

## Prescription Drug Use in Fatal Overdose Deaths: Findings and Implications

### KEY POINTS

There were 625 accidental drug overdose deaths between January 2016 and October 2017 in Marion County.

Toxicology results show 82% tested positive for an opioid and 65% tested positive for an illicit opioid (i.e., heroin or fentanyl)

Approximately 1 out of 3 people who died of an opioid-involved overdose were dispensed a prescription opioid in the year prior to death.

The majority of overdose deaths contained an illicit substance; in fact, less than 10% of opioid-involved overdose deaths resulted from prescription drugs alone.

### Introduction

Across the United States, an uptick in opioid-involved overdose deaths continues. With drug related overdose deaths now outnumbering firearm deaths, homicide, or both, many states are urgently seeking to curb the spreading opioid epidemic.<sup>1</sup> In 2015, Indiana was one of 21 states with a statistically higher drug overdose rate than the national average (19.5 deaths per 100,000 people in Indiana versus 16.3 nationally).<sup>2</sup>

Marion County, home to Indiana's capital city, has experienced one of the highest rates of drug poisoning deaths compared to other Indiana communities.<sup>3</sup> In Marion County alone, there were 625 deaths caused by a drug related overdose between January 2016 and mid-October 2017.<sup>4</sup>

### New Laws for Indiana Coroners

Recent legislative measures might help address the gap. As of July 1, 2016, coroners have legal authority to examine Indiana's prescription drug monitoring program (PDMP), INSPECT (Indiana Scheduled Prescription Electronic Collection and Tracking Program), as part of an overdose investigation.<sup>5</sup> Further legislation passed during the 2018 session (Senate Bill 139) will require county coroners who reasonably suspect the cause of death to be accidental or intentional overdose due to controlled substance to consult the decedent's INSPECT report if one is available; to perform appropriate toxicology testing; and to report the results, including the involvement of any controlled substances, to the Indiana State Department of Health (ISDH).<sup>6</sup>

### Matching Toxicology Reports and INSPECT

To better understand the role prescription drugs play in fatal overdoses, researchers from the Indiana University Public Policy Institute and the Richard M. Fairbanks School of Public Health worked with staff at the Marion County Coroner's Office to link toxicology reports with data from INSPECT. Toxicology reports

show the presence of both pharmaceutical and illicit substances such as 6-monoacetylmorphine (heroin), cocaine, methamphetamine, oxycodone, hydrocodone, oxymorphone, hydromorphone, fentanyl, and benzodiazepines.

### Study Findings

During the study period 625 accidental drug overdose deaths were detected in Marion County. Of these 82% (n=514) were opioid-involved, meaning that they tested positive for any opioid.

Among all accidental drug overdose cases (n = 625), slightly less than half (47%; n=293) had been prescribed a substance tracked via INSPECT in the year prior to death; in 81% (n=238) of the cases this prescription was for an opioid. Moreover, about one-third (38%; n=196) of those who died of an opioid-involved overdose (n=514) had a prescription for an opioid in the year prior to their death. Hydrocodone, an opioid used to provide long-acting treatment for severe pain, was the most common substance prescribed. Among those who died from an opioid-involved overdose and were also prescribed an opioid (n=196), 42% (n=83) were also prescribed a benzodiazepine in the year prior to their death. Benzodiazepines are a class of drugs that significantly raise overdose risk when taken with an opioid.

Importantly, among the 514 opioid-involved deaths that occurred in Marion County during the study period, 79% (n=407) contained an illicit opioid; specifically, heroin or fentanyl. Among the 196 opioid-involved deaths where the person was prescribed an opioid in the year prior to death, 65% contained an illicit opioid. When researchers excluded cases where cocaine and methamphetamine were detected they found that among all opioid-involved deaths (n = 514), less than 10% (n = 47) were associated with prescription opioids. Moreover, more than half (55%) of decedents were also prescribed a benzodiazepine.

