

## HEPATITIS C VIRUS REINFECTION FOLLOWING ANTIVIRAL TREATMENT AMONG PEOPLE WHO USE OR INJECT DRUGS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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**Background:** Among individuals with ongoing injecting drug use, HCV reinfection following successful therapy can compromise treatment outcome. This systematic review assessed post-treatment HCV reinfection rate among people with recent drug use and those receiving opioid substitution therapy (OST).

**Methods:** Bibliographic databases and conference abstracts were searched for studies assessing HCV reinfection rate after treatment among people with recent drug use (injecting or non-injecting) or those receiving OST. Meta-analysis was used to cumulate reinfection rates and meta-regression to explore heterogeneity across studies.

**Results:** Thirty-five eligible studies were included [total person-years follow-up (PYFU)=6,306], including sub-population data of people with recent injecting or non-injecting drug use (31 studies, PYFU=5,017), people with recent injecting drug use (28 studies, PYFU=4,502), and people receiving OST (25 studies, PYFU=2,482). HCV reinfection rate was 5.7 per 100 PYFU (95%CI: 4.0-8.2) among people with recent drug use, 5.9 per 100 PYFU (95%CI: 4.0-8.7) among people with recent injecting drug use, and 3.8 per 100 PYFU (95%CI: 2.5-5.8) among those receiving OST. Reinfection rate was comparable between post-interferon-containing therapy (5.5 per 100 PYFU; 95%CI: 3.1-9.7), and post-DAA therapy (3.5 per 100 PYFU; 95%CI: 2.4-5.1). In stratified analysis, reinfection rate was 1.4 per 100 PYFU (95%CI: 0.8-2.6) among people receiving OST with no recent drug use, 6.1 per 100 PYFU (95%CI: 4.0-9.2) among those with recent drug use who also received OST, and 6.2 per 100 PYFU (95%CI: 3.1-12.3) among those with recent drug use, not receiving OST. In meta-regression analysis, longer follow-up was significantly associated with lower reinfection rate [adjusted Rate Ratio (aRR) for each year increase in mean/median follow-up: 0.81, 95%CI: 0.73-0.89; P<0.001], while recent drug use (with/without OST), compared to OST (no recent drug use) was significantly associated with higher reinfection rate (aRR: 3.81, 95%CI: 2.05-7.06; P<0.001).

**Conclusion:** Post-treatment HCV reinfection risk was increased among individuals with recent drug use compared to those on OST. Lower rate in studies with longer follow-up suggested higher risk of reinfection early post-treatment. Harm reduction services are required to reduce reinfection risk while regular post-treatment HCV assessment is required to detect and treat reinfection early.

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