Working together: Allies in researching gender and combination antiretroviral therapy treatment change

Claudette Cardinal[1], Carly Marshall[1], Alison R. McClean[1], Niloufar Aran[1], Katherine W. Kooij[1], Jason Trigg[1], Erin Ding[1], Kate Salters[1,2], Robert S. Hogg[1,2] on behalf of the CANOC Collaboration†

1. British Columbia Centre for Excellence in HIV/AIDS, Vancouver BC, Canada
2. Simon Fraser University, Burnaby BC, Canada[Affiliations

I have no conflicts to disclose

Correspondence: [ccardinal@bccfe.ca]

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Background

- Claudette, an Indigenous Elder, engaged with community and recognized peers experiencing similar adverse side effects.
- Research has shown gender-related differences in initiation of combination antiretroviral therapy (cART) and regimen changes.
- We aimed to compare women and transgender individuals to males and identify if they experienced differences in cART regimen changes.

Methods

- We used data from the Canadian HIV Observational Cohort (CANOC) including treatment-naïve individuals initiating cART between 2000-2016.
- Inclusion criteria: known gender and ≥18-months follow-up.
- cART regimen change was defined as any regimen change (excluding brand/generic changes). Treatment change artifacts were minimized by excluding regimen changes that lasted <30 days.
- Poisson regression models examined the incidence rate of cART changes, incidence rate ratio (IRR) was reported in women and transgender individuals compared to men, adjusting for era of cART initiation, third agent in cART, province, rurality, co-infection with Hepatitis C, baseline CD4 count, baseline viral load, viral suppression and rebound, and age at first cART initiation.
- Adjusted incidence rate ratio (aIRR) and 95% confidence intervals (CI) were reported.

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Results

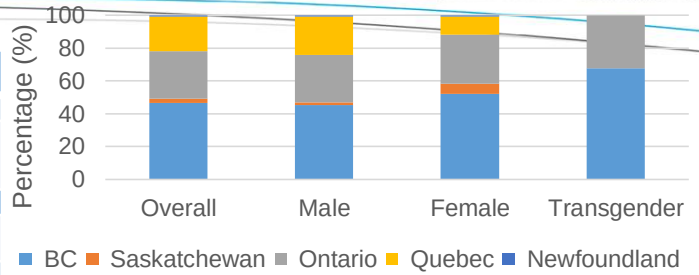
Province

Providence HEALTH CARE How you want to be treated.

BRITISH COLUMBIA Ministry of Health

Table 1. Demographic and baseline clinical characteristics by gender and overall

Variable	Overall (N=10,555) N (%) or median (Q1-Q3)	Male (N=8728) N (%) or median (Q1-Q3)	Female (N=1771) N (%) or median (Q1-Q3)	Transgender (N=56) N (%) or median (Q1-Q3)
Number of cART changes since initiation				
0 (No changes)	2878 (27.3)	2430 (27.8)	433 (24.4)	15 (26.8)
1	3088 (29.3)	2627 (30.1)	449 (25.4)	12 (21.4)
2	1987 (18.8)	1632 (18.7)	343 (19.4)	12 (21.4)
3	1237 (11.7)	993 (11.4)	237 (13.4)	7 (12.5)
>3	1365 (12.9)	1046 (9.9)	309 (2.9)	10 (0.1)
Age at first cART initiation (years)	40 (33.0-47.0)	40 (33.0-47.0)	36 (30.0-44.0)	37 (30.5-41.5)
Location participant resides in				
Urban	9447 (89.5)	7858 (90.0)	1538 (86.8)	51 (91.1)
Rural	544 (5.2)	444 (5.1)	96 (5.4)	<5
Unknown	564 (5.3)	426 (4.9)	137 (7.7)	<5
First line regimen categorized by third drug				
NNRTI	4475 (42.4)	3810 (43.7)	648 (36.6)	17 (30.4)
PI	4725 (45.8)	3728 (42.7)	970 (54.8)	27 (48.2)
IIN	928 (8.8)	822 (9.4)	100 (5.6)	6 (10.7)
Other	427 (4.1)	368 (4.2)	53 (3.0)	6 (10.7)
Ever coinfected with Hepatitis C				
Yes	2581 (24.5)	1857 (21.3)	703 (39.7)	20-25
No	7591 (71.9)	6602 (75.6)	956 (54.0)	33 (58.9)
Unknown	383 (3.6)	269 (3.1)	112 (6.3)	<5
Duration of time living with HIV (years)	9 (5.0-13.0)	9 (5.0-13.0)	8 (5.0-12.0)	7 (5.0-11.0)
Baseline VL (Log10 copies/mL)	4.9 (4.4-5.0)	4.9 (4.4-5.0)	4.6 (4.1-5.0)	4.9 (4.3-5.0)
Baseline CD4 (cells/mm³)				
< 200	4047 (38.3)	3282 (37.6)	734 (41.4)	31 (55.4)
>= 200	6508 (61.7)	5446 (62.4)	1037 (58.6)	25 (44.6)
Nadir CD4 (cells/mm³)	202 (90.0-320.0)	210 (100.0-329.0)	170 (70.0-282.0)	120 (30.0-265.0)



