Reviewer’s report

Title: Expanded syringe exchange and reduced HIV infection among new injection drug users in Tallinn, Estonia

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Reviewer: Lucy Platt

Reviewer’s report:

Major compulsory revisions

The introduction is written as though the authors assume everyone is familiar with HIV prevention and the concept of harm reduction for IDUs. As a result the introduction contains vague and unsubstantiated statement. The authors need to revise carefully and ensure that any statement they make is very defined, backed up with data and referenced.

The background section could be greatly improved. At present statements are made about HIV prevention programmes for IDUs that are vague and poorly referenced.

The description of the epidemiology of HIV in the region could be improved. Sentences such as … ‘Three countries in the region (Estonia, Russian Federation and Ukraine) have HIV prevalence that exceeds 1%’ Please clarify what the denominator is 1% of the general population?

Can you provide data to show that injecting drug use remains the main route of HIV transmission in the region?

Further explanation on the extent of HIV prevention and coverage in the region is needed (1st paragraph, last sentence). What do the authors mean by prevention, can you clarify which programmes you are referring to? Can you give some examples of the levels of coverage achieved across the region?

The authors focus on the regions of central Asia and Eastern Europe which considering the predominance of injecting drug use in the region and the rise of HIV associated with injecting drug use, this seems fair, but the availability of harm reduction services as well as government policies supporting programmes varies widely across the region. This needs to be described in order for the reader to understand the context.

The sentence: ‘there is reason to believe that if prevention programming can reach a critical level in a local IDU population, then considerable prevention effects can be achieved.’ This sentence needs clarify: what is the critical level and what are the prevention effects referred to? What is the evidence for this?

The next sentence also needs clarifying what are the multiple programmes in question or combined programmes? How do combined and multiple programmes differ?

Why would syringe exchanges or other harm reduction programmes that have
been shown to be effective in developed countries not work in transitional countries? I agree that it is important to provide evidence in support of such programmes given the hostile policy environment in which harm reduction operates in some countries in the region (Russian Federation and countries of CAR for example)

Given the aim of the study to compare the decrease in prevalence/incidence of HIV among IDUs alongside the expansion of harm reduction programmes in Estonia a detail description of the different services available in Estonia is essential. Sentences such as...’ Global Fund support was also instrumental in building capacity for the governmental and nongovernmental sectors to interact constructively with each other. This included establishing system for channelling funds through government to NGO s and mechanism for dialogue...’ are too vague and provide no information on what actual services are delivered to IDUs.

How many needle/syringe exchanges operate in Tallinn?

What drug treatment is available?

Methods

The statistical methods used to look at incidence of HIV among new injectors are adequate. However further information about some of the data collection methods should be added and some additional analysis could be presented in order to understand reasons behind the decrease in incidence.

The authors provide little data on the demographic, injecting or sexual risk behaviours among the IDUs samples across the three studies. Given that RDS was used, why are the RDS adjusted estimates not presented? This is important in order to see how the adjusted samples differ across the years, especially considering that that the authors are trying to show that the proportion of new injectors has decreased over the years.

Given that new injectors were defined as individuals injecting for 3 years or less, but the studies were undertaken every two years, it is likely given the similar prevalence of HIV that there was an overlap between the 2005 and 2007 samples of new injectors. Were data collected on whether participants had taken part in more than one survey? These should be reported since it may explain why proportions reporting ever using the syringe exchange increases over time. Interviews were conducted at the SEP and word of mouth about the study and SEP may have gone round IDU social networks through the use of RDS recruitment.

The authors show how demographic characteristics among new injectors do not differ over time. Do characteristics differ between new and longer term injectors and do these differences change over time? These findings should be presented.

There is a slight decline in the number of women recruited over time it would also be interesting to see whether sexual risk behaviours change over time? What proportion of the sample if any exchanged sex?

It seems strange that the authors present data on the number of condoms distributed as well as positions of methadone treatment as a part of harm reduction intervention but do not present any sexual risk behaviour data from the
surveys or uptake of methadone.

Why do the authors not report more recent use of syringe exchange rather than life time use?

Discussion

The discussion needs restructuring. The first paragraph should present the key findings of the study which is currently presented in the second paragraph.

The first paragraph of the discussion claims that as the proportion of new injectors across the studies decreased this may indicate a decreasing rate of individuals becoming IDUs. While this may be one explanation, the authors make no attempt to explain other reasons this decline may have been observed. Instead they back their data up by describing proportions of new injectors in samples from other studies in Russia. It is inaccurate to assume that because proportionally fewer new injectors were recruited in the 2009 study in Estonia that this means there are fewer new initiates into injecting. This may be one explanation but it also may be a result of sampling biases, reflect an ageing cohort of drug users, changes in drug availability leading to behavioural changes or changes overall changes in the size of the IDU population.

The discussion refers to sexual risk behaviour data that are not presented in the results. In general the discussion should be edited as it contains incomplete sentences, does not read coherently nor reflect on the data presented in the findings.

The authors conclude that a coverage of 70 or more syringes per IDU per year may be needed. How do the data they present support this fact?

What implications do the findings have for harm reduction programmes and needle/syringe provision across the region?

Minor essential revisions

Methods

A different questionnaire was used in 2005 in comparison to 2007 and 2009. How did this questionnaire differ?

When calculating the incidence rate, why do the authors categorise IDUs who had first injected at their current age to have injected at 6 months but categorise those who first injecting in the previous year to have injected for 1 year. It would be more consistent to assume everyone had injected 6 months.

I think that the authors should present a multivariate analysis to see whether trends in HIV prevalence remains significant when adjusting for age, frequency of drug use, use of NSEP and sex.

Discussion

Discussion on other contextual factors that might have lead to the decline in the proportion of new injectors or decline in HIV incidence should be included. What other policies change may have occurred or changes in the availability of drugs or the way they are administered may have occurred?
The authors mention in the limitations there may be other factors affecting the decline such as a mortality associated with HIV or increased availability of ART, they should also consider the decline in the overall prevalence of IDU in the population.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests