Gender inequities in IAS-USA clinical care outcomes among HIV-positive individuals initiating antiretroviral treatment in British Columbia, Canada

A.J. Carter[1,2], J.E. Min[2], W. Chau[2], V.D. Lima[2,4], N. Pick[3,4], M. Kestler[3,4], J.S.G. Montaner[2,3], R.S. Hogg[1,2], A. Kaida[1]

(1) Simon Fraser University, Faculty of Health Sciences, Burnaby, BC, Canada; (2) British Columbia Centre for Excellence in HIV/AIDS, Vancouver, BC, Canada; (3) Oak Tree Clinic, BC Women's Hospital and Health Centre, Vancouver, BC, Canada; (4) University of British Columbia, Division of AIDS, Vancouver, BC, Canada

IAS 2013

Background

Compliance with IAS-USA clinical care guidelines during the first year after initiation of HAART is a key predictor of health and survival. In a 2012 study involving a newly validated metric, called the Programmatic Compliance Score (PCS), non-compliance with 6 'Quality of Care' (QOC) indicators was shown to be associated with a very high probability of morbidity and mortality.§

The proportion of women living with HIV has been increasing in Canada and globally. Further, women differ from men in several aspects of HIV clinical care. However, it remains unclear if gender differences also exist in this newly validated QOC metric and if there are gender-specific reasons for differential receipt of recommended care.

Therefore, the **primary objective** of this investigation was to measure gender differences in QOC and to investigate patient- and system-level factors associated with poorer QOC among women within a cohort of HIV-positive individuals initiating HAART in British Columbia, Canada.

Methods

Study Population:
We used data from a population-based registry of all patients (≥ 19 years) who initiated HAART between 2000-2010 in British Columbia, Canada.

Primary Outcome:
The primary outcome was QOC, estimated using the PCS metric, which includes six indicators of non-compliance with IAS-USA guidelines during the first year on HAART: **(1)** No resistance testing before treatment initiation; **(2)** Starting on a non-recommended regimen (according to contemporary guidelines); **(3)** Initiating ART at CD4 < 200 cells/mm3; **(4)** Receiving < 3 CD4 tests; **(5)** Receiving < 3 viral loads (VL); and **(6)** Not achieving viral suppression within six months. Summary scores range from 0-6. Higher scores indicate poorer QOC, and poorer QOC is predictive of worse health outcomes, as shown below.

PCS Summary Score		In Mortality Analysis§: OR (95% CI)
4 or more	Poorer QOC	22.37 (10.46–47.84)
3		11.51 (5.28–25.08)
2		7.97 (3.70–17.18)
1		3.81 (1.73–8.42)
0		1

§ Lima VD, Le A, Nosyk B, Barrios R, Yip B, Hogg RS, et al. Development and Validation of a Composite Programmatic Assessment Tool for HIV Therapy. PLOS ONE. 2012;7(11):e47859.

Statistical Analysis:
Multivariable ordinal logistic regression was used to measure: **(1)** If female gender was an independent predictor of poorer QOC (higher PCS scores)**;** and **(2)** Factors associated with poorer QOC (higher PCS scores) among women.

Results

Table 1: Baseline characteristics by gender

	Women (n=787)	Men (n=3088)	p-value
Patient-level characteristics:			
Age, median (IQR)	36 (30-45)	43 (36-49)	**<0.001**
Aboriginal ancestry, n (%)	202 (26)	270 (9)	**<0.001**
History of IDU, n (%)	449 (64)	1022 (42)	**<0.001**
System-level characteristics:			
Prescriber experience (HIV patient caseload), median (IQR)	90 (16-198)	104 (23-260)	**<0.001**
Place of residence, n (%)			
Fraser	202 (26)	611 (20)	**<0.001**
Interior + Northern	125 (16)	261 (8)	
Vancouver Island	110 (14)	334 (11)	
Vancouver Coastal	345 (44)	1874 (61)	
Year ART was initiated, n (%)			
2000-2003	252 (32)	936 (30)	0.431
2004-2007	289 (37)	1115 (36)	
2008-2010	246 (31)	1037 (34)	

In baseline comparisons with men (**Table 1**), women more likely to be younger, Aboriginal, and have a history of IDU. Gender differences also existed by prescriber experience and by place of residence.

Table 2: Non-compliance with guidelines by gender

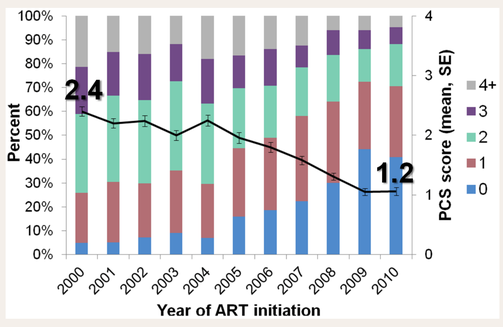
	Women (n=787)	Men (n=3088)	p-value
At Baseline:			
1. No resistance testing before treatment initiation	43%	36%	**<0.001**
2. Starting on a non-recommended regimen	17%	9%	**<0.001**
3. Initiating ART at CD4 less than 200 cells/mm^3	48%	50%	0.372
During first year of follow-up:			
4. Receiving less than 3 CD4 tests	35%	19%	**<0.001**
5. Receiving less than 3 viral loads	19%	15%	**0.002**
6. Not achieving viral suppression within 6 months	52%	44%	**<0.001**

Overall, QOC was better among men, who had a mean PCS score of 1.72 vs. 2.14 for women (p<0.001). Of note, only 11% of women had perfect compliance to the 6 recommended guidelines (vs. 21% of men), and 16% of women were non-compliant to ≥4 guidelines (vs. 12% of men). As shown in **Table 2**, gender differences existed on each quality indicator, except baseline CD4.

