

Elevated HCV Incidence among Youth, Women Co-infected with HIV/STIs and Sex Workers Who Use Crack Cocaine in Vancouver, Canada: Gaps And Opportunities for Prevention and Treatment

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Background

- Given the dearth of incidence data on hepatitis C virus (HCV) among female sex workers, the potential for dual sexual and drug risk pathways, and the opportunities posed by new HCV therapies in 2014, we aimed to characterize incidence and predictors of HCV infection among women sex workers (SWs) who use and do not use substances in Metropolitan Vancouver, BC.

Methods

- Data were drawn from a prospective community-based cohort (An Evaluation of Sex Workers' Health Access, January 2010 - August 2013)
 - Recruitment is conducted via time-location sampling
 - Interviewer, outreach, and nursing staff include experiential staff (sex workers) and individuals with sex work community support experience
 - AESHA is guided by a Community Advisory Board of >15 organizations
 - At baseline and semi-annually, participants complete questionnaires and voluntary HIV, STI and HCV testing by a project nurse with education and referrals to HIV, STI and HCV prevention, treatment and care.
- Cox regression was used to longitudinally model predictors of time to HCV seroconversion.

Results

HCV Prevalence

- Of 715 SWs included in the analysis, HCV prevalence was 43.6%, with higher odds of HCV infection among SWs who were older, of Aboriginal/Indigenous ancestry, were living with HIV, had a recent acute STI infection, had worked for longer, and who solicited clients outdoors (vs. indoor/online).

Table 1. Factors Independently Associated with Baseline HCV Incidence among sex workers in Metropolitan Vancouver, 2010-2013 (N=715)

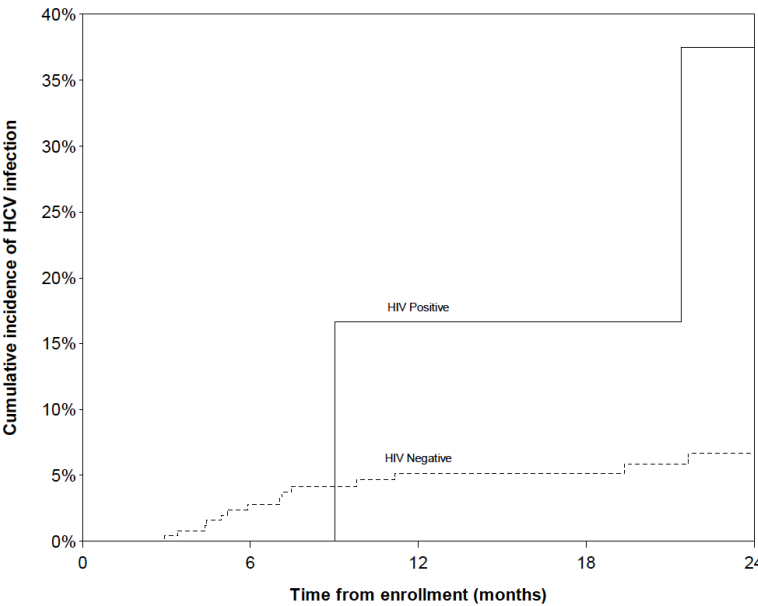
Variable	Adjusted Odds Ratio	95% Confidence Interval	
Age, in years	1.04	1.10	1.08
Aboriginal	2.63	1.58	4.39
HIV-positive	9.99	3.51	28.39
STI co-infection	3.10	1.41	6.78
Injection drug use (last 6 months)	20.17	11.84	34.37
Duration in sex work, in years	1.08	1.043	1.11
Public/outdoor solicitation (last 6 months)	2.53	1.51	4.26

HCV Incidence

- HCV incidence density and predictors of time to infection were calculated among 256 SWs who were HCV-seronegative at baseline and had at least one follow-up visit.
- During the 3.5-year observation period, the HCV incidence density was 4.28 events/100 person-years (95% CI: 2.73-6.72).

- HCV incidence density was highest among SWs living with HIV (18.60/100 PY) (Figure 1), and who inject drugs (24.05 events/100 person-years, 95% CI: 13.57-42.63) or use non-injection drugs (7.02 events/100 person-years, 95% CI: 4.39-11.21).

Figure 1. Cumulative HCV Incidence Stratified by HIV Status among SWs in Metropolitan Vancouver, 2010-13 (N=256)



- In a multivariable Cox model, age, STI co-infection, and non-injection crack use independently predicted faster time to HCV seroconversion.

Table 2. Factors Independently Associated with Time to HCV Seroconversion among sex workers in Metropolitan Vancouver, 2010-13 (N=256)

Variable	Hazard Ratio [95% CI]	P-value
Age	0.91 [0.83-0.99]	0.045
STI co-infection	3.44 [1.07-11.06]	0.037
Non-injection crack use (last 6 months)	4.24 [1.03-17.51]	0.046

Conclusions

- While HCV incidence density was highest among sex workers living with HIV and who inject drugs, STIs and non-injection stimulant crack use appear to be major pathways to new HCV infections, suggesting the potential for dual sexual and drug transmission of HCV.
- Younger women and those co-infected with HIV/STIs were found to face enhanced risk of HCV acquisition, highlighting the need for integration of HCV services within sexual health and HIV/STI programmes for youth, women and sex workers.

Acknowledgements

We thank all those who contributed their time and expertise to this project, including participants, partner agencies and the AESHA Community Advisory Board. This research was supported by operating grants from the US National Institutes of Health (R01DA028648) and Canadian Institutes of Health Research (HHP-98835). We have no conflicts of interest to declare.