

Hepatitis C sero-positivity prevalence and correlates among men who have sex with men in Vancouver, British Columbia

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Background / Objectives

Current evidence from cohort and phylogenetic studies in Europe demonstrates that Hepatitis C virus (HCV) can be sexually transmitted, particularly among HIV-positive men. The sexual transmission of HCV among men who have sex with men (MSM) in Vancouver is unknown.

We examined HCV antibody serology and self-reported risk behaviour among men who have sex with men (MSM) from a sero-prevalence survey conducted in Vancouver, Canada.

Methods

The ManCount Study is the Vancouver site for M-Track, a Canadian national enhanced HIV surveillance system that uses cross-sectional surveys to monitor HIV and other sexually transmitted or blood borne infections and associated risk behaviours. From August 2008 to February 2009, MSM aged ≥ 18 years were recruited using time-location sampling at venues that cater to MSM.

Participants self-administered a questionnaire and provided dried blood spot (DBS) samples for HCV and HIV testing. HCV Ab testing was performed using the Ortho® HCV version 3.0 EIA. A positive result indicates past or present HCV infection and does not discriminate acute from chronic or resolved infections. Validation of commercially available laboratory tests on DBS specimens for HCV is on-going.

Among participants who did not report a history of injection drug use (IDU) we compared socio-demographic characteristics and self-reported risk behaviour by DBS HCV sero-status using chi-squared, Fisher's exact test or analysis of variance. Among all participants, logistic regression analysis was used to determine factors independently associated with HCV sero-positivity. We report only statistically significant findings here.

Table 1: Comparison by DBS HCV sero-status of ManCount participants who did not report a history of IDU (N=919)

Variable	Values	Total	HCV Pos N (%)	HCV Neg N (%)	p-value
Ethnicity	North American	488	7 (64)	481 (53)	<0.001
	Aboriginal	26	4 (36)	22 (2)	
	Asian	66	0 (0)	66 (7)	
	European	211	0 (0)	211 (23)	
	Other/unspecified	128	0 (0)	128 (14)	
	Total (n)	919	11	908	
Sexual orientation	Gay	761	6 (54)	755 (84)	<0.001
	Bisexual	87	1 (9)	86 (10)	
	Straight	15	0 (0)	15 (2)	
	Two-spirit	23	3 (27)	20 (2)	
	Queer	17	1 (9)	16 (2)	
	Other	6	0 (0)	6 (1)	
Ever told by a health professional that you have/ had gonorrhea.	No	698	3 (33)	695 (80)	<0.001
	Yes	183	6 (67)	17 (20)	
Ever told by a health professional that you have/ had syphilis	No	824	6 (67)	818 (94)	<0.001
	Yes	52	3 (33)	49 (6)	
HIV sero-status by DBS	Positive	127	9 (82)	118 (13)	<0.001
	Negative	756	2 (18)	754 (83)	

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Results

1169 men completed questionnaires and 1132 (96.8%) had HCV antibody results. Of these 743 (65.6%) reported previously having tested for HCV.

A total of 58 (5.1%) were HCV sero-positive by DBS, 22% were aware of their HCV-positive sero-status. 36 of 58 (62%) were also HIV-positive by DBS.

11 of 58 (19%) HCV sero-positive individuals were non-IDUs. These individuals were older (median age 50 years vs. 32 years) than HCV sero-negative non-IDUs. Being HCV positive by DBS was also associated with being HIV positive (82% vs. 13%), reporting ever having gonorrhoea (67% vs. 21%) or syphilis (33% vs. 6%), reporting Aboriginal ethnicity (36 vs. 2%); and not self-identifying as gay (54% vs. 84%; $p < 0.001$ for all values). (See Table 1 for other differences.)

In the multivariate model (Table 2), HCV sero-positivity was associated with past or current non-steroid IDU (AOR = 34.9; 95% CI 12.6 - 96.9); exchanging sex for goods/drugs/money (AOR = 5.87; 95% CI 2.69 - 12.8); and sex with a woman in the last six months (AOR = 2.44; 1.02 - 5.87).

Table 2: Logistic regression analysis of factors associated with HCV sero-positivity among ManCount participants

Characteristic	Unadjusted Odd Ratios (95% Confidence Interval)	Adjusted Odd Ratios (95% Confidence Interval)
Greater than high school education		
Yes	1.00 (-)	
Other	3.32 (1.72, 6.41)	
Currently smoke cigarettes		
No	1.00 (-)	
Yes	6.96 (3.16, 15.35)	
Income		
Under \$30,000	1.00 (-)	
\$30,000 or more	0.33 (0.17, 0.65)	
Received money, drugs or goods in exchange for sex in past 6 months		
No	1.00 (-)	1.00 (-)
Yes	13.7 (6.90, 27.4)	5.87 (2.69, 12.8)
Ever injected drugs (excluding steroids)		
Never	1.00 (-)	1.00 (-)
Yes, not in past 6 months	28.4 (10.5, 76.7)	19.9 (7.10, 56.0)
Yes, in past 6 months	62.1 (23.4, 164)	34.9 (12.6, 96.9)
How often used non-injection "hard drugs" 2 hours prior to or during sex in past 6 months		
Never	1.00 (-)	
Less than half of the times	1.37 (0.56, 3.31)	
More the half the time	9.73 (4.50, 21.04)	
Had sex with a woman in past 6 months		
No	1.00 (-)	1.00 (-)
Yes	4.63 (2.29, 9.37)	2.44 (1.02, 5.87)

*Includes Ecstasy, MDMA, GHB, LSD, ketamine, or methamphetamine

Conclusions

HCV sero-positivity in this sample of MSM in Vancouver was approximately 5% and was most strongly associated with IDU. However, our data do support the hypothesis that sexual transmission of HCV is occurring among non-IDU MSM.

In contrast with HIV, the proportion of HCV-Ab positive participants who are aware of their HCV sero-status is low.

Our study is limited by the small number of HCV sero-positive individuals who did not report IDU, and because the risk factors examined may not reflect behaviours at the time HCV infection occurred.