

# NDARC

National Drug &  
Alcohol Research Centre

The Difference is Research



UNSW  
AUSTRALIA

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

Medicine

National Drug and Alcohol Research Centre

Dr Sarah Larney, Senior Research Fellow

# Acknowledgements

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- Also: James Jansson, Maryam Alavi, David Wilson
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# Epidemiology of hepatitis C in people who inject drugs is critical for informing responses

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# Epidemiology is critical for informing responses to hepatitis C

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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?

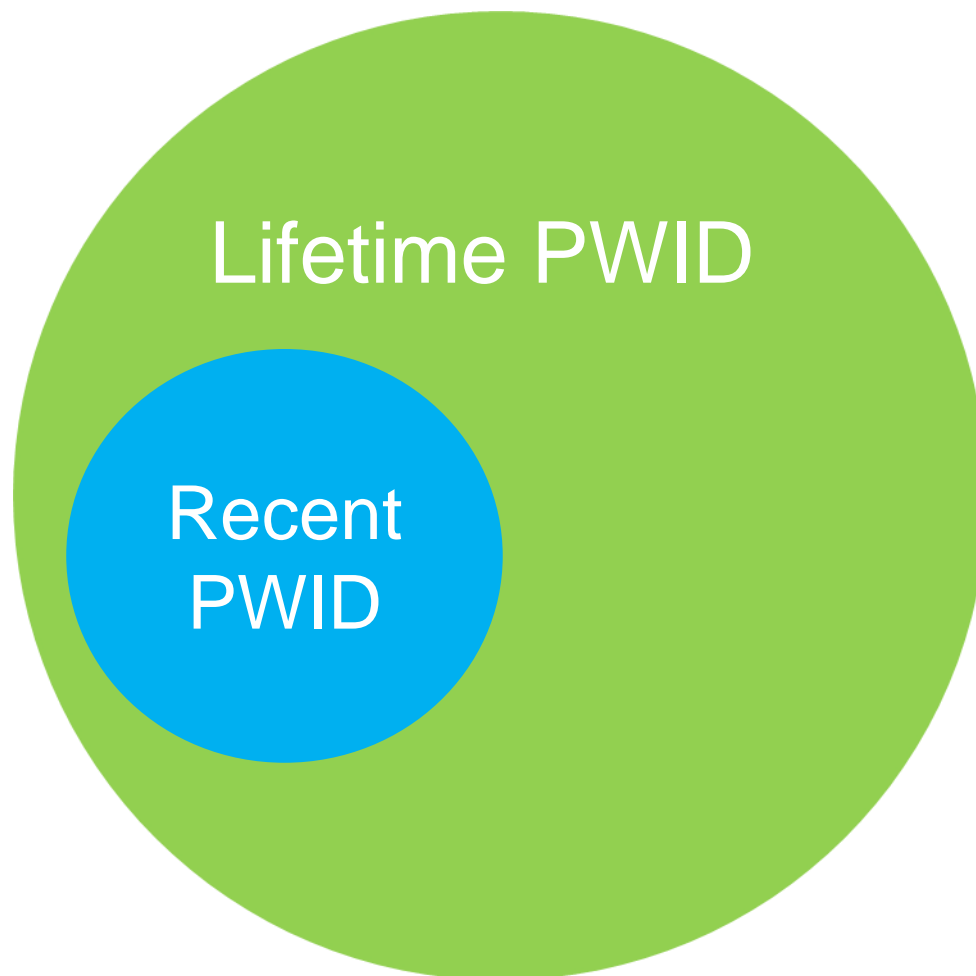
# Denominator: How many people inject drugs?

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# Lifetime injecting = recent + non-recent injecting

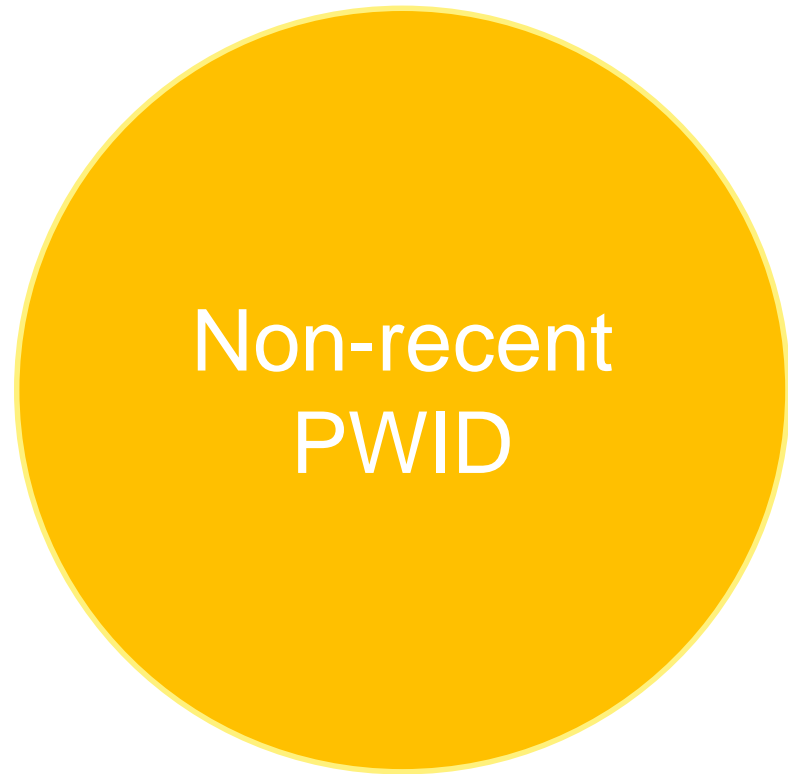
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Lifetime PWID

