantly to 7.8 after the workshop ($P<0.01$).

**CONCLUSIONS:** CATIE's HDL project effectively increased awareness of the ethical and legal issues around disclosure.

## P257
### HIV AND AGING – CO-CREATING A NATIONAL FRAMEWORK FOR ACTION

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People over the age of 50 make up 13.8% of new HIV diagnoses in Canada. In 2004, the Public Health Agency of Canada reported that because HIV/AIDS is assumed to be a young person's disease little focus has been given to this issue among older Canadians. A review of the research literature followed by consultations and the convening of a national forum were conducted to 1) illuminate the emerging issues/gaps arising from the socio-political impact of becoming an older Canadian citizen and the impact of HAART and/or HIV on health in aging PHAs (People Living with HIV/AIDS); and 2) to co-create a framework for action.

**LITERATURE REVIEW:** Over three thousand Medline articles focused upon HIV, aging and rehabilitation were reviewed. Two reviewers independently reduced this original search to 281 articles following defined exclusion criteria (such as, not focused on the developing world, not pharmacological). The articles were categorized into four major themes: prevention, mental health, social determinants of health and physical health/co-morbidities. Key findings to date reveal that older adults with HIV contract HIV most often through sexual behaviour, are more likely to have fragile social networks and experience social isolation than individuals without HIV, experience faster progression from HIV to AIDS, experience at least one comorbidity (88.8%), are more likely to develop diseases associated with aging such as, coronary artery disease, diabetes, and dementia, and at an earlier age, than those without HIV. There exist very few studies exploring HIV and Aging in the Canadian context.

**CONSULTATIONS:** Focus group and teleconference consultations were conducted with HIV specialists, rehabilitation and gerontology professionals, PHAs, the Episodic Disability Network and AIDS Service Organization representatives in early 2010. Findings were summarized in a background document in preparation for the forum. Findings will be discussed at the CAHR.

**NATIONAL FORUM:** The Partners in Aging National Forum was convened with Canadian leaders in HIV and/or Aging in March, 2010. At this forum a framework for action was drafted. Findings will be discussed at the CAHR.

## P258
### LIVING WITH HIV: EXPLORING AGING AND HEALTH OUTCOMES IN PEOPLE WITH HIV AS PART OF THE POSITIVE SPACES, HEALTHY PLACES STUDY IN ONTARIO

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**[1]Toronto; [2]Hamilton; [3]Thunder Bay; [4]Ottawa; [5]Nigara Region, ON**

**BACKGROUND:** The interaction of aging with health outcomes in HIV is largely unexplored, yet it is a critical priority for long-term care and management with the population of people with HIV aging.

**METHODS:** As part of the ongoing CHIR-funded Positive Spaces, Healthy Places, we used logistic regression to evaluate the health status of people living with HIV (n=605) in the context of aging; the MOS-HIV Health Survey was the principal outcome measure for health status. Age was classified according to three categories: Young (20-39 years, 31.1%), middle age (39-49 years, 46.9%) and older age (50+ years, 22.0%). Potential covariates included socio-demographics, HIV disease markers, psychosocial and mental health status and interaction terms of these variables in the final model.

**RESULTS:** Mean age (SD) was 43.14 (8.57). One-fourth (24.6%) were women. Overall, there were significant age relationships with general health, physical, social and role function, and health distress dimensions as with the physical health summary (PHS) measure. In our gender analyses,

women had significantly lower scores than men in cognitive functioning, quality of life, energy, and health distress dimensions and on the mental health summary measure. After adjusting for covariates, significant predictors for poorer PHS scores included older age (OR=1.96), depression (OR=7.13), being Caucasian (OR=1.75), having no HIV specialist service in last three months (OR=2.12) and being on a HAART regimen ≥12 years (OR=3.04). None of the potential interaction terms were significant in the model.

**CONCLUSIONS:** The overall health in people with HIV is affected by a combination of factors, including increasing age, gender, mental health status, access to care, and potential effects (and side-effects) of antiretroviral treatment. Significant work remains to understand how the complexities of aging with HIV and what treatments and interventions are needed to maximize health outcomes for people with HIV.

## P259

## LES STRATÉGIES DE PROTECTION CONTRE L'INFECTION AU VIH/SIDA DANS LES ROMANS CONTEMPORAINS

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**Montreal, QC**

**OBJECTIFS :** Depuis l'apparition de l'épidémie du VIH/sida, plusieurs œuvres romanesques tant francophones qu'anglosaxonnes ont exploré l'imaginaire de la maladie, de la sexualité et de la mort, contribuant ainsi à la construction des pratiques sexuelles et des stratégies de prévention ainsi qu'à la réflexion sur les enjeux éthiques.

**MÉTHODOLOGIE :** Un corpus de romans américains, français et canadiens portant sur le VIH/sida, parus après 1995, a été établi et une analyse du contenu a été codifiée en tenant compte des dimensions rattachées aux représentations de la sexualité et des stratégies de prévention.

**RÉSULTATS :** Les enjeux de la stigmatisation, du risque et de la maladie, lié au thème de la mort, apparaissent importants dans le corpus analysé. Le risque d'être infecté est envisagé comme une source d'excitation, une forme de conduite ordalique. La question du barebacking fait l'objet de nombreuses réflexions en portant les débats sur le terrain de la liberté et de la responsabilité. La prise de risques peut aussi correspondre à une forme d'insouciance, à une perception du VIH comme une maladie bénigne suite aux innovations liées aux traitements antirétroviraux, à une ignorance des risques ou à l'acceptation volontaire de l'infection au virus. Les stratégies de prévention associées à l'usage du préservatif restent arbitraires et les textes rapportent de multiples cas de figure: intégration dans les scénarios sexuels, refus, abandon, rejet, modulation de l'usage du préservatif en fonction du statut infectieux des partenaires et du positionnement actif ou passif dans la relation anale.

**CONCLUSIONS :** Le corpus romanesque présente les différents cas de figure touchant la prévention du VIH/sida, en fonction des pratiques sexuelles, des rapports entre les partenaires et des perceptions du préservatif. Il met en évidence la complexité de ces stratégies liées à la fois aux représentations du risque mais aussi à des rapports affectifs et de pouvoir entretenus par les protagonistes présentés dans les romans. Ceux-ci peuvent servir d'outils d'intervention afin d'illustrer les enjeux préventifs.

## P260

## HIV, EMPLOYMENT AND HUMAN RIGHTS IN CANADA: A WORKSHOP EVALUATION

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**RATIONALE:** For many PLWHAs accessing and maintaining employment can be complicated by health and social issues. For example, living with HIV means living with unpredictable health episodes that can affect sustainable employment. In 2009, the Canadian Working Group on HIV and Rehabilitation (CWGHR) evaluated the employment support needs of people with HIV/AIDS (PLWHAs).

**OBJECTIVE:** To evaluate a series of HIV, Employment and Human Rights workshops for PLWHAs to determine the effectiveness of the workshops and the additional employment resource support needs of PLWHAs.

**METHODS:** In 2009, 96 participants, including many PLWHAs, participated in one of three day-long HIV, Employment and Human Rights workshops held in Toronto, Montreal or Vancouver. Participants completed pre and post workshop evaluations; providing descriptive information and rating their learnings.

**KEY FINDINGS:**

– Primary areas of concern for PLWHAs are income and health benefits access, when moving in and out of the workforce and insurance options available to PLWHAs.

