

# Lower Antiretroviral Therapy Use and Lower Rates of Viral Suppression amongst Younger Women Living with HIV Enrolled in CHIWOS

R Hawa<sup>1,2</sup>, C Logie<sup>1,3</sup>, Y Wang<sup>3</sup>, D Jaworsky<sup>4,5</sup>, L Kennedy<sup>1</sup>, A Kaida<sup>6</sup>, A de Pokomandy<sup>7,8</sup>, W Tharao<sup>9</sup>, K Proulx-Boucher<sup>8</sup>, K Webster<sup>10</sup>, B Hogg<sup>6,11</sup>, M Loutfy<sup>1,12</sup>, on behalf of the CHIWOS Research Team.

Poster No. 71

1. Women's College Hospital, Women's College Research Institute; 2. Queen's University, Faculty of Education; 3. University of Toronto, Factor-Inwentash Faculty of Social Work; 4. University of Toronto, Institute of Health Policy, Management & Evaluation; 5. University of British Columbia, Department of Medicine; 6. Simon Fraser University, Faculty of Health Sciences; 7. McGill University, Family Medicine; 8. McGill University Health Centre; 9. Women's Health in Women's Hands CHC; 10. Canada's source for HIV and hepatitis C information (CATIE); 11. British Columbia Centre for Excellence in HIV/AIDS; 12. University of Toronto, Faculty of Medicine

## BACKGROUND

Given a higher susceptibility to HIV infection due to structural and behavioural factors that augment transmission risk, young women are a uniquely vulnerable age cohort in the context of HIV prevalence and resiliency. Research has shown that young HIV-positive women also suffer from significant stigmatization and barriers to service access. Given that late initiation of antiretroviral therapy (ART) can increase risk of treatment failure or death, these access barriers are particularly important. It is therefore essential to derive age-appropriate insights into life as a young woman living with HIV that can be tailored towards improving resilience, access to services, and improvement in health and wellbeing outcomes.

## METHODS

The **Canadian HIV Women's Sexual and Reproductive Health Cohort Study (CHIWOS)** is a prospective cohort study of women with HIV  $\geq 16$  years of age in British Columbia, Ontario and Quebec, Canada. Enrollment occurred between October 2013 and June 2015. The overall goal of the study is to assess the barriers and facilitators to women's HIV care.



In this study, descriptive analysis of socio-demographic variables (e.g. age, income) was presented as frequencies, means, and standard deviations (SD) for each variable. Multivariable logistic regression models were conducted to estimate the adjusted risk ratio and confidence intervals (CI) for current antiretroviral therapy (ART) use and virologic suppression with age as the primary exposure of interest. The hypothesis and field of inquiry of interest were that younger women (<30 years of age) have poorer ART uptake and lower rates of viral suppression than their older counterparts.

## RESULTS

Among 1425 women who were included in the analysis, 137 were <30 years old and had a mean age of 24.4 years (SD=3.4). The 1288 older women ( $\geq 30$  years) had a mean age of 44.8 years (SD=9.1). Bivariate analysis demonstrated significant differences between younger women and older women in immigration status, relationship status, personal income and number of financial dependents (Table 1).

**Table 1: Demographic information and bivariate analysis between younger women (<30 years) and older women ( $\geq 30$  years)**

Variables	Total (n=1425) n (%)	Younger Women (n=137) n (%)	Older Women (n=1288) n (%)	p-value
Immigration status	n=1418	n=136	n=1284	0.008
Canadian citizen	1155 (81.45)	106 (77.94)	1049 (81.70)	
Landed immigrant or permanent resident	168 (11.85)	14 (10.37)	154 (11.99)	
Refugee, protected person, refugee claimant or persons in need of protection	63 (4.44)	7 (2.96)	56 (4.36)	
Here with Temporary Work Papers/humanitarian and compassionate approval/visitor/student visa/illegal	34 (2.39)	9 (6.62)	25 (1.95)	
Personal gross yearly income	n=1390	n=130	n=1260	0.019
Less than \$20,000	1001 (72.01)	96 (73.85)	905 (71.83)	
\$20,000-\$40,000	244 (17.05)	29 (22.31)	215 (17.06)	
Greater than \$40,000	145 (10.43)	5 (3.85)	140 (11.11)	
Marital status	n=1417	n=136	n=1286	<0.001
Legally married, common law, in a relationship, or not living together	456 (32.04)	12 (8.82)	400 (31.10)	
Single	689 (48.62)	79 (58.09)	610 (47.43)	
Separated, divorced or widowed	272 (19.11)	1 (0.74)	271 (21.07)	
Number of dependents*	0 (0-1), n=1420	0 (0-1), n=134	0 (0-2), n=1286	<0.001
Ever taken ART	1248 (87.76), n=1422	102 (75.56), n=135	1146 (89.04), n=1287	<0.001
Currently taking ART	1178 (83.07), n=1418	93 (70.45), n=132	1085 (84.37), n=1286	<0.001
Viral load response: undetectable	1100 (84.36), n=1304	84 (71.79), n=117	1016 (85.59), n=1187	<0.001
Hepatitis C	452 (31.88), n=1418	21 (15.33), n=137	431 (33.65), n=1281	<0.001
Hepatitis B	120 (8.52), n=1408	4 (3.33), n=120	132 (10.25), n=1288	0.014
Access to HIV care	1313 (93.45), n=1405	114 (85.07), n=134	1199 (91.32), n=1271	<0.001

