



CHAIR'S CHALLENGE

UNITE TO END THE EPIDEMICS 2017-2018

Tennessee's In-State Vulnerability Assessment for an HIV/Hepatitis C (HCV) Outbreak

TARGET POPULATION: People at risk for acquiring HIV and/or HCV

LOCATION: Nashville, Tennessee

PROGRAM DESIGN: Ecological study of the county-level risk for an HIV/HCV outbreak event using a dimension reduction statistical methodology

ESTIMATED COST: There is no cost associated with this study. All work was done by the Tennessee Department of Health (TDH) Viral Hepatitis Surveillance Director as part of an enhanced surveillance initiative.

FUNDING SOURCE: No external funding was used for this study.

SUMMARY

The rapid rise in opioid use, including via injection drug use, has important public health implications for persons at risk for or living with HIV and/or HCV, including life-threatening liver disease. Tennessee has one of the highest rates of opioid prescribing in the country, and the rate of deaths from injection drug use-related overdose has increased in the past five years. Given this confluence of risk factors, the Tennessee Department of Health expanded on the Centers for Disease Control & Prevention (CDC) HIV/HCV outbreak vulnerability study to include more granular, local data, including data on opiate prescribing. This more detailed understanding will be used to inform public health practice and response.

BACKGROUND

The rapid rise in opioid use has important public health implications not only for overdose deaths, but also for HIV and HCV infection and associated life threatening liver disease. Tennessee has one of the highest rates of opioid prescribing in the United States, and even in the face of significant

intervention, the rate of overdose deaths resulting from injection drug use has consistently increased in the past five years.

With respect to HIV, an estimated ten percent of new diagnoses in Tennessee occur in persons who self-report past or present injection drug use. In

2014, 756 Tennesseans were newly diagnosed with HIV, among whom 51 (7.2%) were individuals meeting the male-to-male sexual contact risk behavior criteria who also had a history of injection drug use while 11 (8.5%) were women with a partner with reported past or present injection drug use. According to the most recent CDC National Surveillance Data, Tennessee ranked fourth highest among states for acute HCV case rates, about 63% higher than the national rate.

CORE ACTIVITIES

Ecological Study of County-Level Outbreak Risk:

Given this confluence of risks, TDH expanded the prior Centers for Disease Control & Prevention (CDC) HIV/HCV outbreak vulnerability study to include more granular, local data, including data on opiate prescribing. They also explored the role of opioid prescribing patterns in increasing risk and health outcomes, including non-fatal and fatal overdoses.

TDH collected county-level indicator data from various sources including: the US Census; surveillance data from multiple TDH programs, and the Tennessee Bureau of Investigation. This information was used in a rigorous statistical process (i.e., dimension reduction) wherein only the most relevant data points were retained. The resulting data was then used to calculate risk scores for each county in the state. These risk scores were then stratified and ranked by county from highest to lowest.

DATA

Counties with high overall vulnerability scores tended to also score highly on individual indicators associated with vulnerability, even among those not retained in the ecological study model. For instance, when looking at the top 41 most vulnerable counties in this study overall, 26 also ranked in the top 41 for the highest rates of morphine milligram equivalents (MME) prescribed for pain as well as having the highest rates of

unemployment. Twenty-four ranked highly on the percentage of uninsured adults and almost half (21) had the highest rates of non-fatal overdoses.

The top 41 vulnerable counties did not rank highly on per capita income; only seven were among the highest. With regard to available services, 11 ranked in the top 41 for mental health services and buprenorphine providers. Low per capita income, lack of community services for mental health and addiction treatment, high rates of MME prescribed for pain, high unemployment, and lower rates of being insured were all observed among the 41 most vulnerable counties.

EVALUATION

To date, TDH is still determining the best use of the results of this research. In the Central Office, key stakeholders have been made aware of the results of the research and what the implications of the risk scores mean. There has been no official release of this data to community stakeholders or local health departments.

There are plans to start using the vulnerability information to identify counties most at risk in certain programs, and the efficacy of this approach will be developed and evaluated.

OUTCOMES

TDH used the ecological study to determine if more granular data improved insights into county-level HIV/HCV outbreak vulnerability as compared to the CDC's vulnerability assessment study. They found that additional indicators changed the rank and order of vulnerable counties. Sixteen counties, unranked in the CDC analysis, were identified as vulnerable in the current study. Importantly, TDH could also quantify the role of the opioid epidemic and prescribing patterns in increasing risk. They found that including measures related to the opioid epidemic as well as more in-depth measures related to sexually transmitted diseases (STDs) has helped to create a more nuanced and comprehensive calculation for outbreak risk. This more detailed understanding will be used to inform public health practice and response.

FUNDING & COST

This study was completed as part of the work outcomes of the Viral Hepatitis Surveillance Director at TDH. The only cost incurred to complete the activities described within were related to the salary of the position. No external grants were used to fund any portion of the study.

STRENGTHS

- While the results are likely generalizable only temporally within the state of Tennessee, the methodology is broadly applicable
- The majority of data elements collected for this study should be publicly available to many states, while many of the locally-available data should be within the reach of health departments

LIMITATIONS

- This study relied on slightly older data in order to expand on research that was conducted during the same time frame
- Since the nature of the epidemic being investigated has changed in the ensuing years, the generalizability of this analysis may be limited

STAKEHOLDERS

TDH programs (i.e., Viral Hepatitis, HIV, Prescription Drug Overdose, Family Health and Wellness, and Communicable and Environment Diseases and Emergency Preparedness); Tennessee Department of Mental Health and Substance; Tennessee Bureau of Investigation; local health departments; anti-drug coalitions and other community-based organizations (CBOs).

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