



Enhanced State Opioid Overdose Surveillance

In 2016, the Centers for Disease Control and Prevention (CDC) established the Enhanced State Opioid Overdose Surveillance (ESOOS) program to increase the availability of information on opioid overdose, and broaden stakeholders' understanding of the epidemic at the local, state, and national levels. Missouri is one of 12 states that was selected to participate in the program's first round of implementation, beginning in the fall of 2016.¹

Overview

ESOOS partners state agencies with hospitals and coroner/medical examiners' (MEs) offices to track emergency room discharges and deaths from opioid abuse. The goals of the program are threefold:

1. Increase the timeliness of aggregate non-fatal opioid overdose reporting;
2. Increase the timeliness of fatal opioid overdose and associated risk factor reporting; and
3. Disseminate findings to key stakeholders working to prevent or respond to opioid overdoses.

ESOOS collects a wide range of de-identified information from emergency department (ED) records and coroner/ME reports. This information includes the type of opioid used and the county in which the individual was treated. In cases of fatal overdose, ESOOS also collects information on risk factors, such as a history of opioid abuse, prescriptions for addiction medications like methadone or buprenorphine, or past mental health treatment.

Once collected, the data is housed in an electronic database operated by the CDC. The Missouri Department of Health and Senior Services (DHSS) is the agency responsible for entering Missouri's data. After the data is analyzed, information on trends and risk factors is disseminated to organizations working to prevent or respond to opioid overdose to inform prevention strategies.²

Funding

The ESOOS program is funded through the CDC by annual U.S. Congressional appropriations. In fiscal year (FY) 2016, Congress appropriated \$70 million to the CDC's evidence-based opioid drug overdose prevention program. The CDC subsequently allocated \$12.8 million to fund ESOOS. States participating in the program will receive funding for a three year period.

Missouri was awarded \$320,000 for the first year of the project, spanning September 1, 2016 – August 31, 2017.

¹ Other participating states include Kentucky, Maine, Massachusetts, New Hampshire, New Mexico, Ohio, Oklahoma, Pennsylvania, Rhode Island, West Virginia, and Wisconsin.

² Record-level data will not be accessible to the general public. DHSS will distribute findings through a web-based dashboard, geographic area- and topic-specific factsheets, and the department's annual report. The agency will also produce resources upon request.

Data Collection and Timeline

DHSS' data collection strategy and reporting timeline vary depending on the type of information being collected.

Non-fatal opioid overdose data

DHSS has partnered with the Missouri Hospital Association to obtain ED records from approximately 132 hospitals across the state. Data from these records will describe 3 categories of non-fatal overdoses: all drug overdoses, opioid-related overdoses, and heroin-specific overdoses. The reporting period for non-fatal data began October 1, 2016 and will continue through May 31, 2019. DHSS reported the first round of data to the CDC in April of 2017.³

Fatal opioid overdose data

DHSS obtains information for fatal opioid overdoses from county-level coroners and MEs on a voluntary basis. The CDC requires state agencies to collect information from areas that represent at least 75 percent of the unintentional and undetermined drug overdoses reported in the state in 2014. To meet this standard, DHSS initially identified 22 counties with high frequencies of opioid deaths as its target area.⁴ As of May 2017, all of the target counties have expressed support and/or agreed to participate in the program. Additionally, any county outside of the target area that is interested will be incorporated into the program. The reporting period for fatal opioid overdose data runs from July 1, 2016 until December 31, 2018. The first round of data will be reported to the CDC in June of 2017.

The Opioid Epidemic: Implications for Missouri

The Drug Enforcement Administration (DEA) announced that drug overdose surpassed motor vehicle accidents and firearms as the leading cause of injury deaths in the United States in 2015. Overdoses from opioids (prescription painkillers and heroin) exceeded deaths from all other drugs combined. Missouri has experienced a measurable increase in non-fatal and fatal overdoses in recent years, making the opioid epidemic an important public health issue for the state.⁵

Between 2005 and 2014, Missouri hospitals reported a nearly threefold increase the number of inpatient hospitalizations and ED visits for opioid overuse. Hospitals in the Northeast, Southeast, and St. Louis metropolitan area recorded the highest increases in the number of individuals requiring treatment. Heroin overdose has accounted for the majority of growth in ED visits since 2007. Missouri currently ranks 10th in the nation for deaths from heroin abuse. Geographic analysis reveals that heroin deaths are primarily concentrated in St. Louis City and the surrounding areas (see Figure 1). Comparatively, high death rates from non-heroin opioid overdose are more equally distributed throughout the state (see Figure 2).

³ The first data exchange included some additional quarters of data covering calendar year 2016

⁴ The counties identified as the DHSS' target area include: Bates, Boone, Buchanan, Callaway, Camden, Cass, Christian, Clay, Dunklin, Franklin, Greene, Jackson, Jefferson, Lincoln, Morgan, Newton, Phelps, Platte, St. Charles, St. Francois, St. Louis County, and St. Louis City

⁵ Non-fatal opioid overdoses (hospital inpatient and ED visits) increased 137% from 2005 to 2014. Statistically significant increases in fatal overdoses occurred from 2012 to 2014.