# Lifetime injecting = recent + non-recent injecting

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# Various data can inform estimates of these two groups

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## Recent injecting

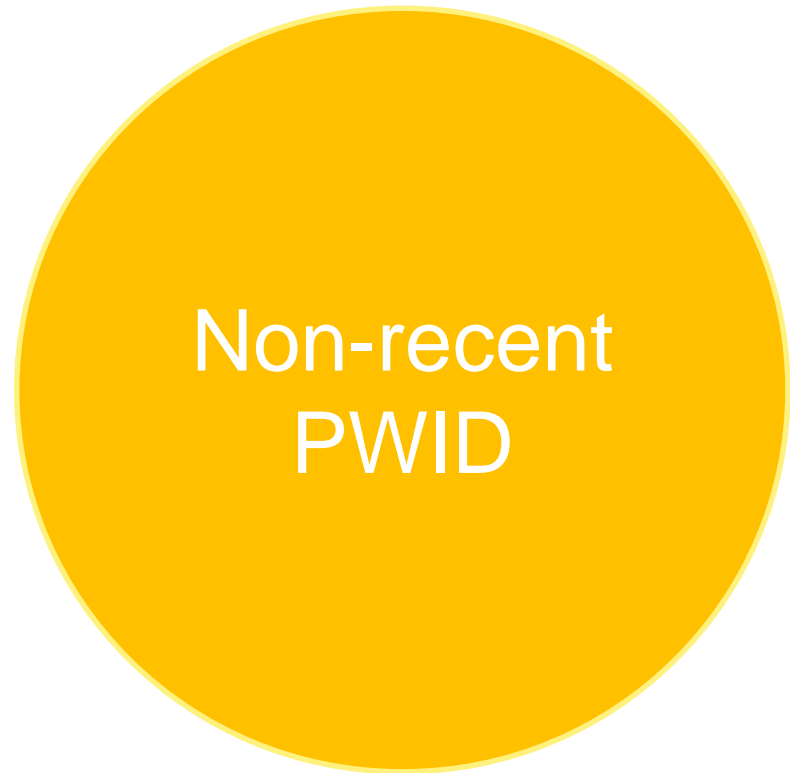
- Indicator data
- Capture-recapture
- Household surveys

