Suicide Mortality Declines among HAART Initiators from 1996 – 2012

R.S Hogg [1,4], J.Gurm[1], E.Ding[1], V.Strehlau[1,3], J.S.G Montaner[1,2], S.Guillemi[1]

[1] British Columbia Centre for Excellence in HIV/AIDS, [2] University of British Columbia, Faculty of Medicine , [3]University of British Columbia, Department of Psychiatry , [4] Simon Fraser University, Faculty of Health Sciences

Background

Chronic illness, and HIV in particular, has long been associated with markedly elevated rates of suicide. We sought to assess longitudinal changes in suicide mortality among people living with HIV/AIDS (PLHIV) across the HAART era and elucidate the social, clinical and behavioral factors associated with suicide that are experienced by PLHIV who initiate HAART in British Columbia (BC), Canada.

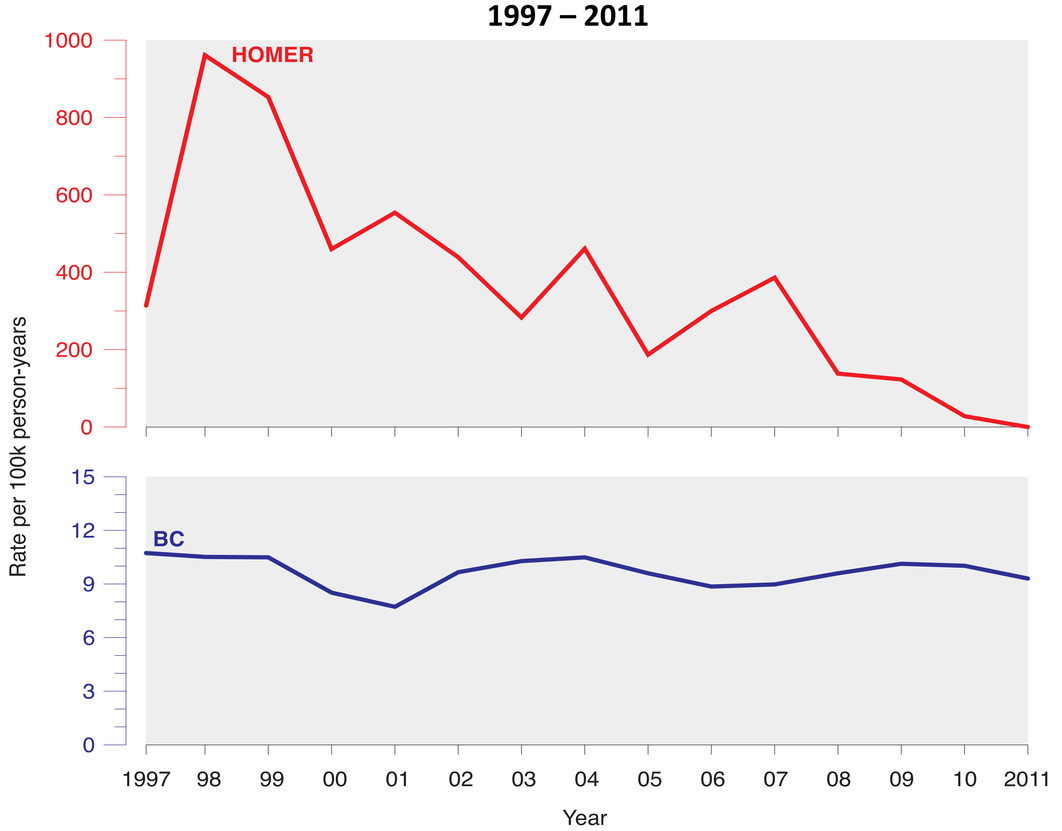
Methods

- Retrospective analysis of all treatment naive individuals who initiated treatment in the HAART Observational Medical Evaluation & Research Cohort (HOMER) in BC from August 1996 to June 2012
- All treatment naïve individuals over the age of 19 who initiated HAART during the study period were eligible for inclusion
- Clinical and socio-demographic data were obtained through a linkage with the Drug Treatment Program at the BC Centre for Excellence in HIV/AIDS
- Mortality data were obtained through a linkage with the BC Vital Statistics Registry
- Logistic regression and Cox Proportional Hazards models were utilized to identify factors independently associated with suicide