– Interest exists in ongoing opportunities for PLWHAs to connect with other PLWHAs about employment-related issues.

– Employment-related supports are important both for those looking to (re)enter the workforce and for those who are currently employed.

– A knowledge gap exists for PLWHAs on successful return to work transitions, workplace integration and accommodation practices.

– Peer support and networking opportunities with other PLWHAs are valuable employment supports.

**CONCLUSION:** There are significant social and systemic factors limiting employment opportunities for PLWHAs. Financial concerns, uncertainty about sustained health, limited access to extended drug and health benefits, fears of being discriminated against and the need for retraining after being out of the workforce for long periods of time are all factors which act as barriers to workforce (re)entry for PLWHAs. There is a need to develop employment-related services such as networking and mentorship opportunities for working and non-working PLWHAs.

## P261

## A CONCEPTUAL FRAMEWORK OF LABOUR FORCE PARTICIPATION FOR PEOPLE LIVING WITH HIV IN CANADA

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**OBJECTIVES:** The purpose of this study was to develop a conceptual framework of labour force participation for people living with HIV (PHAs) in order to inform the development of labour force initiatives aimed to enhance social participation for PHAs in Canada.

**METHODS:** A preliminary framework was constructed based on a scoping review of 285 selected documents (peer reviewed and grey literature) on HIV and labour force participation. We then conducted 18 qualitative interviews and 3 focus groups with a total of 34 participants (including PHAs, employers, insurers and policy makers in Canada) to augment the framework. Thematic analysis was conducted of the qualitative data to identify themes related to facilitators and barriers of labour force participation and key components to enhance participation for the framework. All stages of the research process were guided by an advisory committee that included PHAs, employers, service providers, insurers, and policy makers.

**RESULTS:** The conceptual framework incorporates six key components related to labour force participation for PHAs in Canada, including the meaning of work; characteristics of work; contextual factors that influence employment (personal, structural, environmental, and the episodic nature of HIV); barriers and facilitators to employment (e.g. issues related to health, social support, workplace environment, and policy); strategies and supports for entering, returning to and/or sustaining employment; and potential outcomes of labour force participation (risks/benefits for individuals, and costs/benefits for employers, governments and insurers).

**DISCUSSION:** Labour force participation provides income and promotes social engagement and self-determination for PHAs. Changing workplace and income support policies and developing programs to assist PHAs to participate in the labour force are challenges in need of attention. This framework could be used by PHAs, employers, insurers, health care providers, and policy makers to develop strategies and interventions to promote the labour force participation of PHAs.

## P262

### HIV, CHRONIC ILLNESSES AND EMPLOYMENT: TAKING THE BULL BY THE HORNS!

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COCQ-SIDA and several Quebec associations of persons living with a chronic and episodic illness (PLWCEI) have been demanding since 2006 the creation of a multisectoral committee bringing together the principals involved in accessing and retaining employment for PLWA or another chronic and episodic illness in Quebec.

A first meeting under the auspices of the Direction générale de la santé publique du ministère de la Santé et des Services sociaux du Québec was held during the winter of 2009. At this meeting, which a second will follow in 2010, the foundation for cooperation was laid between COCQ-SIDA, its associative partners and five government departments or agencies.

This project aims to bring about changes to practices and laws in order to eliminate obstacles that PLWCEI in Quebec face with respect to access to employment, job retention and return to work, as well as to make disability benefits more flexible when the rules are poorly adapted to the episodic nature of a good number of chronic illnesses.

More specifically, COCQ-SIDA and its partners seek (1) recognition of issues specific to chronic and episodic illness in employment and disability, (2) solutions to the problem of discrimination that PLWCEI face in accessing and retaining employment, (3) adoption of measures to adapt disability benefit plans to the reality of PLWCEI (e.g. possibility of part-time work, automatic reinstatement of disability benefits) and (4) real and unfettered access to group insurance by PLWCEI.

## P263

### HIV NON-DISCLOSURE AND THE CRIMINAL LAW: PROMOTING AN EVIDENCE-BASED POLICY RESPONSE

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**SUMMARY:** We report on the results of an OHTN-funded project on the criminalization of HIV non-disclosure. The key output of the project is a policy analysis of the use of the criminal law to address HIV non-disclosure written for the Ontario Ministry of the Attorney General (MAG). We emphasize the potential role prosecutorial guidance can play in creating a more evidence-informed application of criminal law in this area. This presentation explores how we have created and used research to inform policy change.

**THE PROBLEM:** Criminalizing HIV non-disclosure involves applying coercive state powers to a complex problem. In the Canadian context, it raises such questions as the parameters of the significant risk test for establishing the legal obligation to disclose, the state of current scientific research on the risks of sexual transmission of HIV, and the potential adverse effects of criminalization. Despite the complexity of these and other issues it raises, the use of Canadian criminal law to address HIV non-disclosure has not been informed by a sustained, evidence-based policy discussion.

**THE RESPONSE:** We sought to inform criminal law policy related to HIV non-disclosure in Ontario by creating an evidence-based policy options paper for presentation to the Criminal Law Policy Division of MAG. Our presentation emphasizes how we used research evidence to define the problem and outline policy options. It also reviews findings in the following areas of our analysis: 1) demographic and temporal patterns in criminal cases; 2) the legal analysis of criminal cases; 3) a review of social science evidence on the effects of criminalization; 4) key informant and focus group interview results; 5) a review of scientific research on the risks of the sexual transmission of HIV. We outline key features of our policy analysis and review the process of engaging the Ministry in its findings.

## P264

### OVERCOMING EMPLOYMENT BARRIERS: HEALTH AND FINANCIAL WORRIES AMONG A COHORT OF HIV-POSITIVE INDIVIDUALS ON HAART

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**[1]Vancouver; [2]Burnaby, BC**

**BACKGROUND:** Highly active antiretroviral therapy (HAART) has led to dramatic increases in health, and as such, has made employment a more viable option for many people with HIV. In addition to financial gain, employment is a valuable component of quality of life. Yet significant barriers remain for HIV-positive individuals in obtaining and retaining employment. The objective of this study is to identify factors associated with illness as the main barrier to working among HIV-positive individuals who are unemployed.

**METHODS:** The Longitudinal Investigations into Supportive and Ancillary health services (LISA) cohort is a prospective study of HIV-positive persons on HAART. Participants are ≥19 years of age and antiretroviral-naïve prior to initiating HAART. An interviewer-administered survey collects explanatory variables. Clinical variables are obtained through a linkage with the Drug Treatment Program. Quality of life is assessed using the HAT-QoL scale. Categorical variables were compared using the Fisher's Exact Test and continuous variables were assessed using the Wilcoxon Rank-Sum Test. Logistic regression examined variables associated with unemployment due to illness.

**RESULTS:** As of July 2008, the LISA cohort consisted of 457 participants, 351 (77%) of whom reported being unemployed. Of those who are unemployed, 162 (46%) are permanently unable to work and 127 (36%) identify illness as a barrier to employment. Those identifying illness as an employment barrier are more likely to be food insecure (p=0.004), experience stigma (p=0.009), have lower CD4 counts (p=0.030), and report lower quality of life than those who identified other reasons for unemployment. In the multivariate model, greater health worries (AOR=1.23, 95% CI: 1.11-1.37) and greater financial worries (AOR=1.16, 95% CI: 1.05-1.28) are associated with reporting illness as a barrier to employment.

