

# RATES OF INFECTIONS IN PERSONS WHO INJECT DRUGS IN THE UNITED STATES AND TENNESSEE, 2001-2014

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## INTRODUCTION

- The opioid crisis is a public health emergency in both the United States (US) and Tennessee (TN)
- In 2017, TN had 19.3 overdose deaths per 100,000 persons; higher than the national average (3).
- Injection drug use predisposes users to a variety of serious infections
- Anecdotally, we have observed increased admissions in persons who inject drugs (PWID) related to serious infections which lead to morbidity, long hospital stays, and higher costs.
- Retrospective studies have shown increased number of infections in this cohort for the United States as a whole (1,2).

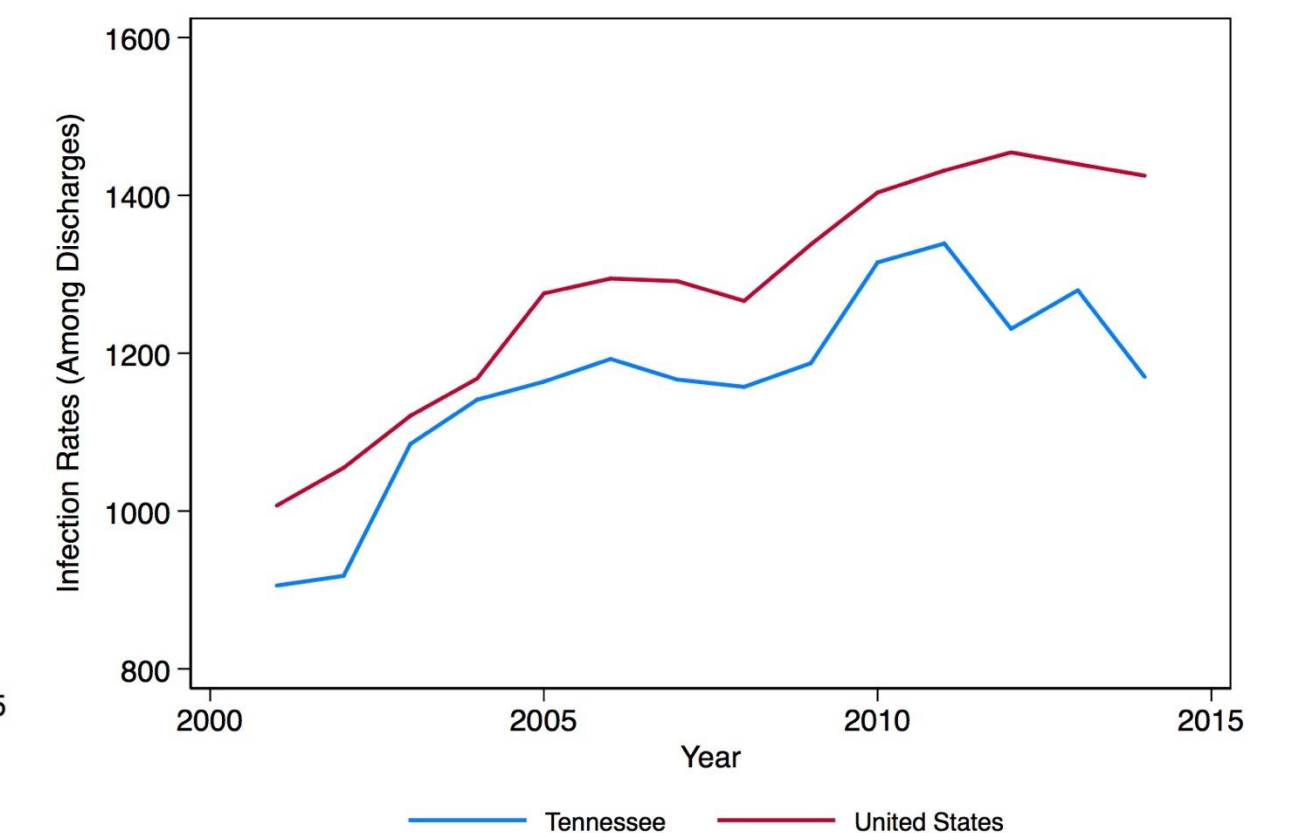
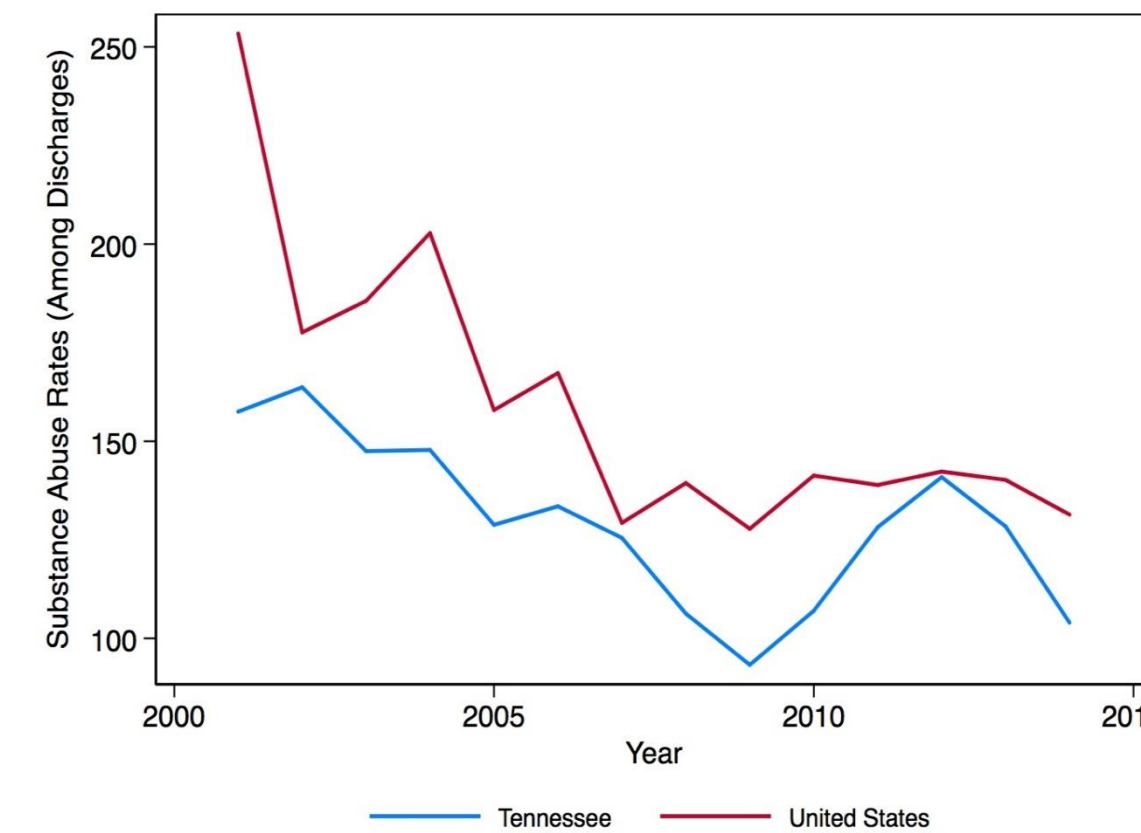
## METHODS

