

Per-Contact Infectivity Of Hepatitis C Virus Acquisition In Association With Receptive Needle Sharing Exposures In A Prospective Cohort Of Young Injection Drug Users

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Background:

Sharing needles and ancillary injection drug equipment are common risk exposures for hepatitis C virus (HCV) infection among people who inject drugs (PWID); however, infectivity of these exposures is not well quantified. Our goal was to estimate the per-contact infectivity of HCV associated with receptive needle sharing (RNS) among PWID.

Methods:

A probabilistic exposure model linking observed HCV infection outcomes to self-reported RNS exposure was applied to data from a prospective observational cohort study of 784 active PWID under age 30 who were interviewed and tested quarterly for HCV between 2003-2008 and 2010-2014. For each participant, data from the first HCV-negative through the first HCV-positive interview (or last HCV-negative interview for those who remained uninfected) was selected, returning 593 participants for the analysis.

Results:

A maximum likelihood estimate considering RNS yielded a per-contact probability of HCV infection ranging between 0.89% (95% confidence interval (CI): 0.20%, 2.27%) and 1.62% (95% CI: 0.44%, 8.14%) among different types of HCV susceptible groups.

Conclusion:

The strengths of this study include the assessment of *receptive* needle sharing contacts, and relatively short recall and testing periods. These results fill an important gap in information on HCV infectivity and can inform models and research on the impact of HCV prevention.

Conflict of Interest Disclosures: None reported by any authors.