**CONCLUSION:** Participants reporting illness as a barrier to employment have greater health and financial worriers than others unemployed, indicating that further efforts are needed to increase support for unemployed persons living with HIV.

## P265

### COLLABORATING FOR CAPACITY: TOWARDS A NATIONAL STRATEGY ON EPISODIC DISABILITIES

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**RATIONALE:** Though still fatal, HIV/AIDS is increasingly experienced as a lifelong episodic disability (ED) for many people, having much in common with other EDs, including MS, lupus, diabetes and arthritis. Increasing numbers of Canadians live with lifelong EDs, facing challenges in employment participation, income security, social inclusion and access to care. Often current, rigid policies do not accommodate the complex needs of people with EDs. As national chronic disease strategies, including the strategy on HIV/AIDS, are primarily disease-specific, they do not use a cross- disability approach, nor do they capture the fluctuating nature of many conditions.

**OBJECTIVE:** To identify key components of national chronic disease strategies in order to develop a National Episodic Disabilities Strategy (NEDS).

**METHODOLOGY:**

- We surveyed five national chronic disease strategies, including HIV, to determine:
  - o key components of national strategies
  - o processes for ensuring stakeholder input
  - o communications platforms used by chronic disease groups
  - o guidelines for regional chronic disease networks, addressing local issues and knowledge exchange
  - o evaluation processes used in chronic disease strategies
- Interviews with chronic diseases groups on their national strategies

**RESULTS:** While there were variations among the different strategies, key components of chronic disease strategies include:

- Multi-stakeholder steering committee
- Consultations with key multi-sectoral stakeholders
- Involving people with chronic diseases in the planning process
- Cost/Risk/Benefit Analysis
- 4-8 key strategic areas of action
- Working groups for each area of action
- Integrated evaluation process

ED groups have a strong interest in developing a national episodic disability strategy.

**CONCLUSIONS:** Demands on resources require national innovation to bridge silos of vision, knowledge and operation. Given the inter-jurisdictional complexities among policies and programs, national strategies require coordination among existing national and provincial/territorial policies and programs. Therefore, a crucial first step towards developing a NEDS includes convening a national policy dialogue with key stakeholders to develop a comprehensive response to barriers, promoting greater integration of people living with HIV and other ED and to plan the path forward.

## P266

## TORONTO AND OTTAWA RESIDENT AND BUSINESS OWNER VIEWS ON THE ESTABLISHMENT OF SUPERVISED CONSUMPTION SITES

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**BACKGROUND:** Advocates point to evidence that supervised consumption sites (SCSs) reduce public order problems and HIV transmission related to drug use. Opinion polls show that 60% of Ontarians are supportive of SCSs, however proposal of SCSs can provoke opposition from local residents and business owners. As part of an impact and cost-effectiveness study in Ontario, we examined the acceptability of SCSs among these groups.

**METHODS:** Data were collected from 2009-2010 from focus groups and key informant interviews with residents (n= 38) and business owners (n= 17) in Toronto and Ottawa. Thematic analysis was used to examine expressed benefits and concerns amongst participants.

**RESULTS:** Whether supportive or opposed, participants desired strong evidence from a variety of sources on the public health and/or community-level benefits of SCSs. A key fear of participants, both supportive and opposed, was the potential for drug users and dealers to congregate and create a nuisance around the site. SCSs are perceived to irreparably stigmatize a neighbourhood, derailing efforts to "clean it up". Even participants supportive of SCSs expressed "not in my backyard" sentiments, and worried that SCSs may reduce property values and quality of life. Participants with negative views towards SCSs were concerned about the "message" being sent (i.e. condoning drug use). Participants recognized that problematic drug use affects their communities and were generally supportive of assisting drug users, but opponents of SCSs proposed increasing funding for drug prevention and/or treatment instead of funding SCSs.

**CONCLUSIONS:** HIV prevention policymakers face a conundrum: some of the public oppose SCSs outright, and most supporters are reticent to have SCSs in their neighbourhoods. Directly addressing resident and business owner desire for high quality evidence regarding SCS impact on business operation, property value, public order, HIV/HCV transmission, overdose, and uptake of drug treatment by SCS users is key to resolving this conundrum.

## P267

## GAY MALE DOCTORS TAKING CARE OF GAY MALE PATIENTS WITH HIV TRANSFORMATIONS? WHICH ONES AND HOW?

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**Montreal, QC**

**CONTEXT:** More than any other epidemic, HIV has transformed the way doctors see themselves and their medical practice as they are continuously confronted with a complex and ever-changing environment where patients are empowered more and more.

**OBJECTIVE:** Using the theory of experiential learning, to identify what six gay male doctors transformed while caring for gay male patients with HIV as well as the processes they used to perform such transformations.

**METHODS:** A qualitative approach was taken to interpret data from a multiple case study. The data was collected in 2008-09; from six gay male doctors having an average of approximately 20 years of experience taking care of gay male patients with HIV participated in a semi-structure interview talking about what they have transformed and how they have transformed it. The analysis was carried out using qualitative software called ATLAS-ti.

**RESULTS:** The results suggest that these six doctors have transformed at least three domains through reflexive experiences with active and informed patients. They transformed their personal and professional identities, the relationship with their patients, and the relationship with their professional and para-professional networks as well as with civil society. They used learning combined processes, mostly informal and sometimes more formal ones, but always outside basic medical training or institutionalized continuous medical training, as well as other alternative methods of professional development – through transformative experiences.

**CONCLUSION:** These results show the importance of recognizing the value of the patient as informer and of experiential learning in the transformation of the medical practice of doctors, without denying the value of constituted knowledge. These learning methods should be recognized and integrated in the context of basic and continuous professional learning.

## P268

## NON-GOVERNMENTAL ORGANIZATIONS AND DELIVERY OF HEALTH AND SOCIAL SERVICES IN HIV/AIDS CARE AND TREATMENT: THE OTHER SIDE OF GLOBAL PRIVATIZATION

**SA Brown**

**Vancouver, BC**

**BACKGROUND:** HIV prevalence in the Mountain Kingdom of Lesotho exceeds 25 per cent. The devastating human, social, and financial implications of the epidemic have garnered substantial international response with hundreds of non-governmental and community based organizations flocking to provide health and social services, policy coordination and implementation. Critical as their assistance has been, this paper begins to grapple with important questions of how the presence and, indeed, rise of the authority and power of these private organizations has impacted democracy, accountability, legitimacy, and capacity issues.

**METHODS:** Semi-structured, in-depth interviews (n=63) conducted in 2008 and 2009 with: five respondent groups from Lesotho including government, non-governmental, peri-governmental organizations, civil society organizations, and people living with HIV (n=42); knowledgeable observers (n= 9); and representatives from pharmaceutical industry and public-private partnerships (n=12).

**RESULTS:** Interview data reveals considerable programmatic overlap and redundancies, evidence of health system verticalization, trust issues with non-governmental partners, programmatic gaps particularly in remote areas of the country, and concerns around the sustainability of programs and partner relationships. Policy coordination remains an ongoing challenge and partner relationships need significant refinement in terms of roles and responsibilities. Non-governmental partners report high levels of commitment to service delivery requirements as well as partner responsibilities to government in terms of accountability, reporting and transparency. Both sides reported challenges with trust and negotiation, delegation

of roles and responsibilities, policy coordination, and managing increasing financial and service expectations on both sides of the partnership. The data reveals significant and increasing participation of non-governmental and civil society participation in health policy decision-making and implementation.

