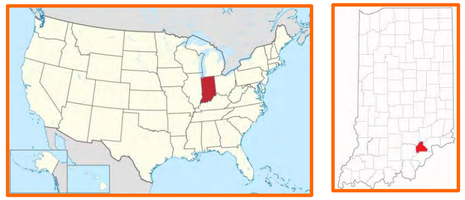
Risk Factors for HIV in an Outbreak among Persons Who Inject Drugs, Indiana 2015

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BACKGROUND



- In early 2015, an outbreak of HIV infections was identified in Scott County in rural southeastern Indiana
- Scott County reported <5 HIV infections in the last decade
- Investigation and phylogenetic analysis indicated that by July 31, 2015, a single strain of HIV had infected >170 persons in a matter of months, most of whom were persons who inject the prescription drug, extended release oxymorphone
- Scott County ranks 92nd in several health and social indicators among Indiana's 92 counties including life expectancy

OBJECTIVE

To identify risk factors for HIV infection and inform control efforts

METHODS

- We conducted a retrospective cohort study of persons who inject drugs (PWID) in Scott County
- The contact tracing database was used to identify all persons who were:
  - named as syringe-sharing contacts by a person diagnosed with HIV infection from October 1, 2014 to July 31, 2015
  - tested for HIV infection during contact tracing efforts through August 6, 2015
- Routinely collected self-reported sociodemographic and behavioral data provided at the time of HIV testing were analyzed by HIV status
- Chi-square and Kruskal-Wallis tests were used to test for differences between categorical and continuous variables, respectively
- Variables that differed significantly by HIV test status ($p<0.05$) were examined as potential risk factors
- Log-binomial regression modeling with stepwise backwards elimination was used to estimate adjusted risk ratios (adj-RRs) and 95% confidence intervals (95% CIs) for potential risk factors

RESULTS

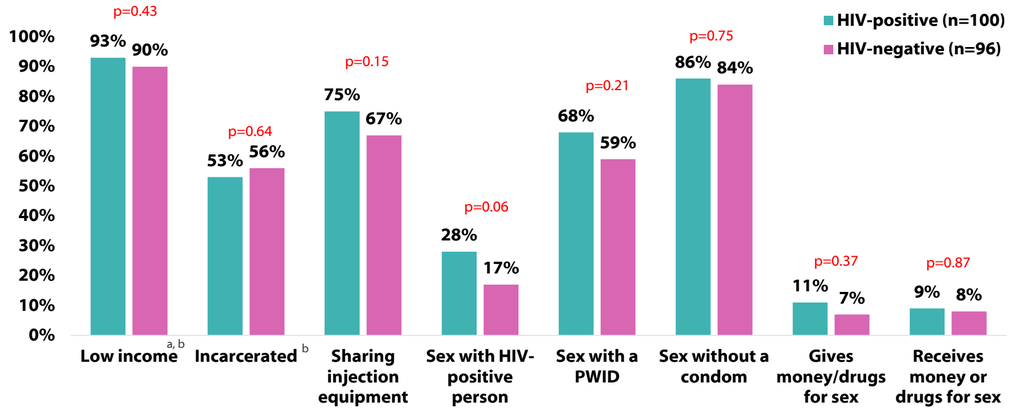
- Of 315 investigated contacts named as syringe-sharing partners, 196 (62%) were both HIV tested and had demographic and behavioral data available: 51% tested HIV-positive
- The distribution of categorical reported behaviors by HIV test status are shown in Figure1. Sharing injection equipment, sex with a person known to be HIV-positive, and sex with a PWID were more frequent among persons who tested HIV-positive than among persons who tested HIV-negative, but these differences were not statistically significant
- The median number of times a person was named as a syringe-sharing partner differed by HIV test status: 4 times (IQR: 2-6) for HIV-positive versus 1 time (IQR: 1-2) for HIV-negative, $p<0.001$

In regression modeling, the number of times that a person had been named by an HIV-infected person as a syringe-sharing contact was significantly associated with testing HIV-positive:

adj-RR[a] (per each time named as syringe-sharing partner): 1.90, 95% CI: 1.49-2.41

[a]adjusted for sharing drug injection equipment and sex with HIV-positive person

Figure1. Self-reported behaviors among PWID by HIV test status, Indiana Outbreak 2015 (n=196)



[a] Low income= <$10,000 annually; [b] Missing (n, %): low income (24, 12%); incarcerated (4, 2%);

DISCUSSION

- For every additional time someone was named as a syringe-sharing partner, the risk for HIV diagnosis in the outbreak doubled
- This suggests that the more "injection active" someone was in the community e.g. the size of their network and the extent to which they shared injection equipment with different people, the higher their risk was for HIV
- Data routinely collected as a part of contact tracing during an HIV outbreak can provide valuable and timely data to stratify contacts by risk of HIV infection and re-prioritize case-finding in real-time

LIMITATIONS

- We limited our analysis to persons who were investigated and were tested for HIV infection, and only included routinely collected data, therefore:
  - findings may not be representative of all PWID at risk for HIV infection in the outbreak
  - residual confounding may persist since data on all potential confounders were not collected and could not be adjusted for in estimates

CONCLUSION

- HIV outbreak control efforts should prioritize persons for investigation and HIV testing according to their extent of syringe sharing as indicated by the frequency with which they are named syringe-sharing contacts by HIV-infected persons.

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