## Non-recent injecting

- Household surveys

# Lifetime injecting = recent + non-recent injecting

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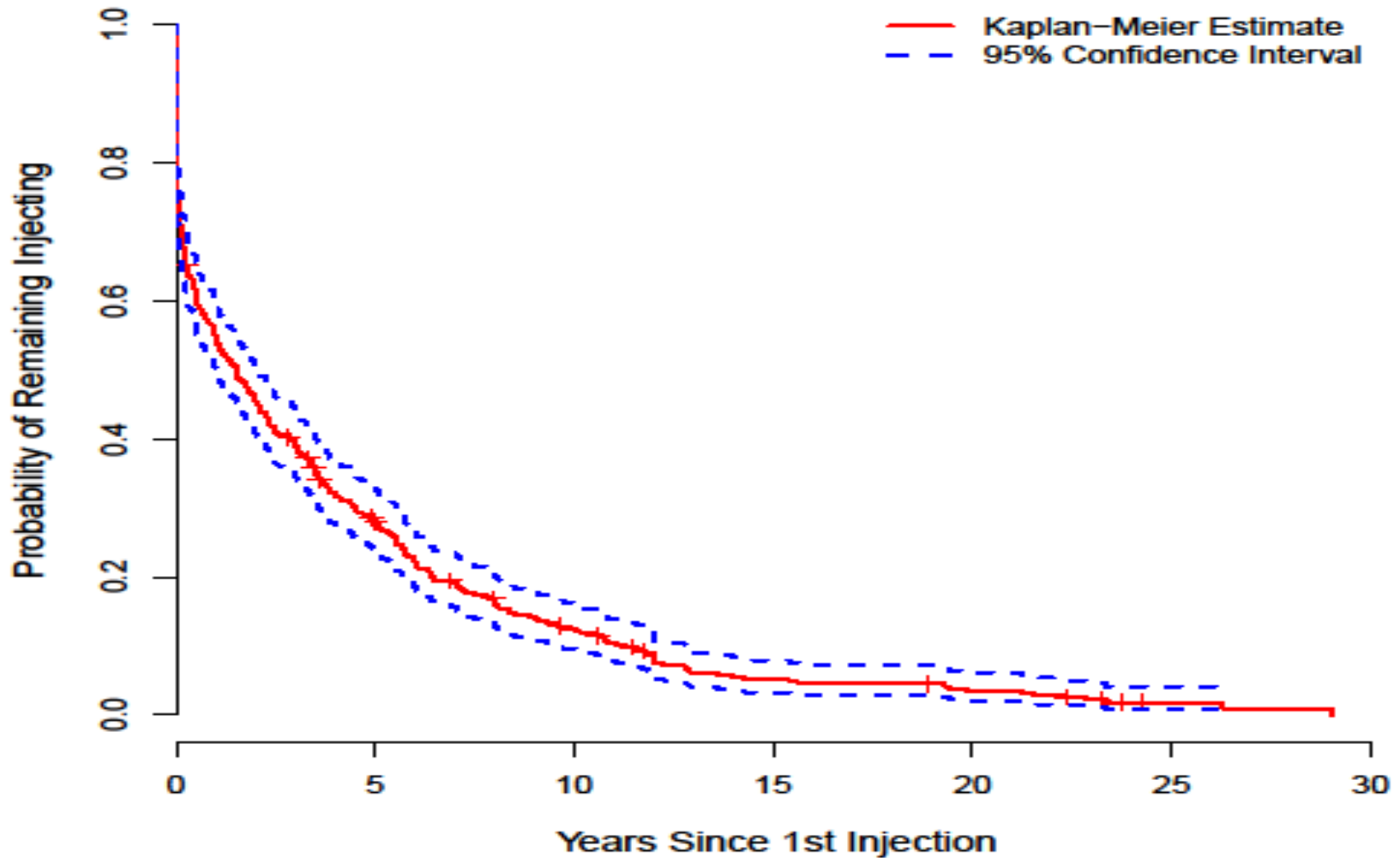


# Natural history data may be biased

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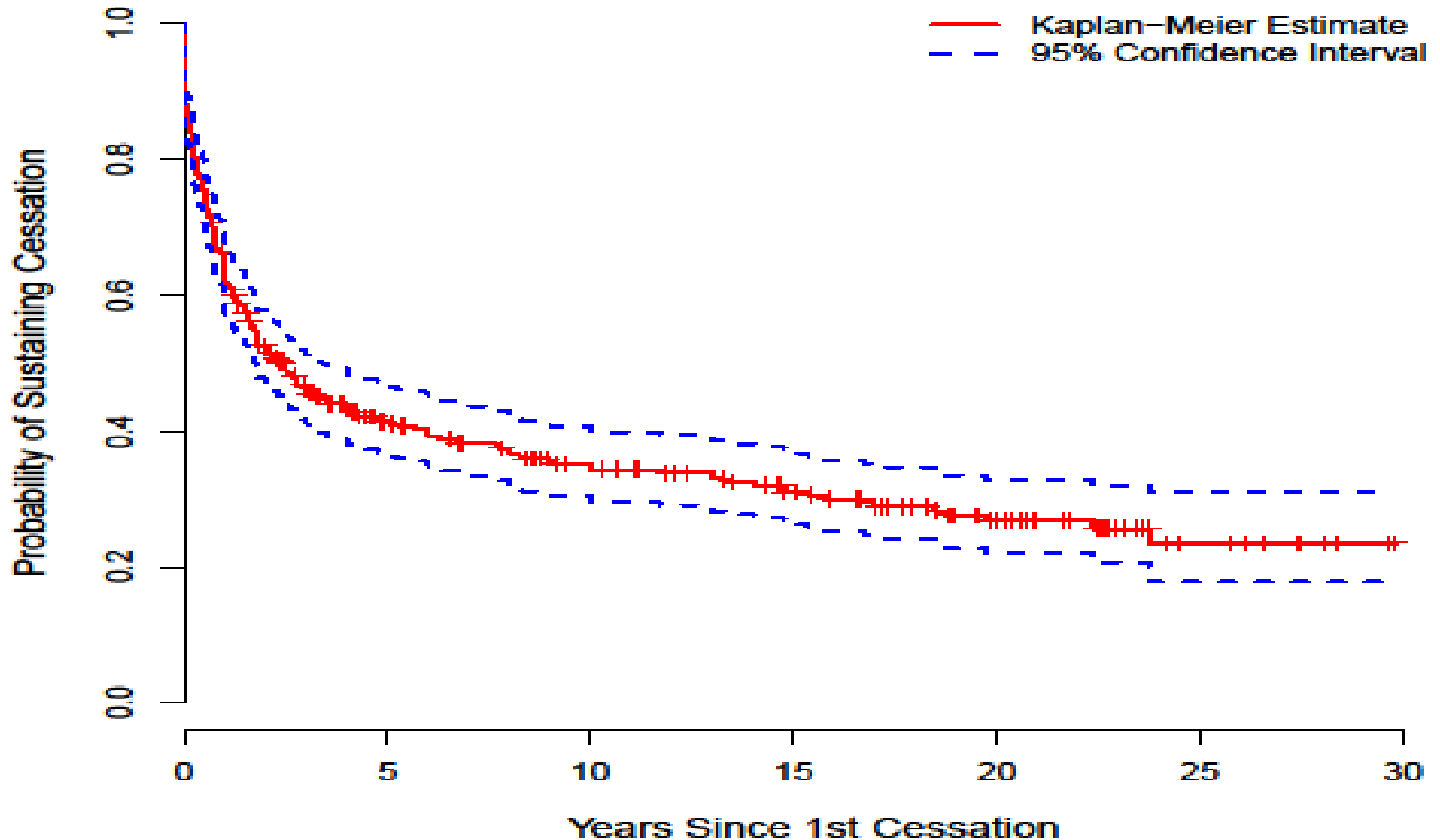
Study type	Samples	Limitation
Prospective	At-risk youth	Overestimate progression to regular injecting
Retrospective	Regular injectors Treatment Criminal justice	Overestimate duration of injecting
Retrospective	Population	Underestimate duration of injecting

