

MODELLING THE IMPACT OF A NATIONAL SCALE UP OF INTERVENTIONS ON HEPATITIS C VIRUS TRANSMISSION AMONG PEOPLE WHO INJECT DRUGS IN SCOTLAND

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Background: The hepatitis C (HCV) Action Plan in Scotland scaled up interventions from 2008 to reduce the transmission of HCV among people who inject drugs (PWID). We test whether observed decreases in incidence and prevalence from 2008 can be attributed to intervention scale-up or could have occurred without the Action Plan.

Method: We developed a dynamic HCV transmission model, stratifying PWID by injecting status (recent/non-recent and current/temporarily ceased), HCV infection, intervention state (on/off HCV treatment, opiate substitution therapy (OST), and needle and syringe programmes (NSP)), and risk (homeless or inject stimulants, or not). After calibration to Scottish data from the Needle Exchange Surveillance Initiative (NESI) from 2008, model projections incorporating achieved intervention scale-up were compared against observed trends in HCV incidence among PWID for 2008-2015 to see if the model mimicked these trends, and used to determine the incremental effects of each intervention (OST/NSP, decrease in high-risk behaviour and treatment).

Results: When incorporating the observed intervention scale-up and decreases in high-risk behaviour, model simulations closely resembled the observed decreases in HCV incidence from 2008-2015, suggesting on average a 64% reduction in incidence over this period. Of this decrease, around three-fifths is likely due to intervention scale-up and changes in risk behaviour over this period; with the rest being due to historical increases in intervention coverage before 2008. Projections suggest the scale-up of OST/NSP is likely to have averted around 900 HCV infections between 2008 and 2015, and around 530 further HCV infections were averted due to reductions in high-risk behaviour and 60 due to increases in HCV treatment.

Conclusions: Recent declines in HCV incidence in Scotland were partly due to intervention scale-up, but also historical changes in injecting risk. HCV treatment contributed little to the reduction in HCV transmission – but will be required to achieve further reductions in HCV prevalence.