

Decreasing community viral load (VL) among HIV-positive men who have sex with men (MSM) in British Columbia (BC): 2003-2014

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Background

- MSM are the risk group most affected by HIV in BC
- Since 2010, BC has formally adopted a program of expanded HIV testing, linkage to care and treatment
- We examined determinants and trends in the proportion of HIV-positive MSM with unsuppressed VL over 10 years in BC.

Methods

- We conducted a retrospective analysis including all HIV-positive MSM from April 2003 to March 2014 identified in the provincial STOP HIV database.
- This database includes: positive HIV test results, antiretroviral therapy (ART) dispensing information, VL and CD4 cell counts, physician billing data, hospital discharge abstracts and vital statistics linkages.
- For each year, individuals were classified as having an **unsuppressed VL** if they: 1) were newly diagnosed; 2) had any VL ≥ 200 copies/mL measure; or 3) did not have a VL measure (and last VL was ≥ 200 copies/mL).
- We examined demographic and clinical factors associated with unsuppressed VL using generalized estimating equations to build a multivariable logistic regression model.

Results

- Of 3648 MSM included in the analysis, 63% resided in Vancouver and 72% were Caucasian.
- The number of MSM living with HIV identifiable in the STOP Database increased from **2011** in 2003 to **3084** in 2013
- The proportion of those with **unsuppressed VL** decreased from 71% in 2003 to 25% in 2013 (OR=0.77 per year, 95%CI: 0.76-0.78). (**Figure 1**)
- In the final multivariate model (Table 1), having an **unsuppressed VL** was associated with:
 - Younger age** at diagnosis (aOR=0.94 per 10 year increase; 95% CI 0.90-0.99),
 - Asian ethnicity** (aOR=1.29; 95% CI 1.04 – 1.61) in comparison to Caucasian
 - History of **injection drug use (IDU)** (aOR=1.51; 95% CI 1.34-1.71)
 - Having a **previous negative HIV test** (aOR=1.53; 95% CI 1.38-1.70)
 - Suboptimal ART adherence** (aOR=10.29; 95% CI 9.35-11.33) **or not being on ART** (aOR=130.66; 95% CI 114-150) compared with optimal adherence.
- We found no variation by health authority.

Conclusions

- Across BC, the proportion of HIV-positive MSM with unsuppressed VL has fallen as the proportion on those receiving ART has increased.
- Younger men and those with a history of IDU may require additional support to engage and remain in treatment.

Conflict of Interest Disclosure:
"I have no conflicts of interest"

Figure 1. Trends in community VL (proportion with VL ≥ 200 copies/mL) for HIV positive MSM in British Columbia

