



Syringe stockpiling by people who inject drugs: An evaluation of current measures for needle and syringe program coverage

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Background

- Measuring NSP 'coverage' is a crucial measure for evaluating NSP effectiveness
- Several methods offer useful ways to examine NSP coverage at both population and individual levels, however there is no gold standard measure



Background

- Bluthenthal et al. (2007) first calculated individual level coverage that accounted for syringes procured and injecting frequency:

$$\frac{\text{New syringes retained from last NSP visit} \times \text{monthly NSP visits}}{\text{Injections last month}}$$

Bluthenthal RN, Anderson R, Flynn NM, Kral AH. Higher Syringe Coverage is Associated with Lower Odds of HIV Risk and Does Not Increase Unsafe Syringe Disposal among Syringe Exchange Program Clients. *Drug Alcohol Depend.* 2007;89(2-3):214-222.

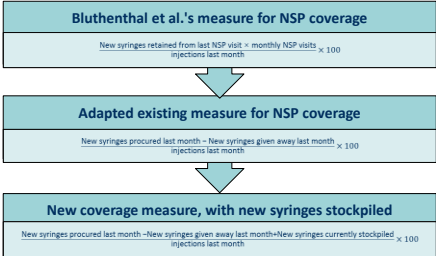


Background

- While useful, this measure relies on the assumption that every NSP visit is consistent
- PWID might have clean syringes stored or 'stockpiled' away, that would reduce their risk of sharing syringes, but these are not captured by the previous measure
- So, we proposed a new measure...



Proposed measure for NSP coverage



Aims

- Determine whether Australian PWID stockpile new (clean) syringes
- Document the extent of stockpiling along with key characteristics of 'stockpilers'
- Ascertain whether measures for NSP coverage are more sensitive when syringe stockpiling is included in the measure



Method

- Illicit Drug Reporting System (IDRS)
- Annual, cross-sectional study
- Australian State and Territory capital cities
- Direct recruitment and 'snowballing'
- 735 structured interviews with PWID

**Method**

- 'In the last month how many [needles and] syringes in total did you get?'
- 'In the last month how many [needles and] syringes in total did you give away?'
- 'Thinking about it overall, about how many times did you inject in the past month?'
- **'How many [needles and] syringes do you have 'stored' away at the moment [at home, in car etc.]?'**


Analysis and results:
 Demographics

- Australian-born (85%)
- Male (69%)
- Over 35 years of age (70%)
- Unemployed (88%)
- Unstable housing (21%)
- Heroin and methamphetamine were most commonly reported as drug of choice and drug injected most frequently in the past month


Analysis and results:
 Syringe Stockpiling

- Three quarters of PWID had at least 1 syringe stockpiled
- Mean syringes stockpiled by all participants = 42 (IQR 1, 50)
- Mean syringes stockpiled by all participants *with at least 1 syringe stockpiled* = 56 (IQR 6, 50)
- 43% of all participants had 20 or more new syringes stockpiled


Analysis and results:
 Factors associated with syringe stockpiling

- Syringe stockpiling was associated with:
 - Injecting career longer than 25 years
 - Daily injecting frequency
 - Non-ATSI background
 - Stable accommodation
 - No prison history


Analysis and results:
 NSP Coverage (1)

- Without accounting for news syringes stockpiled 76% of participants had adequate NSP coverage
- When added, 84% of participants had adequate NSP coverage
- Existing measure = Underestimated NSP coverage



Analysis and results: NSP Coverage (2)

- Constructed logistic regression models to assess association between NSP coverage (with and without syringe stockpiling) and four risky injecting behaviours:
 - Receptive syringe sharing
 - Distributive syringe sharing
 - Syringe reuse
 - Equipment sharing
- Receiver Operating Characteristic (ROC) curves plotted to assess the fit of each model



Analysis and results: NSP Coverage (2)

Risky injecting behaviour	Odds ratio	95% Confidence Interval (Percentage change)	Area under ROC curve	Difference in area	P> Z
Receptive syringe sharing					
Without syringe stockpiling	0.9979612	-0.37, -0.04	0.66	0.71	0.05
With syringe stockpiling	0.9976793	-0.38, -0.09	0.66		
Distributive syringe sharing					
Without syringe stockpiling	0.9989134	-0.18, -0.02	0.62	-0.01	0.640
With syringe stockpiling	0.9994163	-0.11, -0.01	0.61		
Syringe reuse					
Without syringe stockpiling	0.9997647	-0.05, 0.00	0.58	0.63	0.05
With syringe stockpiling	0.9996687	-0.06, -0.01	0.63		
Equipment sharing other than needles or syringes					
Without syringe stockpiling	0.9998076	-0.05, 0.01	0.54	0.57	0.03
With syringe stockpiling	0.9998996	-0.03, 0.01	0.57		



Discussion:

What does this mean, and why is it important?

- Syringe stockpiling is a novel indicator than hasn't before been considered within studies assessing NSP coverage
- Stockpiling occurs frequently among Australian PWID
- Existing measures underestimate the proportion of PWID with adequate coverage
- Our proposed measure is better than existing measures at discriminating cases and non-cases of risky injecting behaviour



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