# Cessation in the Edinburgh Addiction Cohort



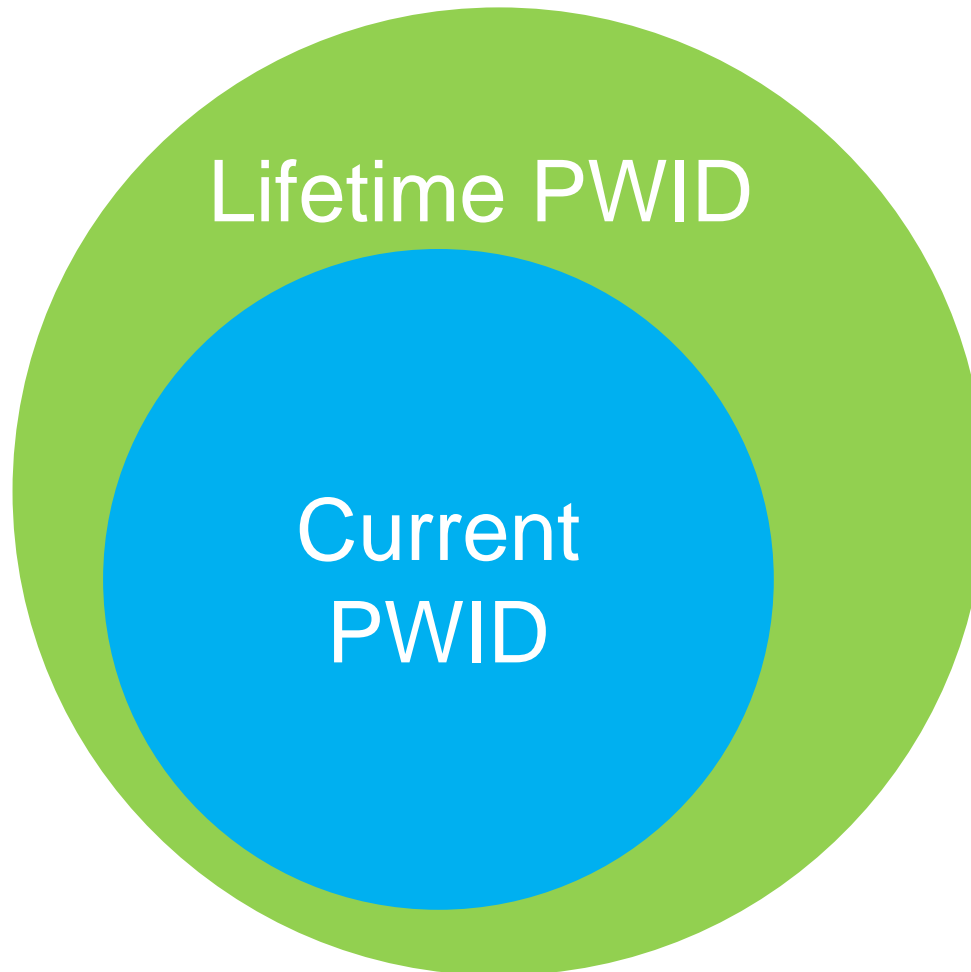
N

# Resumption of injecting in the EAC



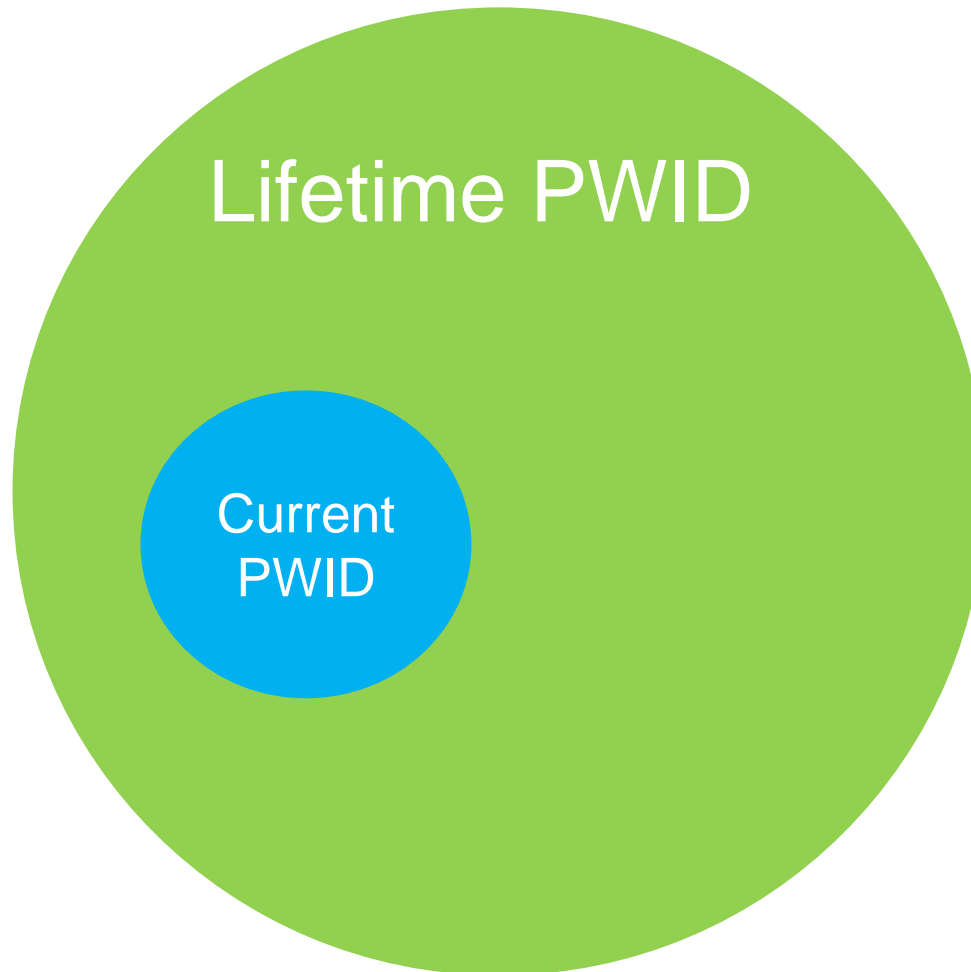