Figure 1: Heroin-Specific Mortality
Death Rates per 100,000 (2008-2014)

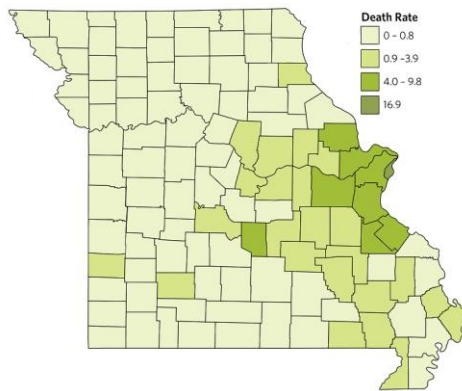
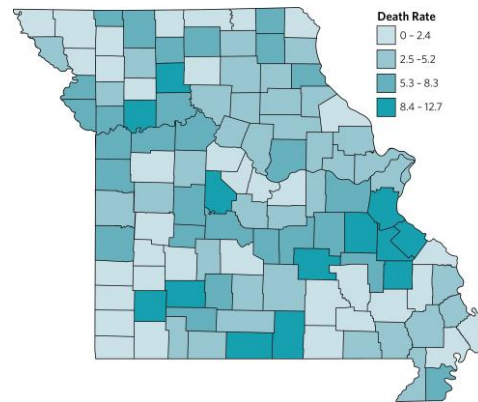


Figure 2: Non-Heroin Opioid-Related Mortality
Death Rates per 100,000 (2008-2014)



Opioid addiction impacts many aspects of society. Resources from the National Institute of Health link opioid and other drug dependency to a weakened workforce, homelessness, crime, incarceration, and child abuse and/or neglect. Opioid abuse also harms the unborn children of drug-dependent women. Studies show that exposure to opioids in the womb negatively impacts brain growth, causing the children to have problems in school and possibly later in life.

Beyond its devastating impact on individuals and communities, the opioid epidemic has financial consequences for state and federal governments. Between 2010 and 2014, 40 percent of ED visits by Missouri residents related to opioid overdose was paid for through government insurance. Examples include Medicare, Medicaid, Workman’s Compensation, the Veteran’s Administration, and TriCare. DHSS estimates that treatment for opioid overdose cost these payers \$38.4 million over the four-year period. Furthermore, medical care for Missouri infants born with opioid dependencies is primarily financed by Medicaid, costing the program approximately \$10 million in FY 2016.

By increasing the availability of data on non-fatal and fatal opioid overdoses, ESOOS will help stakeholders identify high-risk populations, enabling them to develop targeted strategies for prevention. Once the strategies have been implemented, ESOOS can be used to analyze trends and evaluate progress. The most successful strategies will decrease both hospitalizations and deaths from opioid overdose – improving the health and well-being of Missourians, and reducing the inefficient use of government resources.

Potential Applications

According to the CDC, past abuse of prescription opioids is the number one indicator of eventual heroin use. In fact, approximately 75 percent of new heroin users report that they abused prescription opioids before transitioning to heroin. Due to their classification as gateway drugs, many states have focused on combatting prescription opioid abuse as a means of reducing opioid overdose overall. One state-level intervention, called a prescription drug monitoring program (PDMP), has gained widespread popularity due to its ability to restrict access to powerful prescription drugs.

As of May 2017, Missouri is the only state without a PDMP. Despite this, several counties have established PDMPs through local ordinances. The goal of PDMPs is to increase providers’ knowledge of patients’ prescription histories, making it harder for people to obtain prescriptions from multiple doctors for the same condition. This practice, known as “doctor

shopping,” is common among individuals who sell or are addicted to prescription opioids. The databases also aim to discourage over-prescribing practices by increasing provider accountability.

[Research](#) suggests that effective use of PDMPs decreases incidences of doctor shopping, increases appropriate prescribing habits, and increases referrals to supportive care services. Yet relatively few studies have analyzed the impact of PDMPs on patient outcomes like overdoses. Information obtained from ESOOS will allow Missouri researchers to evaluate local PDMPs’ effectiveness in terms of health outcomes by highlighting trends in non-fatal and fatal opioid overdoses after implementation. Although representatives from counties adopting PDMPs hope to see reductions in prescription opioid overdoses, many concede that PDMP implementation alone is not likely to produce measureable change. Rather, they assert that PDMPs are an important component of the “toolkit” of interventions needed to prevent opioid overdoses across the state.⁶

Issues for Consideration

By tracking hospitalizations and deaths from opioid overdose, ESOOS will allow stakeholders to identify high-risk populations to target prevention strategies, and evaluate the strategies’ effectiveness in reducing non-fatal and fatal overdose among Missourians. It is important to recognize that ESOOS will not allow researchers to examine a single intervention’s effect on hospitalizations and deaths from opioid overdose. Rather, its utility lies in its ability to evaluate the impact of the interventions being implemented as a whole. As Missouri continues to strengthen its efforts to address opioid abuse, additional research will be required to gain a deeper understanding of individual programs’ and policies’ contributions towards reducing opioid overdoses across the state.

Endnotes available upon request.

⁶ To learn more about Missouri’s opioid epidemic and PDMPs, see Missouri Foundation for Health’s [Prescription Drug Monitoring Program](#) and [Prescription Drug Monitoring Program Models](#) factsheets.