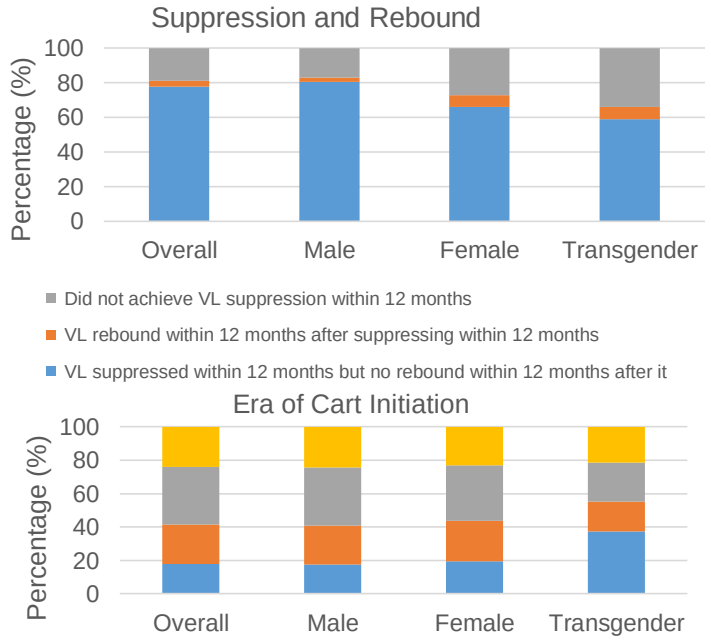


Table 2. Total and mean number of cART changes and rate of cART changes by gender.

	Overall	Men	Women	Transgender
N	10555	8728	1771	56
Total number of changes	17839	14270	3452	117
Mean number changes per participant	1.69	1.63	1.95	2.09
p value*	-	-	<0.0001	0.011
Person years (PY) of follow up	78807.91	65285.56	13087.29	435.06
Incidence Rate of change per PY	0.23	0.22	0.26	0.27
p value*	-	-	<0.0001	0.031

* P values comparing women and transgender to men were calculated by Poisson regression methods

Table 3. Univariable and multivariable cART regimen changes using Poisson regression.

	IRR	95% CI	
Univariable			
Male [ref]	1.00		
Female	1.21	1.16	1.25
Transgender	1.23	1.03	1.48
Multivariable			
Male [ref]	1.00		
Female	1.13	1.08	1.18
Transgender	1.08	0.89	1.3

IRR incidence rate ratio; CI confidence interval
Multivariable adjusted for province, urban versus rural, era of initiation, first line regimen categorized by third drug, Hepatitis C coinfection, baseline CD4 and viral load, viral suppression and rebound

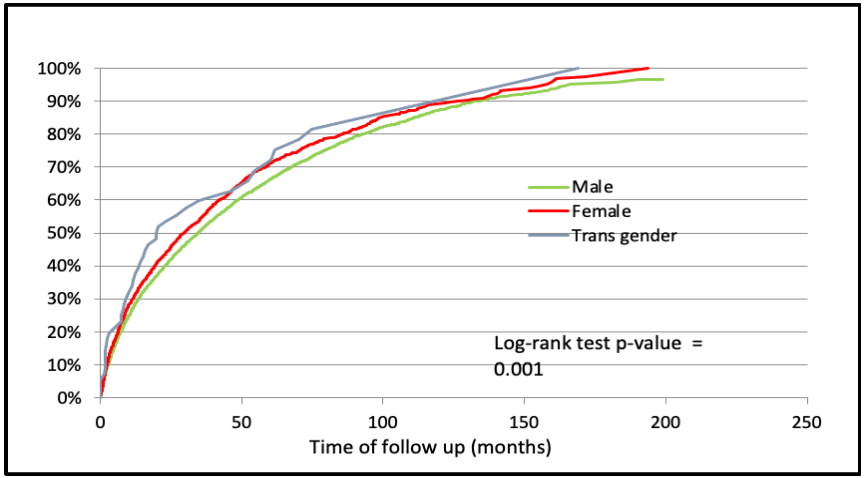


Figure 1. Probability of cART regimen changes by gender. Kaplan Meier curve of time to first combined antiretroviral therapy (cART) regimen change by gender.

Discussion

- Our findings corroborated Claudette's experience and suggest that women and transgender individuals experience a significantly higher rate of cART treatment changes and are more likely to experience cART treatment change compared to men in Canada
- A possible explanation for our results could be that women may experience more frequent or severe adverse reactions to cART, or that women and transgender individuals are less likely to achieve viral suppression, prompting a physician suggested cART regimen change.
- Working with CANOC data, Claudette developed her research question, identified the important components of the work she does, and shared her work in multiple ways that ensured her findings are shared with the community in a way that is meaningful to her.
- Our findings demonstrate the importance of recognizing all ways of knowing. Awareness, connectedness, and growth gave us the strength to create this work of research. Empowering the community and honouring the 'nothing about us without us' approach created an amazing collaborative environment which unified our team.

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