# There is often uncertainty in the ratio of recent: non-recent injecting

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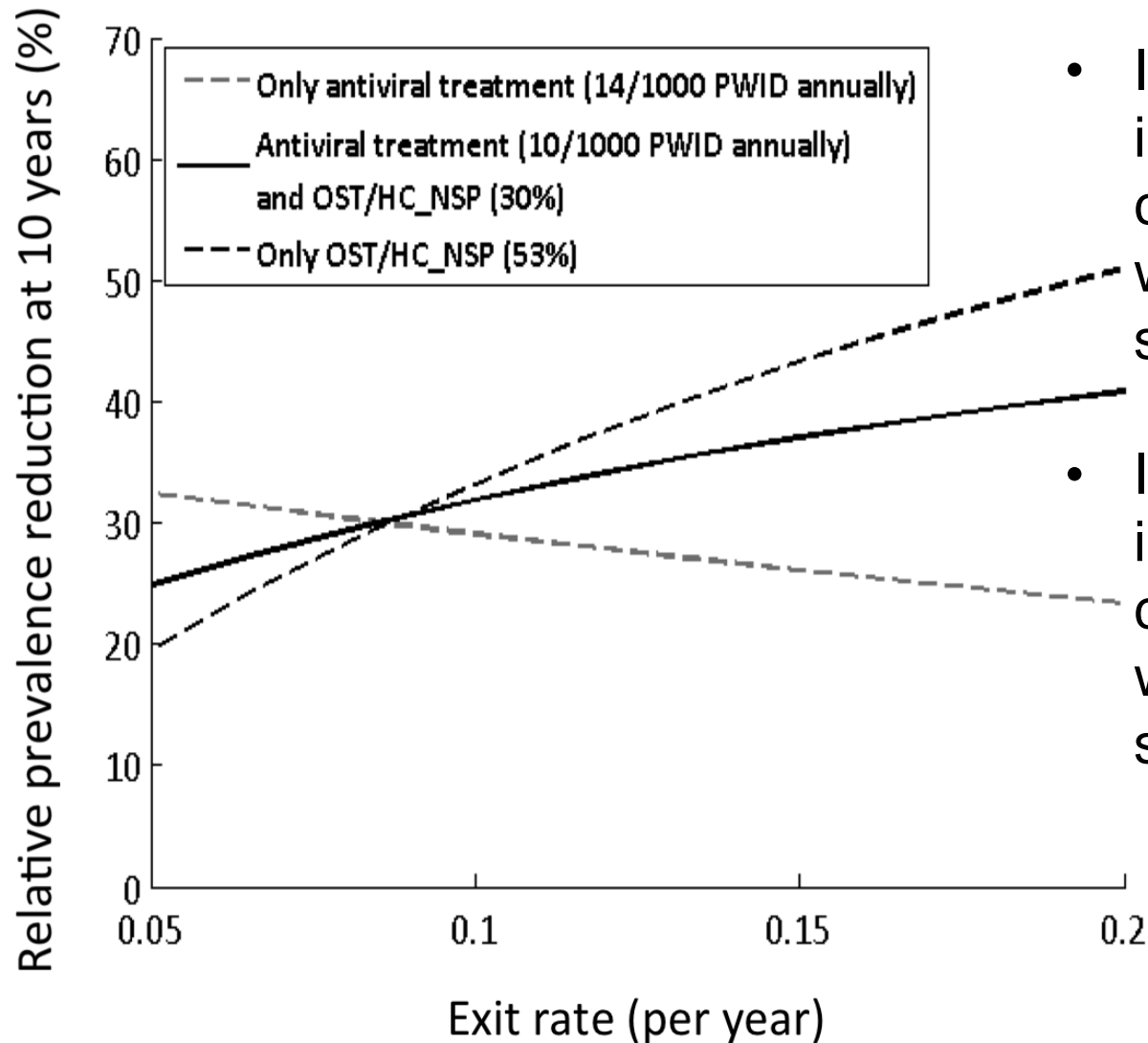


