Estimating the prevalence of ex-injecting drug use in a population

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Injecting drug use (IDU) is the main route of transmission for the hepatitis C virus in the developed world. Knowledge about the characteristics of the current and ex (the abstinent) IDU population is therefore vital in order to understand the epidemiology of hepatitis C and to inform public health policies. The IDU population is 'hard to reach' and hence most epidemiological studies have concentrated on estimating current IDU prevalence using indirect methods such as capture-recapture. However, little is known about the potentially large pool of ex-injectors, of whom many may be infected with hepatitis C and undiagnosed. Such individuals do not regularly feature on surveillance registers, and hence capture-recapture methods cannot be used.

We demonstrate an indirect method for estimating the proportion of ex-users in a population by considering the process of injecting drug use from initiation to abstinence. At any time point, T, the proportion of ex-users can be estimated through knowledge of the distributions of injecting durations and initiation times for all users alive at T. Such a method requires the availability of representative estimates of the injecting duration distribution and historical patterns of injecting initiation.

For this work data on injecting duration and initiation times were collected from a sample of ex-injecting drug users obtained through a population household survey. We show how, from this sample, estimated distributions of injecting duration and initiation can be obtained, which are representative of the whole IDU population. The resulting estimate of the proportion of ex-users in the population can then be used in combination with estimates of current IDU prevalence from the literature to obtain an estimate of ex-IDU prevalence.