Figure 1: Temporal trends in PCS scores

(a) Among men:

Over time, the proportion of better scores (in blue) increased, and the mean score (the black line) decreased from 2.4 to 1.2 (p-value for trend: p<0.001).



(b) Among women:

Progress in quality of care was also found among women, albeit unequal. The mean score (the black line) decreased from 2.4 to 1.5 (p-value for trend: p<0.001).

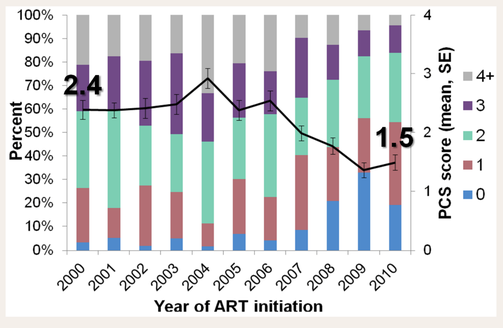


Table 3: Multivariable ordinal logistic regression:

	Unadjusted OR (95% CI)	Adjusted* OR (95% CI)	Adjusted p-value
Gender (female vs. male)	**1.64** (1.41-1.91)	**1.25** (1.06-1.46)	**0.006**

*Adjusted for: age, IDU, aboriginal ancestry, place of residence

In the adjusted model (**Table 3**), female gender (AOR=1.25 [95% CI:1.06-1.46]; p= 0.006) was significantly associated with poorer QOC (higher PSC scores), even after controlling for age, history of IDU, Aboriginal ancestry, and place of residence.

Results (continued)

Table 4: Estimated model-based probabilities of PCS scores among women (median)

	PCS=0	PCS=1	PCS=2	PCS=3	PCS≥4
Age					
<30	0.04	0.20	**0.31**	0.23	0.13
30-39	0.05	0.21	**0.32**	0.21	0.13
40-49	0.06	0.22	**0.31**	0.19	0.12
50+	0.10	**0.29**	**0.31**	0.15	0.08
Aboriginal ancestry					
No	0.09	**0.28**	**0.32**	0.15	0.07
Yes	0.04	0.17	**0.31**	0.23	0.22
History of IDU					
No	0.07	**0.33**	**0.35**	0.14	0.05
Yes	0.05	0.19	**0.31**	0.22	0.21
Year ART was initiated					
2000-2003	0.02	0.18	**0.34**	**0.26**	0.19
2004-2007	0.05	0.20	**0.31**	0.22	0.21
2008-2010	**0.24**	**0.24**	**0.30**	0.11	0.07
Place of residence					
Fraser	0.06	**0.28**	**0.32**	0.17	0.09
Interior + Northern	0.06	0.22	**0.31**	0.19	0.12
Vancouver Island	0.02	0.13	**0.30**	**0.25**	**0.25**
Vancouver Coastal	0.05	0.22	**0.31**	0.20	0.13

* High probabilities are in bold (arbitrary, >0.24).

Among women, those who were younger (less than 50 years old), had a history of IDU, of Aboriginal ancestry, from Vancouver Island, and who initiated HAART in earlier years (2000-2003) were more likely to have poorer QOC (higher PCS scores).

Conclusions

Significant inequities in IAS-USA clinical care outcomes exist by gender, independent of drug use and other patient- and system-level characteristics. This is evidence that women still face several barriers to high-quality care.

Potential barriers may include women's comparatively lower socio-economic status (e.g., income, education), stigma, violence, depression, competing responsibilities (e.g., childcare), and a lack of services for women.

There is an urgent need for more gender-focused services that address these barriers. By supporting access to care, women-centred care has the potential to improve clinical care and health outcomes for women with HIV.

This is currently being evaluated in this cohort in an ad hoc sub-analysis of women who accessed care at Oak Tree Clinic (vs. those who did not), the province's only women-centered care facility for HIV-positive women.

Further, additional evaluation studies on women-centred care will be conducted as part of the Canadian HIV Women's Sexual and Reproductive Health Cohort Study (CHIWOS), a new prospective cohort study of 1,250 HIV-positive women in Canada.

Oak Tree Website: www.bcwomens.ca/Services/HealthServices/OakTreeClinic/Services.htm
CHIWOS website: www.chiwos.ca / **CHIWOS twitter:** @CHIWOSresearch

Acknowledgements

We would like to thank the participants in the BC HIV/AIDS Drug Treatment Program and the physicians, nurses, social workers and volunteers who support them. The Drug Treatment Program is funded by the BC Ministry of Health (PharmaCare). For more information, please contact Allison Carter (allison_carter@sfu.ca).

BRITISH COLUMBIA CENTRE *for* EXCELLENCE *in* HIV/AIDS

Together we can stop HIV/AIDS

Providence HEALTH CARE
How you want to be treated.

UBC