# There is often uncertainty in the ratio of recent: non-recent injecting

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# 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



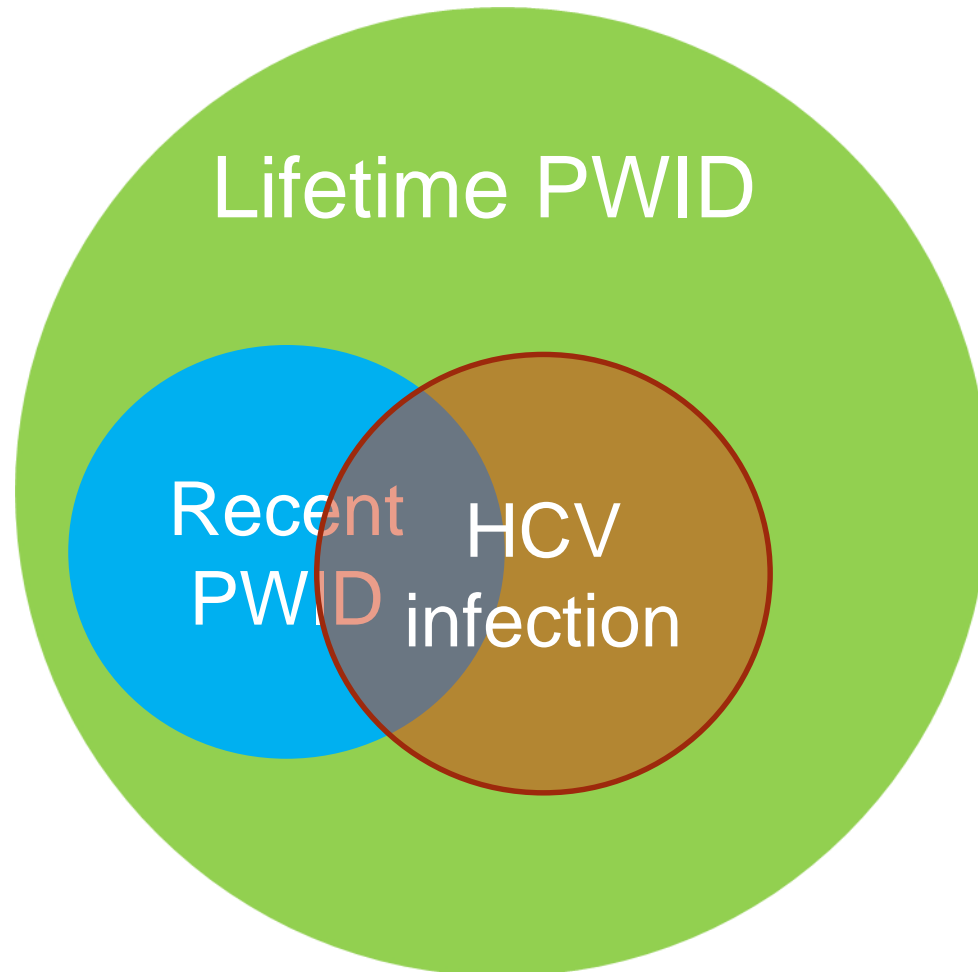
# Denominator: How many people inject drugs?

