Epidemiological definitions and estimates of populations of people who inject drugs with HCV infection

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Epidemiology of hepatitis C in people who inject drugs is critical for informing responses
Epidemiology is critical for informing responses to hepatitis C

1. Denominator: How many people inject drugs?
2. Numerator: How many people who inject drugs have hepatitis C?
3. Setting: Where are people who inject drugs and have hepatitis C?
Denominator: How many people inject drugs?

PWID
Denominator: How many people inject drugs?

- Lifetime PWID
- Recent PWID
Lifetime injecting = recent + non-recent injecting
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Various data can inform estimates of these two groups

Recent injecting
- Indicator data
- Capture-recapture
- Household surveys

Non-recent injecting
- Household surveys
Lifetime injecting = recent + non-recent injecting
Natural history data may be biased

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Cessation in the Edinburgh Addiction Cohort

Xia et al., Drug Alcohol Dependence, 2015
Resumption of injecting in the EAC

Xia et al., Drug Alcohol Dependence, 2015
There is often uncertainty in the ratio of recent: non-recent injecting
There is often uncertainty in the ratio of recent: non-recent injecting
Importance of injecting duration/cessation

- In settings with long injecting durations (low cessation): more impact with HCV treatment strategies
- In settings with short injecting durations (high cessation): more impact with OST/NSP strategies

Source: Martin et al., Clinical Infectious Diseases 2013
Denominator: How many people inject drugs?

• Can estimate using various data sources

• Considerable uncertainty around number of people with non-recent injecting drug use

• Impacts understanding of population at risk and best prevention strategy
Numerator: How many people who inject drugs have hepatitis C?
Total HCV in PWID = HCV in recent injectors + HCV in non-recent injectors
Local data are needed to inform estimates of HCV prevalence and incidence

- Parameters:
  - HCV prevalence and incidence in recent PWID
  - % of recent PWID sharing injecting equipment
  - HCV prevalence among non-recent PWID
Data used to inform HCV estimates are subject to limitations/bias

- Drug treatment/NSP samples – selection bias
  - Respondent-driven sampling may still be biased
- Ideally sample from multiple sites (community, drug treatment, NSP, specialist medical services)
- Social desirability bias in reporting sharing
- Notifications data – prevalence only in those tested
- Data on HCV in non-recent injectors?
Example: Estimating HCV in England & Wales

• De Angelis et al., 2009
• Multi-parameter evidence synthesis
• Recent: capture-recapture study & multiple national surveys
• Non-recent: multiple national surveys
• Information on relative population sizes, distribution by sex/age group, age at initiation, time to cessation
• HCV prevalence: surveillance studies in drug treatment/NSP; specialist medical services; and tested population
3. Settings: Where can people who inject drugs and have hepatitis C be reached?

- Opioid substitution therapy
- Needle and syringe programs
- Prisons
Targeted testing and treatment: Preliminary NSW data

- **Opioid substitution therapy**
  - ~22,000 people with exposure to OST in a year
  - ~50-60% of current OST clients ‘currently’ injecting

- **Prisons**
  - ~16,000 people moving through prisons in a year
  - ~20-25% of prisoners injected in previous 12 months

- **OST + prisons**
  - ~8% of OST clients in prison at census date
A: estimated number of current PWID in NSW

B: estimated number of people in OST per annum

C: estimated number of people in prison in NSW per annum
Epidemiology is critical for informing responses to hepatitis C

- Population size and prevalence data are needed to inform models and projections
  - Must be aware of uncertainties and their impacts