**CONCLUSION:** The rise of private moral authority in Lesotho has had profound implications for critical governance areas and has resulted in 1) programme redundancies, 2) verticalization of health services, 3) lack of policy coordination, and 4) ultimately, demonstrates the potential to undermine the state's capacity to exercise policy autonomy and deliver public health services.

## P269

## AN INDEPENDENT RELATIONSHIP BETWEEN MONEY SPENT ON DRUGS AND SEX WORK INCOME: TIME TO DECRIMINALIZE DRUG USE TO PREVENT HARM AMONG CANADA'S MOST VULNERABLE WOMEN?

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**OBJECTIVES:** Evidence increasingly suggests that criminalized drug policy approaches drive up drug costs and likely exacerbate harms among women who live in poverty and exchange sex on the streets in Canadian settings, including increased rates of violence, sexually transmitted infections (STIs) and HIV. The objective of this study was therefore to investigate the relationship between the amount of money spent on drugs and sex work income among street-based female sex workers in Vancouver, Canada.

**METHODS:** Our analysis draws on cross-sectional data among a sample of street-based female and transgendered sex workers who use drugs and enrolled in a prospective cohort (2006-2008). Bivariate and multivariable linear regression was used to model the relationship between average weekly money spent on drugs and average weekly sex work income. For use in linear regression, both variables were log-transformed to address highly skewed data.

**RESULTS:** The median age of the sample was 36, with 50.8% self-identifying as Aboriginal and 25% HIV-positive. Among 110 FSWs, the median weekly sex work income was $290 (interquartile range [IQR]=$100-$500), the mean number of clients per week was 11.0 (median=5;IQR=2-14), and the median amount spent on drugs was $350 (IQR=$100-$780). In multivariate linear regression, adjusting for individual socio-demographic characteristics, client volume and drug and sex work patterns, for each ten percent increase in the amount spent on drugs, sex work income increased by 4.5% ($p<0.001$). For each additional client, sex work income increased by 1.2% and intensive daily crack cocaine smoking was associated with a 36.6% reduction in sex work income ($p=0.03$).

**DISCUSSION:** This study demonstrates an independent relationship between money spent on drugs and increased sex work income among street-based women sex workers who use drugs in a Canadian setting. These findings should compel government and policy makers to address the failings of the current anti-drug strategy and enforcement-based approaches, and indicate a crucial need to scale up access and availability of evidence-based HIV/STI prevention and addiction treatment strategies for highly vulnerable women.

## P270

## FOTONOVELA "GUYS LIKE YOU" (CHICOS COMO TU) FOR HIV/HEP C PREVENTION FOR THE LATINO GAY, BISEXUAL AND MSM (GBMSM) IMMIGRANTS IN CANADA

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**Toronto, ON**

**OBJECTIVE:** The fotonovela GUYS LIKE YOU is an adult education tool that aims to raise awareness and critical discussion among GBMSM in relation to HIV and Hepatitis Prevention. It focuses on experiences related to discrimination, racialized sexual desires and bodies, sexual practices and power/knowledge discourses that create interlocking systems of oppression and domination. It spotlights individual's vulnerabilities and creates imbalances of power in interpersonal relationships affecting condom use and safe sex negotiation. Fourteen thousands copies were printed and thanks to CATIE*, GUYS LIKE YOU is available at national level.

**EVALUATION METHODOLOGY:** A survey was conducted in two sessions: Total participants: 21. Ages range: 21-55. Gender: male.
Questionnaire: 10 questions (3 open-ended, 7 forced-choice questions).
Countries of origin: Latino America.

**RESULTS:** The survey revealed the evaluation of the project:

- 100% liked the project and though it was an effective way to present HIV/Hep C, gay, bisexual and queer information in an educational way.
- 14 out of 21 referred that they know someone that has had similar experiences to the ones presented in the fotonovela.
- 99% agreed that the fotonovela provided information about service providers, health clinics and referrals.
- 71.42% of the participants answered that "isolation" is the most frequent feeling they experience in their lives and that was presented in the fotonovela.
- Personal vulnerabilities, discrimination and lack of personal control and power were other topics that participants identified in the fotonovela and in their current lives.

**CONCLUSION:** Based on participants evaluation, we found that a fotonovela is a good educational tool for promoting critical discussion about issues of vulnerability, race/power and HIV/Hep C topics www.guyslikeyou.ca.

## P271

## MANO EN MANO II, EDUCATIONAL INTERVENTION FOR HIV/STI'S PREVENTION FOR LATINO MSM IMMIGRANTS WHO HAVE MORE THAN THREE YEARS SINCE THEIR ARRIVAL TO CANADA: COMMUNITY FORUM EVALUATION

**G Betancourt**

**Toronto, ON**

**CONCEPT:** Mano en Mano II is an initiative to provide graduates of Mano en Mano I (which is an education intervention for Latino MSM Newcomers to Canada that have been living in Canada up to three years) an educational program that addresses issues of interest for those who have already completed Mano en Mano I, or those who have exceeded the three years limit. To this date more than 50 people have passed through the Mano en Mano I program and hundreds others in the community have asked for a continuation.

**PROCESS:** In order to determine the curriculum content of Mano en Mano II, a community forum was celebrated and 20 questionnaires were answered.

Question one was a forced choice question: What services do you think are the most relevant ones that the LGTBQ (MSM) Spanish-Speaking community needs? 12 options were provided.

Question two was an open-ended format: What topics would you like to see in a curriculum intervention for those who have lived in Canada for more than three years?

That was analyzing under a grounded theory approach in order to construct categories that were relevant to participants.

**Lessons Learned:** The needs that were perceived as more important for the LGTBQ (MSM) community were:

- Counselling, professional development, settlement, love and personal relationships workshops.

The topics that people mentioned they would like to be part of for Mano en Mano II educational interventions were:

- Critical discussion about being gay in Canada, professional development and HIV information and community discussion.

The results show that people require more opportunities for discussion on topics related to the immigration and integration experience, the effect of gayness and more HIV prevention information.

## P272

### THE IDU CONTINUUM OF CARE: BRINGING TOGETHER A RANGE OF SERVICES FOR INJECTION DRUG USERS (IDUS) IN SASKATOON HEALTH REGION (SHR) "MAKING IT HAPPEN"

**JO Opondo**
**Saskatoon, SK**

In 2001, the MHO called together an Injection Drug Use Task Force which brought together the major stakeholders who have set out the vision of an IDU continuum of care of IDUs in the SHR.

SHR and the province have experienced a major "outbreak" of HIV and Hepatitis C Virus (HCV) infections in recent years. It is apparent that IDUs and their sexual partners account for a majority of the new cases. It has been noted with increasing concern that populations at highest risk for HIV and HCV are not being adequately served by traditional clinic-based or institution-based services. High needs IDU patients often are unable to reach all the services they need.

The goal of this initiative is to drastically reduce the spread of HIV and other blood borne pathogens amongst IDUs, and to strengthen and coordinate our response across all sectors organized along a continuum of needs and services with clearly defined care pathways. This is a framework for managing the needs of IDUs in our community using the four pillars approach. This is a whole-systems approach to care planning.

