Reviewer's report

Title: Factors associated with HIV infection and transmissible behaviors among male injection drug users: a cross-sectional study in Long An, Vietnam

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Reviewer: Michael Clatts

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General
The potential significance of this paper is that it adds to the growing body of evidence about the rapid spread of HIV infection and other negative public health outcomes among heroin users in Vietnam. While heroin epidemics in neighboring countries within the Golden Triangle (including China and Thailand) have been extensively described, there is comparatively little information about this issue from Vietnam. Particularly important is the fact that the current epidemic is largely situated in youth and young adult populations. Consistent with other reports, the paper shows that HIV infection is spreading rapidly in Vietnam, fueled by both high risk injection practices associated with chronic heroin use as well as by co-morbid sexual risk (including low condom use with both regular and CSW sex partners). Combined, these factors portend the potential for a large and self-sustaining HIV epidemic in this country. The fact that the data show high rates of infection among relatively young adult IDU’s highlights the urgent need for prevention activities. To the extent that this data may inform the development of such activities, it is potentially significant and therefore merits publication.

However, there are a number of problems with the current manuscript that warrant reconsideration. First, the paper needs a thorough editing. There are numerous lapses in grammar, sentence structure, and overall flow which detract from easy comprehension of the material. The various sections are not entirely coherent. For example, some of the material in the discussion section should appear earlier in the paper and used to foreground the substantive issues considered in the paper. A number of the measures that are used in the analysis are not adequately described. The time frames are not always clear. It is not clear how SES was assessed.

The authors are clearly attempting to disentangle age and onset of risk but the discussion is not entirely clear and the data itself may not fully support this effort. For example, it would seem that age and person years of injection risk are the key variables of interest, but it is not clear if this is really what is being examined in the model. There is no discussion of the fact that many IDU’s begin as heroin smokers and that the early course of habitual heroin use may be marked by substantial movement back and forth between these two modes of administration. This introduces substantial “noise” into the kind of analysis that is put forward in the paper. In short, the authors seem to be having some difficulty in adequately disentangling age, period, and cohort factors in the data, or at least this is not clear in the presentation.

It might have been helpful to limit the analysis to a narrow age range within the overall data set. For example, limiting the analysis to IDU’s under the age of 30, while reducing the sample available for the analyses, might eliminate some of the “noise” that seems to be confounding the model and yield a more straightforward picture of the risk trajectories of interest. This applies to the overall age of the sample, but also to some of the subgroups included in the sub-analysis. For example, age 10 to 20 spans a broad spectrum of time, both historical and developmental, and is probably too complex a grouping to be useful. As with upward age boundary, it might have been more useful to exclude age outliers so as to reduce the overall noise that inclusion of these cases introduces in the analysis of the data.

I am not an expert on logistic regression but I am not sure that this kind of data is best examined with this kind of approach. The kind of analysis that is being attempted here appears to be somewhat different (albeit more interesting and potentially useful) than that which was originally intended in constructing the measure, with the result that I am not entirely sure that a regression model is the best way to approach or present the data, particularly in the absence of a theoretical model. A paired T-test model might be more straightforward approach to the presentation. At the very least, however, a more straightforward statement of the regression model is needed.

There are clear limitations to the data and the authors acknowledge some of these limitations in the latter
sections of the paper. However, a more substantive discussion would give better direction to the next generation of IDU studies that are needed in Vietnam and would enhance the contribution that the paper might make to the literature.

On the face of it, TV watching appears to be a somewhat trivial association and the readers need to expand upon the way that this and related variables might inform our understanding of how and why SES impact behavioral risk. Similarly, more detailed consideration of the import of movement between cities, which is likely to be related to economic migration, may have on behavioral risk. These issues are especially important in considering targeted prevention activities, but they are not adequately elaborated in the discussion to be really useful. Clearly, longitudinal work is needed but it would be helpful if the paper could give some direction to how those studies should proceed in relation to sampling and measurement, and indeed better direction to what the core questions should be for understanding effects over time. For example, the authors acknowledge that it is sometimes difficult to obtain reliable assessments of behavioral risk among IDUs in Vietnam due to substantial social desirability. Some discussion of how this relates to particular variables and what alternative approaches (e.g., in measurement, sampling, design, construct development, etc.) would be helpful. Similarly, there are clear problems with self-reported needle sharing and some creative thinking about how to enhance measurement of this issue would be useful. And finally, some direction about the interaction between drug and sexual risk would be most welcome. In short, the potential strength of this paper comes from the experience of the research group from which it is coming and the opportunity that the data afford us all in beginning to understand how the HIV epidemic is unfolding in Vietnam. More substantive comment on what has been learned, not just from the data itself but more broadly from the research effort more generally, would enhance the contribution that this paper could make to the emerging literature on HIV in Vietnam.

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