

# ONE-YEAR INJECTING FREQUENCY TRAJECTORIES AS PREDICTORS OF HEPATITIS C ACQUISITION: FINDINGS FROM AN OBSERVATIONAL COHORT OF PWID IN MONTRÉAL, CANADA

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**Background:** Injecting frequency is a well-established risk factor for hepatitis C (HCV) infection, yet few studies have assessed frequency variations as predictors of HCV acquisition. This investigation aimed to identify one-year injecting frequency trajectories and examine their relation with subsequent HCV acquisition among people who inject drugs (PWID).

**Methods:** HCV-uninfected PWID enrolled in the HEPCO study from 2011-2016 were tested for HCV and completed an interviewer-administered questionnaire at three-month intervals. At each visit, participants were questioned on the number of injecting days for each of the past three months. Group-based trajectory modeling was performed to identify trajectories of injecting days over 12 months and estimate probabilities of group membership. Participants were assigned a trajectory using maximum posterior probabilities. HCV incidence and confidence intervals were estimated for all trajectory groups using Poisson distribution.

**Results:** For trajectory modelling, 386 participants contributed 3,725 observations over 12 months (mean age 40, 82% male, 52% anti-HCV+). Five trajectories were identified: sporadic (26%), infrequent (34%), increasing (15%), decreasing (11%), and frequent injecting (13%). For subsequent HCV incidence analyses, 263 participants with  $\geq$ one follow-up assessment following the 12-month period contributed 614.3 person-years of observation (mean age 41, 83% male, 54% anti-HCV+). Overall, HCV incidence was 5.2 per 100 person-years (95%CI 3.6-7.3). Participants were assigned to trajectory groups as follows: sporadic (n=66, 25%), infrequent (n=101, 38%), increasing (n=37, 14%), decreasing (n=27, 10%), and frequent injecting (n=32, 12%). HCV incidence per 100 person-years was 2.5 (95%CI 0.8-6.0) for sporadic, 3.5 (95%CI 1.7-6.5) for infrequent, 11.2 (95%CI 5.5-20.6) for increasing, 13.6 (95%CI 5.5-28.4) for decreasing, and 5.4 (95%CI 1.7-13.0) for frequent injecting.

**Conclusion:** Trajectories with varying injecting frequencies (increasing, decreasing) were more likely to predict HCV acquisition than stable trajectories, including frequent injecting. Injecting frequency trajectories could potentially help identify most-at-risk PWID, inform harm reduction interventions, and tailor clinical care.

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