Declines in HIV Incidence Among Gay, Bisexual, and Other MSM in Vancouver, Canada, 2012-19 to 2017-23

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BACKGROUND

- The Ministry of Health in British Columbia (BC), Canada, has provided dedicated funding to support expanded access to HIV testing and linkage to- and retention in HIV care since 2010 and publicly funded PrEP since 2018.
- We compared HIV incidence for gay, bisexual and other men who have sex with men (GBM) in metropolitan Vancouver over an 11-year period

METHODS

- Participants were sexually active GBM aged ≥16 years and were recruited through respondent driven sampling into two cohort studies: **Momentum I (M1; 2012-2019**) and **Momentum II (M2; 2017- 2023)**
- Participants completed a self-administered computer-based survey and tests for HIV and other sexually transmitted infections every 6 months
- For participants HIV negative at enrollment, we measured HIV incidence over four years of follow-up through data linkages with the BC HIV Drug Treatment Program (DTP)
- The DTP includes all people living with HIV in BC who have had a viral load measurement or have received publicly funded antiretrovirals for treatment or prevention
- We excluded participants from the M2 analysis who also participated in M1
- We calculated HIV incidence rates and rate ratios across time periods and used Poisson regression to identify risk factors for HIV infection, stratified by time period.

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HIV incidence declined by 62% for GBM in Metro Vancouver from 2012–17 to 2017-23, likely reflecting the combined effectiveness of Treatment as Prevention and fully publicly funded PrEP.

Risk factors for HIV incidence for GBM in the Momentum 1 and Momentum 2 studies in Vancouver, Canada

	Momentum 1 (2012-2019)				Momentum 2 (2017-2023)			
	IRR	95% CI		P-value	IRR	95% CI		P-value
Age at enrollment								
< 30 years	2.74	0.97	7.69	0.056	2.12	0.39	11.3	0.382
30 and over	ref				ref			
CAS with pos or unknown status partner in P6M								
Yes	**4.88**	**1.80**	**13.21**	**0.002**	**8.50**	**1.17**	**62.0**	**0.035**
No	ref				ref			
P6M sex work								
Yes	**4.27**	**1.26**	**14.50**	**0.020**	**5.53**	**1.02**	**30.0**	**0.048**
No	ref				ref			
Perceived risk of getting HIV								
Somewhat likely/likely/very likely	**5.31**	**1.97**	**14.30**	**0.001**	3.43	0.60	19.5	0.165
Very unlikely/unlikely	ref				ref			
P6M crystal meth use								
Yes	**4.08**	**1.48**	**11.26**	**0.007**	**6.79**	**1.28**	**36.1**	**0.025**
No	ref				ref			
P6M Number of male anal sex partners	**1.01**	**1.01**	**1.02**	**<0.001**	1.01	1.00	1.03	0.143
PrEP use in P6M with HIRI scores ≥ 10								
Yes					0.64	0.13	3.20	0.583
No	n/a				ref			

RESULTS

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- We recruited 774 participants in M1 and 753 in M2. Of these, 551 in M1 and 533 in M2 were HIV-negative at enrolment and included in the analysis
- HIV PrEP use was reported by a maximum of 6.3% of participants at any visit in M1 and increased from 16.4% from 2017 to 59.6% in 2023 for M2 participants.
- We identified **16 new HIV infections** in 2166.51 person-years (PYRs) of follow-up for an incidence rate **[IR] of 0.74 per 100 PYRs in M1**; and **6 new infections** in 2124.22 PYRs for an **IR of 0.28 per 100 PYRs in M2**
- The median time between the last study visit and identification of a new infection was 6 months in M1 ands 12 months in M2
- The **incidence Rate Ratio was 0.38; 95% CI 0.15 – 0.97**
- In M1, HIV incidence was associated with age <30 years (IRR 2.74;p=0.056), having condomless anal sex (CAS) with an HIV-positive or unknown serostatus partner (IRR=4.88;p=0.002); sex work in the past six months (P6M) (IRR=4.27;p=0.02); number of male sex partners in P6M (IRR=1.01; p<0.001) and crystal meth use in P6M (IRR=4.08;p=0.007).
- HIV incidence in M2 was associated with CAS with an HIV-positive or unknown serostatus partner (IRR=8.50;p=0.035), P6M sex work (IRR=5.53;p=0.048) and crystal meth use in P6M (IRR=6.79;p=0.025), but not age, or number of male sex partners in P6M.

CONCLUSIONS

- HIV incidence declined by 62% for GBM in Metro Vancouver over the study period, likely reflecting the combined effectiveness of Treatment as Prevention and publicly funded PrEP.
- Lack of demonstrated effectiveness of PrEP at an individual level likely reflects long periods between participants' last study visits and eventual appearance in the DTP database
- Crystal meth use, sex work and CAS with serodiscordant or unknown serostatus partners remain risk factors for HIV infection

ADDITIONAL KEY INFORMATION

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