The effect of changes in injecting frequency on hospitalisations with injecting-related infections: a causal inference modelling study using linked cohort data

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Introduction: Despite the growing burden of injecting-related bacterial infections, there is very little empirical evidence identifying the potential impact of modifiable behavioural risk factors. This study determined the causal effect of reduced injecting frequency on injecting-related bacterial infections.

Method: In an emulated target trial, we used data from a cohort of people who inject drugs in Melbourne, Australia (SuperMIX). Their survey data were linked to statewide hospital admissions and emergency department presentations (2008-2019). People who reported injecting daily or more were eligible for inclusion. Exposure groups included people who reduced their injecting to 0 times per week (group 1) or 1-6 times per week (group 2) at follow-up (conducted within 18 months). Participants who did not reduce their injecting were used as the comparator. Inverse probability weighting was used to balance the exposure groups on confounding variables. The causal effect measure was the difference in count of emergency department or hospital admissions (hospitalisations) for injecting-related infections within a 6-month period after follow-up.

Results: 690 participant-surveys contributed to the analysis. 105 participant-surveys contributed to exposure group 1, 294 contributed to exposure group 2, and 291 contributed to the comparator group. 52 hospitalisations occurred within the 6-month observation period, 35 of which were among the comparator group. We detected a mean difference of -0.077 and -0.076 events for exposure groups 1 and 2, respectively, compared to the comparator group. Indicating that, for every 100 people who reduced their injecting, there were approximately 8 fewer hospitalisations with injecting-related infections in a 6-month period.

Discussions: This is the first study quantifying the effect of reduced injecting frequency on hospitalisations with injecting-related infections using an emulated target trial design.

Implications: Interventions that reduce injecting frequency to even less than daily could see substantial healthcare savings and improvements to health for people who inject drugs.