

Considerable gaps in life expectancy among HIV-positive individuals initiating HAART in British Columbia, Canada



R.S. Hogg^{1,2}, K. Chan¹, A. Cescon¹, H. Samji¹, B. Yip¹, G. Colley¹, V.D. Lima^{1,3}, J.S.G. Montaner^{1,3}

¹BC Centre for Excellence in HIV/AIDS, Vancouver, Canada; ²Simon Fraser University, Faculty of Health Sciences, Burnaby, Canada; ³University of British Columbia, Vancouver, Canada

Background

- HAART has increased life expectancy among HIV-positive individuals.
 - However, as life expectancy has increased over time, inequities have emerged.
- The aim of this study is to characterize these inequities in life expectancy for people on HAART in British Columbia (BC) and to compare these against values for the Canadian population as a whole.

Methods

- Our analyses included HIV-positive persons who had initiated HAART in BC since 2000 and Statistics Canada estimates of survival between the 1991 and 2006 censuses.
- Abridged life tables were used to estimate life expectancy at age 25 years, to be comparable to inter-censal estimates.
- We defined **life expectancy as the average number of additional years that a person of age 25 will live**, if current age-specific mortality rates remain constant.
- For those on HAART, mortality rates were calculated using participants' person-time until death, loss to follow-up, or administrative censoring.
- Multivariate survival analysis was used to determine covariates of survival among persons initiating HAART.

Results

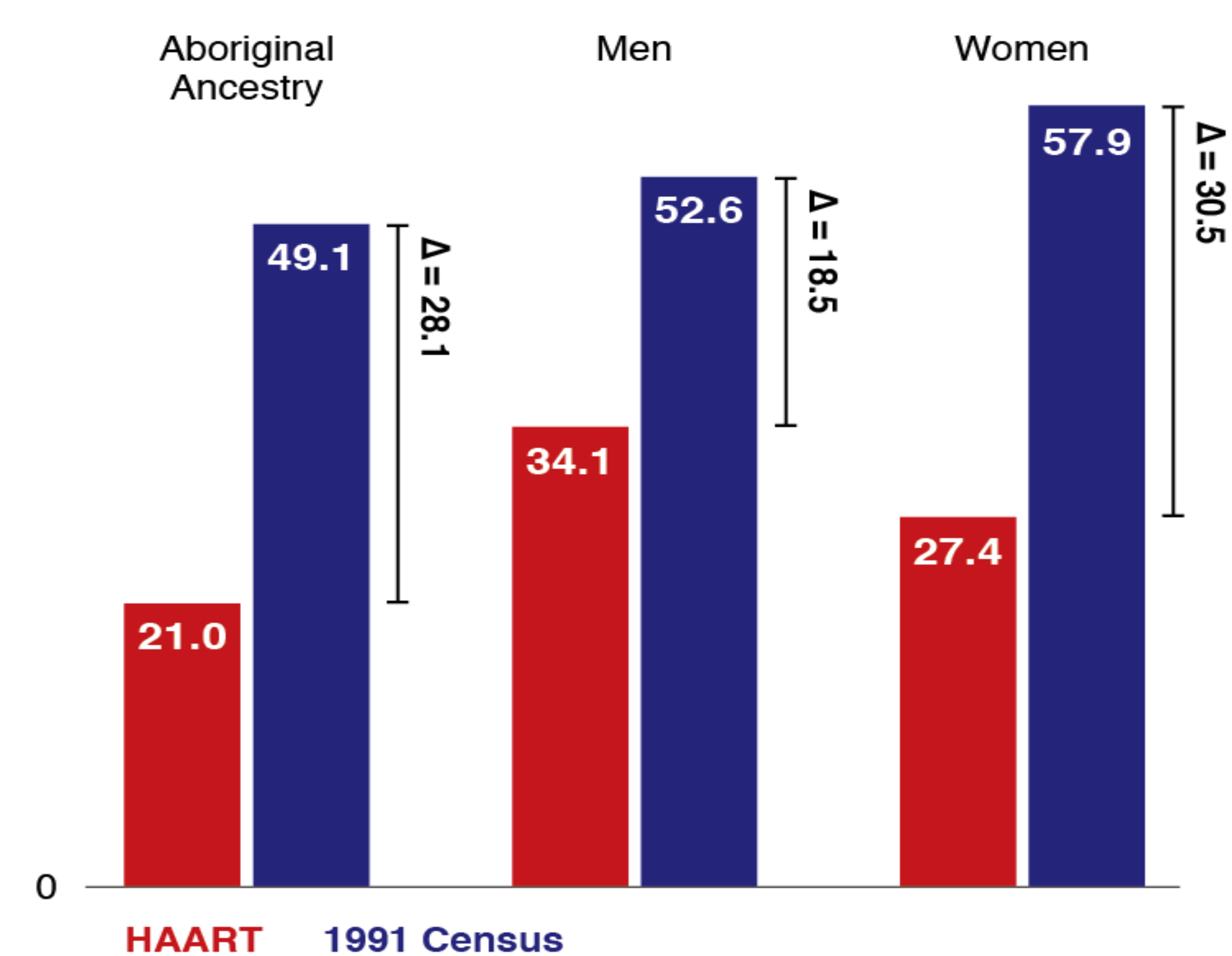
- Since 2000, 3,890 people in BC have initiated HAART.
 - Of these, 3,122 (80%) are males, 1,477 (38%) have a history of injection drug use, and 484 (12%) are of Aboriginal ancestry.
- Those who initiated HAART at a younger age, in 2008-2011, and at baseline CD4 counts above 350 cells/mm³ had increased survival, while those diagnosed with AIDS at HAART initiation, were HCV-positive, and who were of Aboriginal ancestry had poorer survival (**Table 1**).
- Life expectancy at age 25 years for Aboriginal persons on HAART compared to all Aboriginal persons in Canada was an additional 21.0 versus 49.1 years (**Figure 1**).
- The general population of Canadian men and women also live considerably longer than men and women on HAART (52.6 versus 34.1 years for men and 57.9 versus 27.4 years for women) (**Figure 1**).
- These differences were reduced when you restricted to those who were not Aboriginal or started HAART in 2008-2011.