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- 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

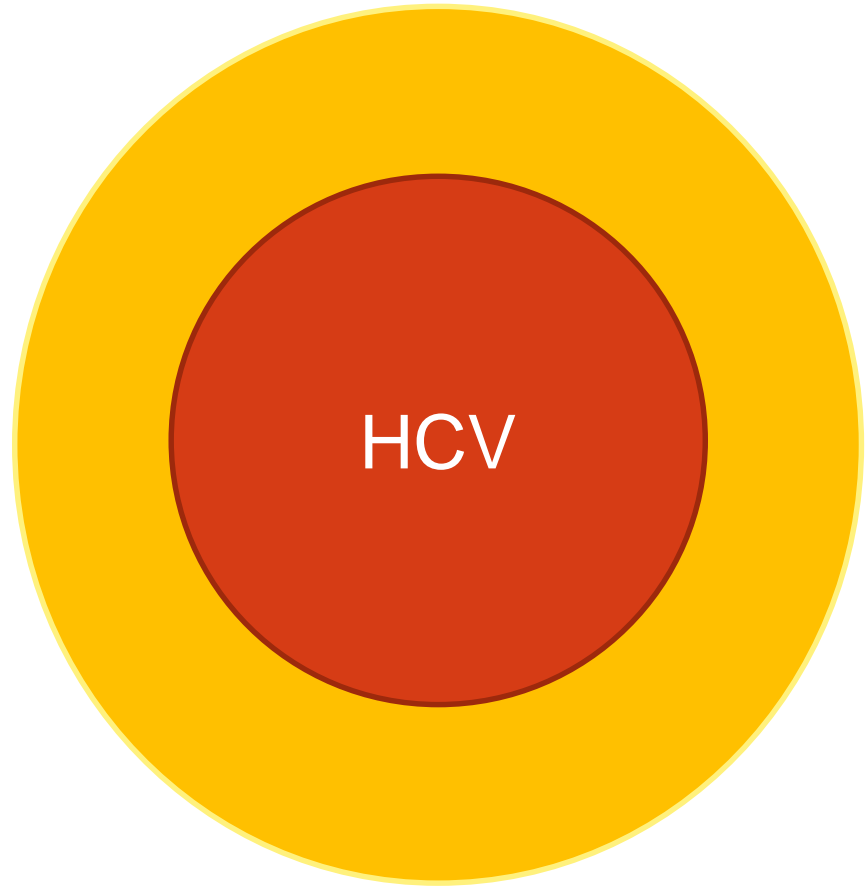
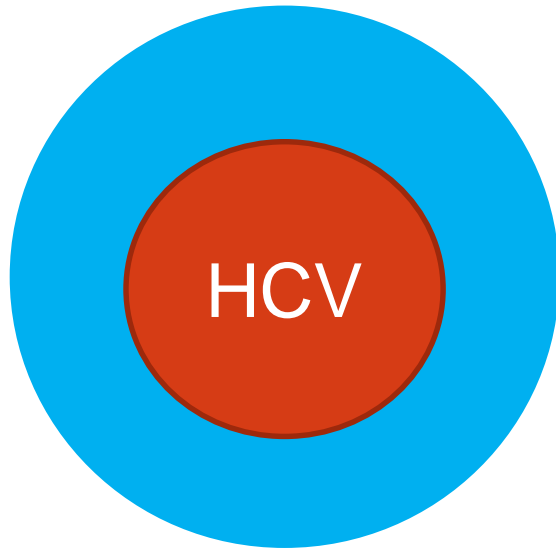
# Numerator: How many people who inject drugs have hepatitis C?

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# Total HCV in PWID= HCV in recent injectors + HCV in non-recent injectors

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# Local data are needed to inform estimates of HCV prevalence and incidence

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- 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

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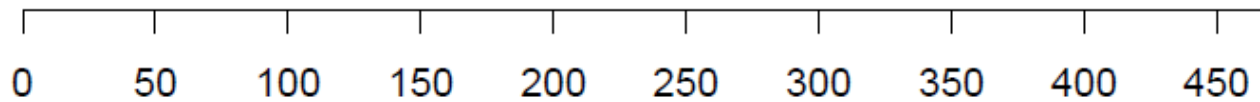
- Drug treatment/NSP samples – selection bias
  - Respondent-driven sampling may still be biased
- Ideally sample from multiple sites (community, drug treatment, NSP, specialist medical services)
- Social desirability bias in reporting sharing
- Notifications data – prevalence only in those tested
-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

# Example: Estimating HCV in England & Wales

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- 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

# Total



Number (thousands)

