

# FEMALE TO MALE RATIO OF HEPATITIS C VIRUS INCIDENCE; A SYSTEMATIC REVIEW AND META ANALYSIS

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**Introduction:** Among people who inject drugs (PWID) women report higher injection associated risks including sharing injecting equipment and syringes. Overall, the literature has not shown differences in HCV prevalence between women and men who inject drugs, however HIV incidence has been shown to be modestly higher in women who inject compared to men. We systematically reviewed the literature to examine the female to male (F:M) ratio of incident HCV infection and explore heterogeneity of findings in studies among PWID.

**Methods:** We searched PubMed and EMBASE up to March 2015, including cross-referencing citations. We included longitudinal studies as well as trials that reported incidence of HCV infection in both female and male PWID. We extracted / calculated the crude and adjusted F:M ratio within the studies. Using random effect model, we estimated the overall ratio and in subgroups of geographic locations, type of collecting data, and recruitment setting.

**Results:** Twenty-nine studies, which enrolled 50387 PWID, were included. On average, the HCV incidence rate was 21.5 (95%CI 15.2-30.3) and 16.1 (95%CI 11.5-22.4) in 100PY in female and males respectively. The overall F:M ratio was 1.3:1 (95%CI 1.2-1.6). The F:M ratio varies by geographic locations, from 4.0 (95%CI 1.8-8.9) in China to 1.17 (95%CI 0.9-1.4) in USA. In studies which recruited participants from community settings, the F:M ratio was 1.2 (95%CI 1.1-1.4), lower than that reported in the prison settings (1.5, 95%CI 1.1-1.9) and in the clinical settings (1.7, 95%CI 0.8-3.4).

**Conclusion:** HCV infection incidence is consistently higher among female PWID compared to male counterparts across different regions and study settings. These findings raise the questions and concerns regarding gender disparities with respect to risk of HCV and other infections. Both behavioral and biological studies are needed to investigate causes and potential mechanisms for the higher F:M ratio in HCV incidence.

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