\*n (interquartile range)  
ART, antiretroviral therapy

## RESULTS CONTINUED

Multivariable logistic regression revealed that younger women were 1.79 times (95% CI:1.15-2.78) less likely to be currently on ART than older women adjusting for socio-demographic factors (immigrant status, ethnicity background, relationship status and personal income). In addition, younger women were 2.09 times (95% CI: 1.31-3.34) more likely to have detectable viral load than older women adjusting for socio-demographic factors (immigrant status, ethnicity background, relationship status and personal income). See **Table 2**.

**Table 2: Multivariable logistic regression on factors associated with current ART status and having a detectable viral load**

Variables	ART Status (n=1371)		Detectable Viral load (n=1266)	
	Unadjusted Odds Ratio (95% CI)*	Adjusted Odds Ratio (95% CI)*	Unadjusted Odds Ratio (95% CI)*	Adjusted Odds Ratio (95% CI)*
Younger age (<30 years)	0.44 (0.30-0.66)***	0.56 (0.36-0.87)*	2.33 (1.51-3.60)***	2.09 (1.31-3.34)**
Ethnicity				
Caucasian		reference		
Indigenous	0.57 (0.41-0.79)**	0.61 (0.43-0.86)**	1.73 (1.21-2.46)**	1.54 (1.06-2.22)*
Black	1.87 (1.27-2.75)**	1.44 (0.89-2.34)	0.40 (0.26- 0.62)***	0.52 (0.30-0.89)*
Other	1.46 (0.79-2.71)	1.20 (0.64-2.26)	0.94 (0.52-1.70)	1.05 (0.57-1.94)
Immigration status				
Canadian citizen		reference		
Landed immigrant or permanent resident	3.62 (1.88-6.98)***	1.94 (0.93-4.07)	0.38 (0.20-0.69)**	0.74 (0.37-1.51)
Refugee, protected person, refugee claimant, or person in need of protection	1.83 (0.82-4.08)	1.31 (0.51-3.56)	0.26 (0.08-0.82)*	0.45 (0.13-1.57)
Here with temporary work papers, humanitarian and compassionate approval, visitor, student visa or illegal	0.88 (0.38-2.06)	0.49 (0.19-1.29)	0.50 (0.15-1.66)	0.95 (0.26-3.53)
Personal gross yearly income				
Less than \$20,000		reference		
\$20,000-\$40,000	1.07 (0.73-1.56)	0.99 (0.66-1.50)	0.64 (0.41-0.99)*	0.69 (0.43-1.09)
Greater than \$40,000	0.83 (0.53-1.29)	0.71 (0.45-1.13)	0.58 (0.33-1.01)	0.63 (0.36-1.13)
Marital status				
Legally married, common-law, in a relationship or not living together		reference		
Single	1.00 (0.74-1.35)	1.07 (0.78-1.45)	1.04 (0.75-1.44)	0.94 (0.67-1.32)
Separated, divorced or widowed	4.20 (2.38-7.43)***	3.44 (1.89-6.26)***	0.40 (0.24-0.67)***	0.52 (0.31-0.90)*

CI, confidence interval; ART, antiretroviral therapy  
\* P<0.05, \*\* p<0.01, \*\*\*p<0.001

## CONCLUSIONS

In this cohort of HIV-positive women, younger women were less likely to have had ART and be currently using ART compared to older women. Moreover, analysis suggests that younger women present with higher rates of detectable viral loads when compared to older women.

Suboptimal adherence to ART may play a significant role and as such, younger women's ability to adhere to therapy needs to be carefully considered. Factors such as substance use, violence and abuse, stigma and discrimination, mental health, and resilience need to be considered when studying ART adherence in younger women. Appropriate support is essential to reduce potential barriers to adherence and maximize the success in achieving sustained viral suppression in this cohort. Adequate care is required to serve both the medical and psychosocial needs of younger women living with HIV and help reduce the numerous barriers to adherence that many younger women may be facing. The unique challenges and factors associated with adherence behaviour, including access barriers and support services, may be a fruitful avenue for future research into young women living with HIV.

**Acknowledgments** We gratefully acknowledge everyone involved for their invaluable contributions to the study. Thank you to all the women living with HIV involved in this study; the PIs, Coordinators, Peer Research Associates, and all the Co-investigators and Collaborators; the Steering Committee, Community Advisory Boards, and Aboriginal Advisory Board; Our funders: CIHR Institute of Gender and Health, the CTN, and OHTN; Our affiliated studies: CANOC, REACH & OCS; and all of our partners for supporting the study!



Logan Kennedy (Ontario)  
logan.kennedy@wchospital.ca  
Rebecca Gormley (British Columbia)  
rgormley@cfnenet.ubc.ca

Karène Proulx Boucher (Québec)  
chiwos.quebec@gmail.com