Using a social network approach HIV risk reduction strategies which focus on individual behaviour change may fail to consider the social environment in which risk behaviours occur. Peer support and community-level interventions have been significantly more effective than those interventions which assume that an individual, with appropriate education, will be able to and be adherent in changing their behaviour.

Preventing new HIV infections in drug-using populations depends on reaching large numbers of the risk-target population and rapidly making core interventions available and accessible to them. This is referred to as "scaling-up" of interventions which, in this context, refers to increasing the intensity of public health (community-based) interventions to a level where HIV infection can be controlled among injecting drug users within a reasonable period of time. Mitigating some of the serious consequences of injection drugs use and HIV infection will require the integration of HIV/AIDS programs with other existing health and social programs.

## P273

### THE BROADER DETERMINANTS OF HEALTH WITHIN AN ABORIGINAL CONTEXT

**MF Larocque[1], LK De Pauw[2], RJ Forbes[1]**
**[1]Ottawa; [2]Toronto, ON**

The Broader Determinants of Health is a relatively new lens for examining disparities in health status that are more pronounced within the Aboriginal population. The Broader Determinants are intended to complement the social determinants of health and are reflective of the historical features that shape the contemporary health profile of Aboriginal Canadians. The approach explores additional factors such as colonization, migration, self determination, and relationship to territory or land which serve as barriers faced by Aboriginal peoples in achieving and maintaining a health status comparable to the rest of the Canadian population.

The Interagency coalition on AIDS and Development (ICAD) and the Canadian Aboriginal AIDS Network (CAAN) have developed a participatory learning tool for exploring the underlying disparities Indigenous peoples face within HIV epidemics using a vulnerability and risk framework. The resource has three objectives:

- To foster dialogue and understanding around HIV vulnerability and impact among Indigenous peoples worldwide.
- To increase empathy for groups among Indigenous peoples who are particularly affected by HIV.
- To encourage actions that increase access to HIV prevention, treatment, care and support in Indigenous communities.

The resource kit and accompanying workshop is being piloted in Saskatoon, Toronto and Vancouver in early 2010. This presentation will elaborate on the lessons learned during the pilot phase and their implications on further research.

## P274

### THE ENGAGING PHYSICIANS PROJECT: IS TO ASSIST GENERAL PRACTITIONERS (GPS) IN CREATING A NON-JUDGMENTAL AND WELCOMING CLINICAL ENVIRONMENT; TO ALLOW FOR THE SAFE DISCLOSURE OF SEXUAL PRACTICES AND HEALTH CONCERNS OF MEN WHO HAVE SEX WITH MEN

**KG Saya-Moore, D Roberts**
**Kelowna, BC**

The sexual behaviour of non self-identifying MSM (NIMSM) differs significantly from that of MSM who have a strong gay identity, with the former being more likely to engage in high-risk activities (Centre for AIDS Prevention, 1995, Graydon, 1998, Aggleton, Davies & Hart, 1992). NIMSM fear the stigma of homosexuality, particularly for those living in rural areas (Preston, D'Angelli, Cain & Schulze, 2002); as a result, NIMSM practice a level of anonymous behaviour that renders them all but invisible to the larger community, and insulates them from traditional prevention programs. Effective prevention strategies for NIMSM must take these behavioral differences into account, and must include provisions for reaching their partners as well.

**OBJECTIVES:** Goal 1: Increase the number of General Practitioners (GPs) within the Interior Health Region that report an increased awareness, knowledge, and understanding of the health needs of Men who have Sex with Men (MSM).

Goal 2: To increase educational resources for GP and other health care practitioners (the sexual health of MSM).

**METHODS:** Physician Consultation Document was mailed to physicians in each area of the Interior Health Authority. 655 Consultation Tools for General Practitioners were sent out to a convenience sample and 113 responses were received.

**Community Conversation Tool:** Questionnaire sent out via email list serves, posted on Project website and referenced in adverts in print media to elicit feedback from community.

**RESULTS:** Some responses to the Physician Consultation Tool named above indicated 68% of GPs state they do not have appropriate referrals for their G/Bi/MSM patients and 13% are not sure if they have appropriate referrals.

Proposed Outcomes:

- Design and pilot one (1) draft Toolkit for reducing stigma towards GLBTQ.
- Design and Pilot one (1) focus group to gather feedback on Toolkit and Professional Development Workshop for GPs and other health care professionals.
- Hold five (5) grand rounds in Nelson, Penticton, Kelowna, Vernon, and Kamloops (with presentation and/or video podcasts).
- Design and pilot one (1) professional development workshop (i.e. curriculum and manual for facilitator/participants).
- Obtain CME credits for Professional Development workshop.

## P275

### SMOKE OVER HERE, INJECT OVER THERE: IDENTIFYING CHALLENGES FOR THE DESIGN OF SUPERVISED CONSUMPTION SITES (SCSS) FOR CRACK SMOKING

**TM Watson, C Strike, G Kolla, J Jairam, J Luce, N Degani, P O'Campo, P Millson, A Bayoumi**
**Toronto, ON**

**BACKGROUND:** Supervised consumption sites (SCSs) target injection-related harms, especially risk of HIV transmission, by providing indoor facilities where drugs are injected under staff supervision. SCSs could benefit people who smoke crack but inhalation rooms are under-studied. As part of an impact and cost-effectiveness study in two large Canadian cities, we examined the challenges of designing SCSs for crack smokers.

**METHODS:** Using data collected in 2009 from 13 focus groups conducted with 91 self-reported current injectors and/or smokers, we completed thematic qualitative analysis to explore if crack smokers need and want SCSs and, if they do, how these facilities should be designed.

**RESULTS:** When asked, participants identified many issues important for the design and implementation of SCSs for crack smokers that are similar

to but different than those for injectors. Participants recommended that SCSs provide all clients with the same services (e.g., HIV prevention), social needs (e.g., counselling/referrals), and safety (e.g., respite from the street). However, a strong preference was voiced for separate consumption rooms for injectors and crack smokers. Crack smokers preferred separate rooms to avoid seeing drugs injected. Injectors did not want to share consumption rooms with crack smokers because they wanted to avoid exposure to crack smoke and the erratic, paranoid, and aggressive drug-seeking behaviours they attribute to crack use. Mixing the two groups was thought to negatively influence drug highs and discourage use of SCSs. Nonetheless, participants were conflicted because separate facilities could inconvenience drug users who inject and smoke, and thereby reduce utilization.
**CONCLUSION:** Both crack smokers and drug injectors endorsed SCSs for crack smoking. To ensure that SCSs are well-used and achieve their objectives for clients and the community, our data suggest a need for SCSs with many services and with separate supervised consumption rooms for inhalation and injection.