Results

- 993 deaths among 5,229 treatment initiators occurred, of which 82 (8.2%) were suicides
- Figure 1 highlights the decline in suicide from a peak of 961 deaths per 100,000 PYS in 1998 – a rate 91-fold greater than the general population to 3-fold greater at a rate of 2.81 deaths per 100,000 PYS in 2010 (no suicides were reported in HOMER in 2011)
- Injection drug use, never having an ADI or higher last CD4 were identified as factors associated with an increased likelihood of suicide in the logistic regression model (Table 1)
- Death at an older age, or in a later calendar year were associated with a decreased likelihood of suicide (Table 1)
- Cox results from Table 2 highlight injection drug use or never having had an AIDS defining illness (ADI) as factors associated with increased suicide. This model also show a 51% reduction in the suicide rate per calendar year increase into the HAART era (Table 2)
- No correlation between suicide and any HAART regimen in particular, or Efavirenz (EFV) in specific was detected

Figure 1: Suicide Mortality Rate for the BC General Population and HOMER Cohort, 1997 – 2011



*Calculations were restricted to 1997 – 2011 to allow for full-year comparisons between the BC general population and HOMER cohort. .

Table 1: Logistic Regression results of factors associated with suicide among participants who committed suicide or died of all other causes

	Univariate n=993 OR (95% CI)	p-value	Multivariate N=993 OR (95% CI)	p-value
AIDS Defining Illness (ever)		<0.001		<0.001
Yes	1.00 (--)		1.00 (--)	
No	9.39 (3.40, 25.88)		6.63 (2.34, 18.83)	
Injection Drug Use (ever)		0.134		0.023
No	1.00 (--)		1.00 (--)	
Yes	2.02 (1.02, 4.14)		1.92 (0.87, 4.28)	
Unknown	1.84 (0.86, 3.92)		0.89 (0.37, 2.14)	
Age at death (years) [a]	0.96 (0.93, 0.98)	<0.001	0.96 (0.94, 0.99)	0.006
Calendar year of death [a]	0.87 (0.82, 0.92)	<0.001	0.85 (0.79, 0.91)	<0.001
Nadir CD4 (cells/mm^3) [a]	1.71 (1.47, 1.99)	<0.001	1.23 (0.97, 1.56)	0.093
Last CD4 (cells/mm^3) [a]	1.24 (1.15, 1.34)	<0.001	1.21 (1.06, 1.38)	0.004

a. Continuous variables are evaluated in the direction of per unit increase

Table 2: Cox Proportional Hazards model showing factors associated with suicide among participants who remained alive or committed suicide

	Univariate n=4318 HR (95% CI)	p-value	Multivariate N=4318 HR (95% CI)	p-value
AIDS Defining Illness (Ever)		0.002		0.004
Yes	1.00 (--)		1.00 (--)	
No	4.90 (1.79, 13.39)		4.45 (1.62, 12.25)	
Injection Drug Use (Ever)		<0.001		<0.001
No	1.00 (--)		1.00(--)	
Yes	5.86(2.96, 11.60)		3.95(1.99, 7.86)	
Unknown	9.13(4.38, 19.03)		2.59(1.21, 5.56)	
Adherence in the most recent year		<0.001	---------	
<95%	1.00 (--)		---------	
≥ 95%	0.16(0.10, 0.27)		---------	
Age at death (years) [a,b]	0.93(0.90, 0.95)	<0.001	---------	
Calendar year of death [a]	0.49(0.44, 0.53)	<0.001	0.49(0.45, 0.54)	<0.001
Most recent CD4 (cells/mm^3) [a,b]	0.77(0.70, 0.85)	<0.001	---------	
Most recent Viral Load (log 10 cells/mL) [a,b]	3.14(2.54, 3.87)	<0.001	---------	
EFV prescribed in most recent regimen [b]		0.005		
No	1.00 (--)		---------	
Yes	3.01 (1.37, 6.54)			

a. Continuous variables are evaluated in the direction of per unit increase
b. Variable not selected by exploratory model selection for inclusion in final multivariate model

Discussion

The advent of modern HAART has transformed HIV from a terminal illness to a chronic, manageable condition, likely contributing to reduced suicide mortality in this group over time. Despite this trend, suicide remains significant concern among PLHIV. Our findings suggest that socio-behavioral factors, such as injection drug use may be important targets for suicide-risk reduction interventions.

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

UBC

Providence HEALTH CARE
How you want to be treated.