## Prescription Characteristics

Researchers wanted to better understand the nature of the prescriptions held by those who died of an opioid-involved overdose and were also prescribed an opioid (n = 196). They used INSPECT to look at the number of opioid prescriptions, the number of physicians writing opioid prescriptions, and the number of pharmaceutical dispensary locations used by patients. On average, people who died of an opioid-involved overdose had 12.5 prescriptions in the year prior to their death. Collectively, the decedents were found to have an average of 3.1 providers writing prescriptions and to have visited an average of 2.9 dispensaries.

The top three substances prescribed in the year prior to death were hydrocodone, oxycodone, and tramadol. All three of these drugs are opioids intended to treat moderate to severe pain around the clock in people who cannot use other medications. Each works to relieve symptoms by changing the way the brain and nervous system respond to pain. On average, people who died of an opioid-involved overdose received their final dispensation of these medications 18 days prior to death.

## Implications

The results of this study suggest that in the year prior to death more than 1 in 3 people who died of a drug overdose were dispensed a prescription opioid. However, very few opioid-involved overdose deaths resulted from prescription drugs alone; most also contained or were only the result of an illicit substance. This finding suggests, though important, the growing number of interventions designed to abate the misuse of prescription opioids are not likely to have an immediate impact on the number of drug related overdose deaths in Marion County. To the extent that people who use opioids move towards illicit drug use as a progression from prescription medications, measures to interrupt diversion or misuse of legally obtained opioids could have a lasting impact on diminishing rates of drug use and fatal overdose. These measures must also be coupled with an expansion of evidence-based, medication-assisted treatments for opioid use disorder.

## Recommendations

The study was first tested in Marion County with the objective to replicate its efforts in additional counties across the state. The lessons learned during the initial process will provide useful guidance to other Indiana communities. This study also offers instruction for how other coroners in the state might use INSPECT to examine drug overdose cases.

The study findings demonstrate that many individuals who died of an overdose had a record in INSPECT, highlighting the need for INSPECT to be better utilized as a public health monitoring tool. Insights from INSPECT could help to increase swift identification of risk factors and to improve timely dissemination of discovered indicators. Furthermore, with enhanced reporting, public health practitioners could pinpoint hot spots and rapidly respond with appropriately targeted resources.<sup>7</sup>

Healthcare providers could additionally benefit from comprehensive education on how to assess for and respond to signs of substance use disorder, especially for populations who are determined to be most at risk. Prescribers also need more resources for implementing and evaluating safe prescribing habits, considering that a third of the people who died from an opioid-involved overdose received an opioid prescription in the year prior to their death.

Based on the findings of this study, the following recommendations are suggested to curb opioid-involved overdose deaths:

Provide training and resources to support coroners to properly carry out overdose death investigations.

Eliminate policy and agency barriers so INSPECT is able to be properly used as a public health surveillance tool.

Use overdose data to guide development of appropriate prevention and treatment efforts.

Couple efforts to divert illicit drugs from reaching the streets with efforts to expand medication assisted treatment to assist people with recovery from opioid use disorder.

## References

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<sup>4</sup>Phalen, P., Ray B., Watson, D., Huynh, P., and Greene, M. (2018). "Fentanyl related overdose in Indianapolis: Estimating trends using multilevel Bayesian model" Addictive Behaviors. See methodology. Retrieved from: <https://doi.org/10.1016/j.addbeh.2018.03.010>

<sup>5</sup>Indiana General Assembly (2017). Indiana Code 2017 § 35-48-7-11.1. Retrieved from <https://iga.in.gov/legislative/laws/2017/ic/titles/035>

<sup>6</sup>Indiana General Assembly, 2018 Session. (2018). Senate Bill 139. Retrieved from <https://iga.in.gov/legislative/2018/bills/senate/139>

<sup>7</sup>Centers for Disease Control and Prevention (CDC), National Center for Injury and Prevention and Control, Division of Unintentional Injury Prevention. (2017). Opioid Overdose, State Information. Retrieved from <https://www.cdc.gov/drug-overdose/states/index.html>

## Issue Brief Preparation

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