## P276
## HIV PREVENTION INTERVENTION TARGETS – INJECTION INITIATION AND MODELING BEHAVIOUR

**C Strike[1], G Kolla[1], R Balian[1], J Altenberg[1], RB Silver[1], K Burton[2], B Lester[2], E Roy[3], N Hunt[4], M Millson[1]**
**[1]Toronto; [2]London, ON; [3]Longueuil, QC; [4]Kent, United Kingdom**

**BACKGROUND:** Initiation of injection drug use is a learned behaviour, often dependent on assistance from an experienced injector for the first 'hit'. Reducing opportunities to learn this behaviour may reduce the transition to injection drug use and related harms. We examined if injectors who modeling injecting behaviours are more likely to initiate others into injection drug use.
**METHODS:** Questionnaire data (demographic characteristics, injection and initiation-related behaviours) were collected from IDUs (injected in past 30 days) who attended needle-syringe programs in using stratified convenience sampling. Data were analyzed using descriptive statistics and univariate logistic regression.
**RESULTS:** Among participants (n=201) 65% were men; mean age was 39 years (range 17-61 years); 45.3% injected heroin, 78.1% injected other opiates, 68.2% injected cocaine, 49.3% injected crack, 26.4% injected methamphetamine and 29.9% injected speedballs in the past year. A quarter (24.9%) of participants reported having ever initiated a non-injector to injection drug use. Among those initiators, 70% had initiated at least 1 person in the past year (mean=1.5). When compared to non-initiators, initiators were more likely to: speak positively about injection (76.0% vs. 38.4%; OR=5.1; 95% CI 2.5-10.5); encourage another to inject (36.0% vs. 14.9%; OR=6.5; 95% CI 2.9-14.9); inject in front of non-injectors (80.0% vs. 54.7%; OR=3.3; 95% CI 1.1-9.8) and have showed/explained how to inject (82.0% vs. 38.4%; OR=7.3; 95% CI 3.3-16.1).
**CONCLUSION:** Injectors who engage in modeling behaviours are more likely to initiate others into injection drug use. Our findings point to the need for interventions that discourage injectors from speaking positively about or encouraging injection, injecting in front of non-injectors, explaining/demonstrating injection to non-injectors and giving someone their first hit. These interventions hold promise as an effective strategy that can be added to existing harm reduction programs to reduce transitions to injection drug use and decrease injection related harms.

## P277
## HEY YOU! I WANT TO TALK TO YOU! – WHAT TO SAY TO SOMEONE WHO IS INJECTING DRUGS

**R Dias**
**Ottawa, ON**

**OBJECTIVE:** To identify and enhance harm reduction counseling strategies and approaches with clients of the needle exchange program.
**TARGET GROUPS:** Ottawa has one the highest levels of HIV prevalence and incidence among people who inject drugs. With over 12,000 service encounters a year, the needle exchange program's counseling was often questioned by opponents of the program suggesting clients of the program did not receive any counseling during a needle exchange interaction. The program wanted to demonstrate that it's providing the best counseling possible for clients and that the standard of counseling was the same and/or exceeded other programs throughout Canada. Were we doing the best that we could do?
**ACTIVITIES:** The needle exchange program conducted focus groups with staff of the program and of those of the 13 partner agencies that provide needle exchange services. Nationally, key informant interviews were conducted with 10 needle exchange programs across Canada. Clients of the needle exchange program provided feedback in a self-directed "client satisfaction survey" and a literature review was conducted.
**DELIVERABLES:** Focus group revealed that most counseling opportunities presented themselves when the client was in crisis, with a sense of urgency. Key informant interviews suggested that most programs could not identify what theory or model of counseling they used, but did indicate that all interactions were client-driven.Client satisfaction survey indicates 91% positive evaluation of their experience when talking to staff about something happening in their life was excellent. Key findings of the literature review will be presented.

## P278
## OPERATION HAIRSPRAY 2 – SPRAY THE WORD ABOUT HEALTH – AN AFRICAN AND CARIBBEAN COMMUNITY PARTNERSHIP

**S O'Byrne, Z Uddin**
**Ottawa, ON**

Somerset West Community Health Centre and Ottawa Public Health will share their Findings of "Operation Hairspray 2 - Spray the Word about Health". This unique community partnership, focusing on HIV prevention with the African and Caribbean community in Ottawa promises interesting findings that can be shared and duplicated. Results of this peer-led health promotion initiative, which engaged African and Caribbean hairdressers and barbers as a channel to reach people will be shared.
The audience will learn about this program which involved recruiting peer volunteers from the African and Caribbean communities, specifically hairdressers and barbers. These volunteers were provided with training regarding HIV prevention as well as resources to increase access/reduce barriers to health information related to HIV/AIDS. The peer volunteers were given tools to engage in a dialogue with their clients at opportune moments and share information on HIV prevention. The audience will learn that the prevention approach used through Operation Hairspray was positively received by clients and the volunteers who participated in the program. Result of the client surveys revealed that they have the intention of assisting to spread the word about the importance of HIV/AIDS awareness and prevention by sharing information with others and making a conscious decision to protect themselves. The volunteer hairdressers and barbers survey results revealed that the issue of stigma and discrimination continues to be evident and that strategies to increase awareness and prevention need to take this into consideration. Educational activities and resources need to be shared. This is a successful partnership model that is easy to duplicate in other cities.
Operation Hairspray – Phase 2, was evaluated by and independent consultant in July 2009. Results showed that the client impact survey reached the identified target group with over 63% of respondents being African and or Caribbean males. Over 80% of respondents reported an increase in knowledge about HIV/AIDS, 81% of peer volunteers reported an increase in knowledge about HIV/AIDS and that the issue of stigma and discrimination continue to be evident in the community.

## P279
## THE ROLE OF HIV/AIDS COMMUNITY ORGANIZATION IN ADDRESSING HEALTH INEQUITIES: AN EXPLORATION OF PARTICIPATORY PROCESSES AND RESEARCH STRATEGIES

**L Belle-Isle**
**Ottawa, ON**

Social inequalities resulting from global economic expansion have led to disparities in health. In fact, it appears that the greater the degree

of socioeconomic inequality within a society, the greater the health inequality. It is when health inequalities are avoidable, that they are unjust, that they are referred to as 'health inequities'. When the principles of social justice are followed, health inequities are minimized and a population's health status is improved. The World Health Organization's Commission on Social Determinants of Health launched a call for action to governments, civil society, and the voluntary and private sectors to address health inequities, placing special emphasis on increased participatory processes to enhance community engagement and social participation in policy processes and ensure fair decision-making on health equity issues. This paper aims to understand the role of community-based HIV/AIDS service organizations in contributing to the call for action on health inequities by determining the dynamics of participatory processes through with this can be accomplished. It explores participatory approaches to both collective action and research strategies, and offer suggestions as to how HIV/AIDS community organizations can best enhance these approaches to address health inequities, and how the Canadian AIDS Society can best assist its member organizations in doing so.

## P280

## STRATEGIES TO ADDRESS COLLABORATION CHALLENGES AMONG CULTURALLY DIVERSE ETHNO-RACIAL MSM COMMUNITIES

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**Toronto, ON**

While HIV infection rates continue to rise among ethno-racial men who have sex with men (MSM) populations in Ontario, a gap of evidence-based data from these communities remains. The Ontario AIDS Bureau Ethno-racial MSM Research Working Group (EMSM-WG) was established to foster community-driven research and bridge this gap, however complex social, cultural, political and infrastructural issues affecting each community poses unique challenges for engagement and production of research evidence.

Key challenges include: lack of infrastructural support and resources to conduct research; overwhelming demands for front-line services and competing priorities; limited baseline data and academic partnership support; and difficulties establishing a community research agenda. While some communities have developed successful research agenda and studies, others are further behind in substantiating their needs.