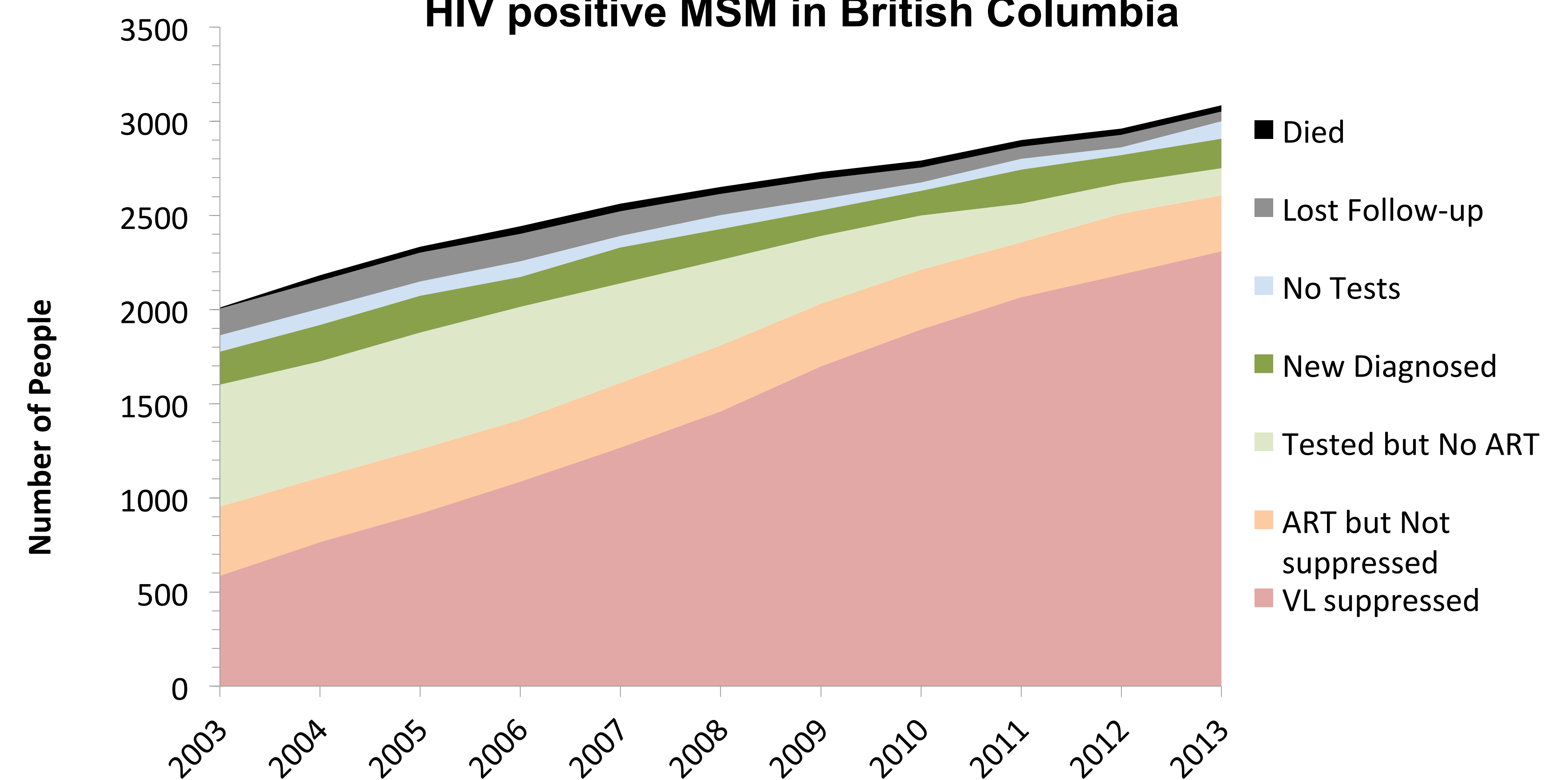


Table 1. Factors associated with unsuppressed VL among HIV positive MSM in BC

		Odds Ratio	95% Confidence Interval	Adjusted Odds Ratio	95% Confidence Interval
Sex at Birth	Male	Ref		Not selected	
	Other	1.52	0.91 - 2.56		
Ethnicity	Caucasian	Ref		Ref	
	First Nation	2.28	1.88 - 2.76	1.10	0.88 - 1.37
	Asian	1.28	1.03 - 1.59	1.29	1.04 - 1.61
	Hispanic	1.20	0.93 - 1.54	0.90	0.70 - 1.17
	Black	1.60	0.90 - 2.82	1.48	0.76 - 2.87
	Other	1.02	0.79 - 1.32	0.91	0.68 - 1.22
Health Authority	VCH: Vancouver	Ref		Not selected	
	VCH: Other than Vancouver	0.77	0.60 - 0.98		
	Fraser	1.03	0.89 - 1.19		
	Vancouver Island	0.98	0.81 - 1.18		
	Interior	0.90	0.65 - 1.24		
History of IDU	No	Ref		Ref	
	Yes	1.60	1.43 - 1.78	1.51	1.34 - 1.71
HCV Ab Positive ever	No	Ref		Not selected	
	Yes	1.32	1.19 - 1.47		
Previous negative HIV test	No	Ref		Ref	
	Yes	1.96	1.79 - 2.15	1.53	1.38 - 1.70
Adherence*	Optimal	Ref		Ref	
	Suboptimal	10.3	9.42 - 11.4	10.3	9.35 - 11.3
	Not on ARV	132	115 - 151	131	114 - 150
Age at Diagnosis	odds by per 10 units	0.88	0.86 - 0.90	0.94	0.90 - 0.99
CD4 cell count at baseline	odds by per 100 units	1.15	1.13 - 1.17	Not selected	

*optimal adherence = $\geq 95\%$; sub-optimal = $< 95\%$;
time-varying covariate calculated each year