- Publicly available data from the Healthcare Utilization Project (HCUP)
- Discharge ICD-9 diagnosis codes from all persons admitted from 2001-2014
- Codes for bacterial infections common in PWID: osteomyelitis (OM), septic arthritis (SpA), infective endocarditis (IE), skin/soft tissue infections (SSTI)
- Calculated rates of infections and substance abuse in all hospitalizations
- Spearman's rank correlation quantified relationship between infection, Hepatitis C seropositivity (HCV), substance abuse (SA), and opioid use disorder (OUD)
- Poisson regression was also performed to yield incidence rate and confidence intervals

## RESULTS



| US                      | IRR  | 95% CI      | P      | TN                      | IRR   | 95% CI      | P      |
|-------------------------|------|-------------|--------|-------------------------|-------|-------------|--------|
| <b>INFECTIONS (ALL)</b> | 1.03 | 1.02-1.03   | <0.001 | <b>INFECTIONS (ALL)</b> | 1.02  | 1.009-1.030 | <0.001 |
| <b>SA</b>               | 0.96 | 0.94-0.98   | <0.001 | <b>SA</b>               | 0.97  | 0.96-0.99   | <0.001 |
| <b>OD</b>               | 0.96 | 0.94-0.98   | <0.001 | <b>OD</b>               | 0.99  | 0.98-1.08   | 0.32   |
| <b>HCV</b>              | 1.14 | 1.12-1.17   | <0.001 | <b>HCV</b>              | 1.14  | 1.097-1.15  | <0.001 |
| <b>IE</b>               | 0.97 | 0.97-0.98   | <0.001 | <b>IE</b>               | 1.002 | 0.99-1.02   | 0.77   |
| <b>SSTI</b>             | 1.03 | 1.02-1.04   | <0.001 | <b>SSTI</b>             | 1.02  | 1.01-1.04   | <0.001 |
| <b>OM</b>               | 1.01 | 1.006-1.012 | <0.001 | <b>OM</b>               | 1.005 | 0.77-1.02   | 0.31   |
| <b>SPA</b>              | 1.01 | 1.007-1.020 | <0.001 | <b>SPA</b>              | 1.002 | 0.99-1.08   | 0.6    |



- Serious infections common among PWID are increasing in TN and the US
- These correlate with HCV rates, which have also risen in hospitalized patients
- Opioid use disorder incidence decreased over the study period in the US

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