To promote mutual learning, collaboration and synergy among culturally diverse MSM communities engaging in research, the EMSM-WG organized a multicultural, multi-sectoral think tank of stakeholders from communities, researchers and policymakers (June 2009). The think tank allowed ethno-racial communities to identify unique and overlapping concerns, and various mechanisms were identified to address these issues including: (1) forming new partnerships and agendas of broad relevance, such as exploring the intersectionality of homophobia and racism; (2) using existing mechanisms, such as The Ontario HIV Treatment Network's Evidence and Evaluation Working Group, to assist in the integration of project evaluation research agendas; (3) understanding that partnerships established to facilitate knowledge exchange and collaboration must respect the different stages of development within various MSM community projects; (4) establishing priority sub-populations of interest to focus development of research proposals and work plans including older MSM, newcomers, youth, long-term survivors, and women in relationship with non-gay identified MSM.

These inclusive, flexible and innovative community-based collaborative processes facilitate collaboration and synergy among culturally diverse partners to engage in, and advance, research agendas that support evidence-based programming.

## P281

## HELPING TO GIVE A FIRST HIT – A QUALITATIVE STUDY EXPLORING INITIATION TO INJECTION DRUG USE

**G Kolla[1], R Balian[1], J Altenberg[1], R Silver[1], E Roy[2], N Hunt[3], P Millson[1], C Strike[1]**
**[1]Toronto, ON; [2]Sherbrooke, QC; [3]Faversham, United Kingdom**

**BACKGROUND:** Initiation to injection drug use is a complex process influenced by social contexts, including personal relationships. Most novice injectors report being helped by an experienced injector with their first injection. To tailor HIV prevention interventions to reduce initiation to injecting, we examine the processes leading to a first injection hit from an understudied perspective - the initiators.

**METHODS:** 20 participants (11 male, 9 female) who reported helping someone with their first injection completed a semi-structured interview. They were asked about their experiences helping others to inject for the first time. Thematic qualitative techniques were used to analyze the transcripts.

**RESULTS:** Popular conceptions portray injectors as active 'recruiters' of non-injectors but this process is more complex. Despite engaging in behaviours likely to pique curiosity about injecting among non-injectors (eg. talking about the 'amazing' high; injecting in front of non-injectors), participants voiced a strong reluctance to help another with their first hit. As well, they described strong social disapproval from other injectors about helping someone to inject for the first time. While a minority of participants described encouraging novices, participants overwhelmingly reported that novices approached them for help injecting. Hesitancy to assist was often overcome when novices offered drugs in exchange for help with a first hit. Several female participants described a sense of accomplishment associated with initiating a novice. Most but not all used safer injection skills with the novice at initiation.

**CONCLUSIONS:** Our findings reveal that integrated interventions that incorporate the following components may be effective in reducing injection initiation and related HIV risk: 1) discourage injectors from speaking positively about injection or injecting in front of non-injectors; 2) help injectors develop skills to resist pressure to give a first hit; and, 3) provide safer injection education training for those who may continue to help novices with their first hit.

## P282

## TEACHER TRAINING IN HIV/AIDS AND SEXUAL HEALTH EDUCATION

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**OBJECTIVES:** HIV and STI rates are on the rise in Canadian youth and young people report that they are dissatisfied with sexual health services and education. This project drew upon elicitation research with urban youth to offer pre-service training for teachers (B.Ed. candidates) that reflects student interest and effective approaches to sexual health education (SHE).

**METHODS:** Using the Canadian Guidelines for Sexual Health Education, the Toronto Teen Survey findings and Ontario's curriculum documents, the researcher designed a training program and resource package for pre-service teachers that reflected what students want to learn, the curriculum expectations and the Information-Motivation-Behavioural approach to SHE. The 90-minute training program and resource package was delivered to 156 pre-service teacher-candidates whose teachable subjects included Health and Physical Education, Social Sciences and Family Studies. Pre- and post-test questionnaires and post-intervention focus groups were used to assess the impact of the training session on participant preparedness (knowledge and comfort level) to teach classroom-based SHE. Participants were also asked to comment on concerns and barriers to teaching SHE and interest in further SHE training.

**RESULTS:** Participants indicated an increase in knowledge and comfort with SHE. They expressed strong interest in receiving more training in a variety of SHE topics and indicated that they would have liked more time to be allocated to teacher training. They also expressed a number of concerns with regard to teaching SHE: parental resistance, classroom management, unfamiliarity/discomfort with subject matter and challenges teaching

in Catholic schools. Focus group contributors were concerned about the lack of quality SHE in their high schools and indicated that they had a lot of questions about classroom-based SHE.
**CONCLUSIONS:** This project's findings suggest that pre-service teachers are eager to acquire the knowledge and skills required to deliver effective SHE. However, they lack the necessary training and want more opportunities to learn about sexual health. Pre-service programs that focus specifically on classroom-based SHE improve teacher comfort and knowledge of the topics that are most relevant to Canadian youth.

## P283
## REACHING VULNERABLE WOMEN IN PRIORITY AREAS IN THE GREATER TORONTO AREA: VOICES OF POSITIVE WOMEN'S COMMUNITY CONNECTIONS PROJECT

**MW Tebeje**
**Toronto, ON**

**SUMMARY:** In Canada, the greatest increase in HIV infections is among women aged 15-24. African and Caribbean women are also overrepresented. There is a lack of women-specific prevention initiatives for positive and at-risk women who live in the Greater Toronto Area (GTA) as well as for women who are from endemic countries. Specifically, women from priority neighborhoods are characterized by poverty, large newcomer populations, marginalized populations and limited ASOs.
**OBJECTIVE:** Voices of Poisitive Women (VOPW,) an AIDS organization specifically by and for HIV+ women, has established the Community Connections project in response to the prevention needs of women residing in priority areas in the GTA and women from endemic countries. The project aims to increase HIV/AIDS knowledge and self-esteem and enhance the quality of life for women at risk of or living with HIV/AIDS.
**METHODS:** This project recruits female volunteers, and trains/supports them to educate women in their neighbourhoods or specific populations on HIV/AIDS.
**RESULTS:** The project is versatile as it supports women to facilitate workshops in their own communities, promotes women as experts in their lives and HIV/AIDS, and addresses women's HIV/AIDS educational needs in a gendered and culturally specific manner.
**CONCLUSION:** Culture and language barriers as well as immigration status are also barriers with respect to providing prevention and care information to women from endemic countries. Also a lack of basic knowledge about healthy sexuality and HIV/AIDS among workshop participants forced us to do repeat workshops for the same groups of women which is costly in terms of resources and staff time. We have learned to stay committed to the communities and remain flexible in the content and framework of the workshops while attempting to tailor woman-specific workshops to address issues including immigration status, poverty, language barriers, etc.

