Reviewer's report

**Title:** Pattern of HIV testing and multiple sexual partnerships among men who have sex with men in China

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**Reviewer:** Martina Morris

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In Table 1 the composition of the samples from the two cities are shown to be significantly different, in many respects. The authors have included a single entry into the table showing that the HIV testing rates between the two cities are not significantly different, and they use this to justify pooling the data. But this pattern of results is not justification for pooling. If the demographic compositions of the samples are different, and these demographic factors influence testing rates (as Table 2 shows), then the similarity in testing rates across samples can indicate one of two things:

1. the within-sample correlation of socio-demographic factors with testing are the same, but the differences in composition are in offsetting directions, so the aggregate sample testing rates end up the same.

   * this would be justification for pooling

2. the within-sample correlations between socio-demographic factors and testing are different, but the patterns are again offsetting so the aggregate sample testing rates are the same.

   * this would indicate pooling should not be done

The only way to determine this is to conduct the analysis in Table 2 for the two samples independently, to see if the impact of socio-demographic factors on testing is the same in the two samples. This is a simple analysis to perform. If it points to #1 above, the results can simply be mentioned in the text, and the sample-specific versions of Table 2 included in the appendix. If it points to #2 instead, then the findings from the paper must be significantly revised.

One final correction --

Figure 3 still includes the term "sexual concurrency" -- this should be changed to "multiple sexual partners"