# Contribution by risk-group

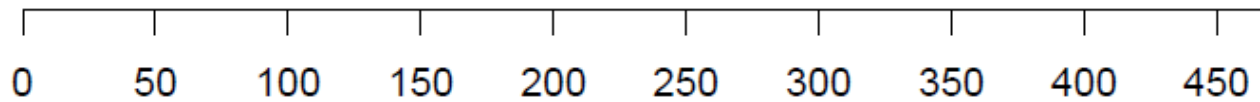
**Current  
injecting  
drug users**



**Ex-injecting  
drug users**



**All other  
risk-groups**



Number with HCV antibodies (thousands)

See De Angelis  
et al., *Stat  
Methods Med  
Res*, 2009

### 3. Settings: Where can people who inject drugs and have hepatitis C be reached?

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- Opioid substitution therapy
- Needle and syringe programs
- Prisons

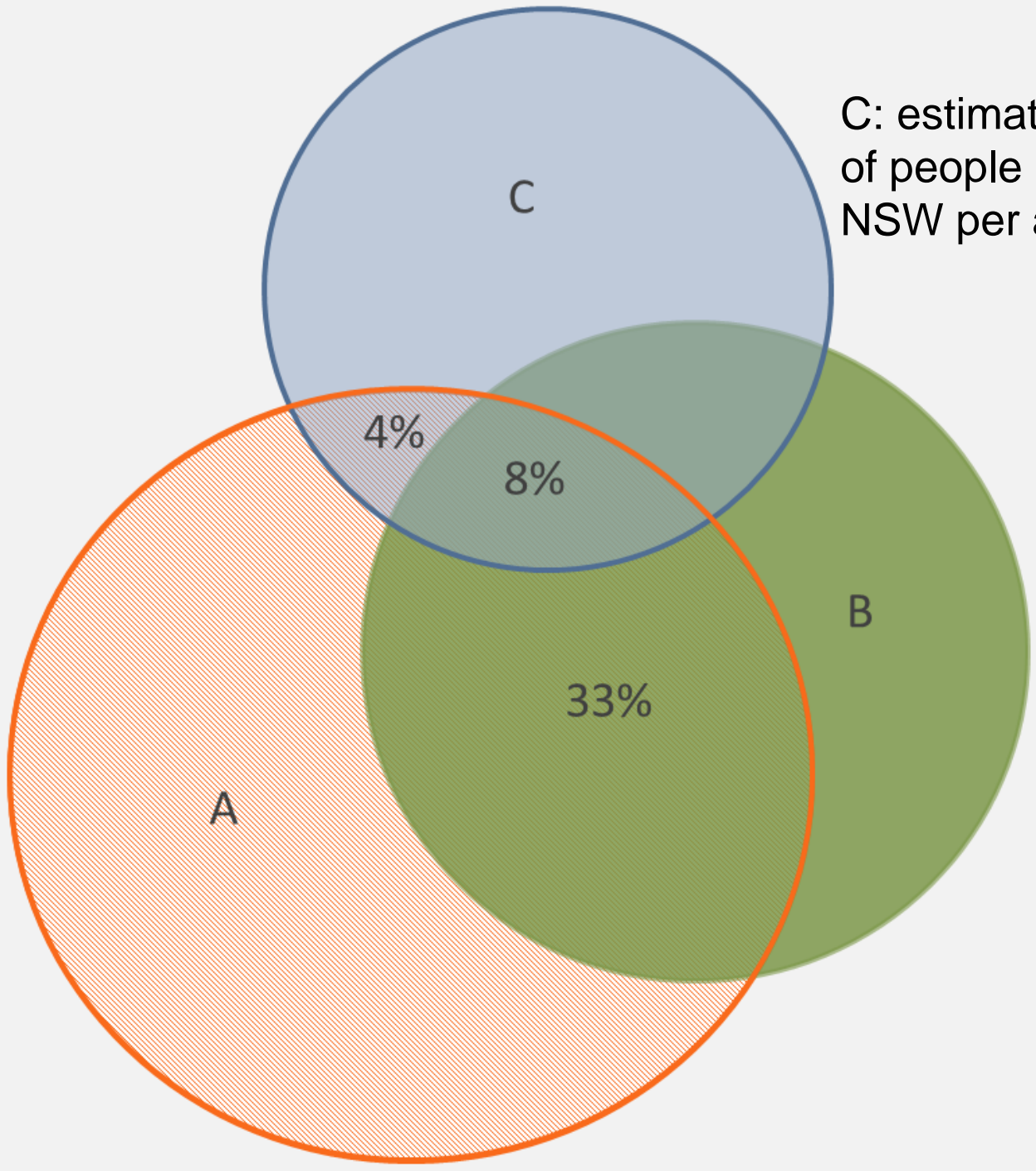


# Targeted testing and treatment: Preliminary NSW data

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- 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



C: estimated number of people in prison in NSW per annum

B: estimated number of people in OST per annum

# Epidemiology is critical for informing responses to hepatitis C

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



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