## P284
## LINKAGES BETWEEN ECONOMIC GLOBALIZATION AND HIV/AIDS: RESULTS FROM A MULTI-COUNTRY STUDY

**S Nixon[1], C Rubincam[2], A Whiteside[2], The Economic Globalization and HIV/AIDS Research Group[2]**
**[1]Toronto, ON; [2]Durban, South Africa**

**BACKGROUND:** Ideas have been posited on links between economic globalization and HIV, but there is a dearth of empirical research to inform this area. To stimulate the field, HEARD and IDRC spearheaded a competitive research funding call for empirical case studies in low- or middle-income countries that explored specific local linkages between globalization and HIV. These inquiries were part of a broader study to identify synergistic lessons by comparing data and concepts emerging across two or more of the studies.
**OBJECTIVE:** To present empirically-based linkages between HIV and economic globalization emerging across five case studies conducted in low- and middle-income countries.
**METHODS:** Empirical case studies were conducted by research teams in Malawi, Madagascar, Lesotho, South Africa and Peru exploring intersections between economic globalization and HIV vulnerability and resistance. Individual studies will disseminate their own findings. However, a broader, prospective, collective inquiry was made to identify lessons learned across studies. Methods included symposia for all researchers at the start and end of the case studies to identify opportunities for exploring comparable issues and data. Collaborative qualitative techniques were used to extrapolate lessons emerging across the individual studies.
**RESULTS:** Four areas of synergy emerged: (1) The global economic downturn and its impacts on HIV vulnerability and responses. (2) New ways of thinking about gender in the context of the HIV-economic globalization nexus. (3) How economic globalization influences "transactional" sex and the related risk of exposure to HIV. (4) Implications for HIV interventions from individual, community and country levels.
**CONCLUSION:** Results of this inquiry inform the nuanced and multifaceted nature of the links between economic globalization and HIV. Globalization, which is often viewed as either good or bad, is revealed in these analyses as simultaneously good and bad. New insights for programmes and policy are discussed.

## P285
## DEFINING INDIGENOUS RELEVANT EVIDENCE

**DT Lambert**
**Onoway, AB**

Using an Indigenous framework known as the "Tree of Creation", the history of HIV will be reviewed. This presentation will focus on networks of risk specific to Aboriginal populations in Western Canada. Mobility, family support networks and organizational responses will be portrayed utilizing the social determinants of health as a reference point.
Highlights of this retrospective recall will be framed within several research methodologies with emphasis on qualitative approaches complementary to Indigenous storytelling. Life histories, narrative data and document analysis will provide a list of recommended wise practices for evidence-based interventions with Indigenous/Aboriginal (First Nation, Metis and Inuit) populations.

## P286
## PREDICTORS OF HIV TESTING AMONG STREET-INVOLVED AND HOMELESS YOUTH IN HAMILTON, ONTARIO: THE SAFE N' SEXY PROJECT RESULTS

**SL Bullock[1], M Vibert[1], AR Betts[2], J Franco[2], B Marsdin[2], D Stinson[2]**
**[1]Waterloo; [2]Hamilton, ON**

**OBJECTIVE:** Little is known about the sexual health of street-involved youth in Ontario's smaller cities. The Safe n' Sexy Project assessed the sexual-health needs of street-involved youth in Hamilton and aims to understand predictors of risk behaviour and implement/improve programs to decrease risk. The presentation aims describes risk behaviour and indicates predictors of HIV-testing among street-involved youth in Hamilton, Ontario.
**METHODS:** Quantitative interviews were conducted with 100 street-involved and homeless youth aged 14-24 years, living in Hamilton, Ontario. Multivariate logistic regression analysis is conducted to assess predictors of HIV-testing.
**RESULTS:** Participants engaged in sexual-risk behaviour; 78.1% did not use condoms with a regular partner, 21.9% did not use them with a hook-up (3 months); 40% had an unplanned pregnancy, and 10% experienced at least one STI. However, 43 participants (61.4%) had been HIV tested; while none were HIV+; several had not obtained their test results. Participants were LESS likely to be tested if they: had NOT graduated high school (OR=0.77) were homeless (OR=0.77), had lived in unstable housing before age 15 (OR=0.48), received sexual-health information from the internet (OR=0.89), lived with parents or in a shelter (ORs =0.87 and 0.62 respectively), and had unprotected sex with hook-ups (OR=0.65). Youth were MORE likely to HIV test if they received sexual-health information from the AIDS Network/Van (OR=1.82) or a sexual health clinic (OR=1.72), and had an STI (OR=4.14), or an unplanned pregnancy (OR=5.98).
**CONCLUSION:** While participants engaged in sexual-risk behaviour, they also managed to protect themselves (high proportion had HIV tested, most used condoms with hook-ups). With their high rates of unplanned pregnancy and STIs, it appears that these youth are not learning about

sexual health and accessing clinics until they encounter a significant health outcome. When interviewed, many were unaware of existing services, and others preferred not to access them. Understanding who has not been accessing services, and why, will help service providers and researchers to make sexual health more accessible to this often neglected and highly vulnerable population.

## P287

## WHERE IS HOME? AN ENQUIRY INTO GEOGRAPHIC SPACES USED BY HOMELESS INDIVIDUALS INFECTED OR AT RISK FOR HIV

**MA Ormond**
**Winnipeg, MB**

**RATIONALE:** Sunshine House Drop-in provides a homelike environment with a strong social networking function to homeless/street involved people; services (meals, laundry, clothing, bathing, condoms, clean injecting supplies; computer/internet access) are provided to those living with or at risk for HIV; identified HIV status is not required to access service. The assumption is commonly made that patterns of clients' day-to-day lives are prescribed by the work of meeting subsistence needs. What is the geography of that workplace? Given that it is impossible to apply a strict geophysical description, it is necessary to construct other tools and processes to characterize "residents" by considering commonly used spaces, culture, and social bonds forged through shared experience.

**METHODS:** With a geographical map setting neighborhood boundaries as the backdrop, a survey was designed to capture usual daily activities, personal measures taken for health/safety, service gaps, and clients' perceived needs.

**RESULTS:** Analysis (N=60) provides a picture of a dynamic neighborhood with shared subsistence patterns, common identity as "non-residents," with strong pressure on individuals to share resources. 48 (80%) of respondents share First Nation ethnicity (Aboriginal, Metis, Inuit); characteristics may reflect the cultural identity of respondents. They may also represent the homeless experience, and the survival skills that develop over time. 20% of respondents are known to live with HIV, HCV or are co-infected. That this information is not required to access service provides a necessary security feature to a highly marginalized population.

**CONCLUSIONS:** The goal in constructing an enhanced geophysical map was to refine Sunshine House services as a non-clinical support venue for people living with or at risk for HIV. Action plans require that Sunshine House establish measures to enhance the qualities usually applied to "home," where safety is assured, basic needs are well met, and the social dynamic demands that people care for and attend to each other respectfully in a shared space.

## P288

## USING A PDSA TO INCREASE MONITORING FOR TB IN HIV POSITIVE INDIVIDUALS

**B Pongracz**
**Saskatoon, SK**

Globally, Tuberculosis (TB) is the most common cause of death among HIV positive individuals, accounting globally for 1/3 of all AIDS related deaths, yet less than 1% of HIV positive individuals are screened for TB (Public Health Agency of Canada, 2008). Saskatchewan is experiencing an increase in TB, especially in the Aboriginal population, coincident with the growth of HIV/AIDS and changing immigration patterns. As immune reconstitution can occur with starting HIV medications, re-activation of latent TB is always a risk.

Recognizing the link between HIV and TB, the Positive Living Program in Saskatoon teamed with the Saskatchewan Tuberculosis Program to perform a PDSA cycle (Plan-Do-Study-Act) focusing on improving the outcomes of testing and reading of Mantoux's in individuals diagnosed with HIV. The importance of accurate readings was stressed with barriers to completing a plant-read-report cycle identified. Partnerships were made with new and existing individuals and agencies to increase the opportunity for success. Using the newly acquired information and contacts, the PLP was able to dramatically increase their rate for completion of Tuberculin testing.