Table 1: Multivariable survival model

Variable	Unadjusted Hazard Ratio (95% CI)	p-value	Adjusted Hazard Ratio (95% CI)	p-value
Age (per decade)	1.31 (1.19-1.43)	<0.001	1.38 (1.25-1.53)	<0.001
Sex (male vs. female)	0.81 (0.64-1.03)	0.081		
HAART era				
2000-2003	1.00		1.00	
2004-2007	0.74 (0.59-0.92)	0.007	0.67 (0.54-0.84)	<0.001
2008-2011	0.40 (0.30-0.54)	<0.001	0.38 (0.29-0.52)	<0.001
CD4 >350 cells/mm ³	0.31 (0.20-0.49)	<0.001	0.45 (0.28-0.71)	<0.001
Log ₁₀ viral load	1.81 (1.41-2.33)	<0.001	1.50 (1.18-1.91)	0.001
Baseline ADI	2.04 (1.63-2.56)	<0.001	2.17 (1.72-2.75)	<0.001
Baseline 3rd ARV class				
Single PI	1.00			
NNRTI	1.13 (0.68-1.86)	0.641		
Boosted PI	1.25 (0.76-2.06)	0.372		
Aboriginal ancestry				
No	1.00		1.00	
Yes	3.58 (2.58-4.97)	<0.001	3.52 (2.51-4.94)	<0.001
Unknown	2.94 (2.24-3.85)	<0.001	3.67 (2.78-4.86)	<0.001
HIV transmission group				
MSM	1.00			
History of IDU	3.92 (2.54-6.04)	<0.001		
Other	1.48 (0.78-2.80)	0.229		
Unknown	4.00 (2.58-6.19)	<0.001		
Hepatitis C				
Negative	1.00		1.00	
Positive	2.86 (2.25-3.64)	<0.001	2.75 (2.14-3.53)	<0.001
Unknown	5.75 (4.26-7.76)	<0.001	5.03 (3.71-6.83)	<0.001

Note: CI, confidence interval; ADI, AIDS-defining illness; PI, protease inhibitor; MSM, men who have sex with men; IDU, injection drug use

Figure 1: Life expectancy at 25 years



Limitations & Conclusions

- Limitations:** Canadian census sample does not cover the same period as the BC HAART sample; deaths occurring outside BC in the HAART sample or outside Canada in the census survival sample were not included
- In conclusion, considerable gaps in life expectancy still exist in Canada, especially among women and persons of Aboriginal ancestry.

