

Prescription Behavior Surveillance System (PBSS) Issue Brief

Increase in overdose deaths involving synthetic opioids linked to increase in supply of illicitly manufactured fentanyl in PBSS states

From 2010 to 2015, annual overdose deaths involving opioids in the United States increased by nearly 57%, with a notable rise in deaths attributed to synthetic opioids other than methadone (hereafter referred to as *synthetic opioid overdose deaths*), which rose from 3,007 to 9,580, an increase of 219%.¹ Synthetic opioids are made from chemicals in a lab, and include such drugs as fentanyl, tramadol, and Demerol™.

**From 2010-2015,
synthetic opioid
overdose deaths rose
from around 3,000
to over 9,500.¹**

The dramatic rise in synthetic opioid overdose deaths has likely been driven primarily by a rise in deaths involving fentanyl,² which is manufactured legally for medical use, but can also be produced illicitly and sold on the illegal drug market – often mixed with or sold as heroin. The increase in synthetic opioid overdose deaths from 2010 to 2015 has had varying impact on different regions of the United States; having disproportionately impacted the Midwest, Northeast, and some Southern states.²

In this data brief, we compare trends in synthetic opioid overdose deaths in 12 states to trends in the supply of illicitly manufactured fentanyl (IMF) in those states, as well to trends in prescribing rates for prescription fentanyl. These comparisons provide evidence for the dominant role of IMF in the rise of synthetic opioid overdose deaths in several regions of the U.S., particularly in states east of the Mississippi River.

NVSS (Overdose Deaths)

The [National Vital Statistics System](#) is an inter-governmental data sharing system which utilizes various forms of vital statistics for the entire population of the United States. The system involves coordination between the different state health departments and the National Center for Health Statistics.

NFLIS (Drug Submissions)

The [National Forensic Laboratory Information System \(NFLIS\)](#) is a program administered by the Drug Enforcement Administration that systematically collects drug identification results from drug cases submitted for analysis to national, state, and local forensic laboratories from around the U.S.

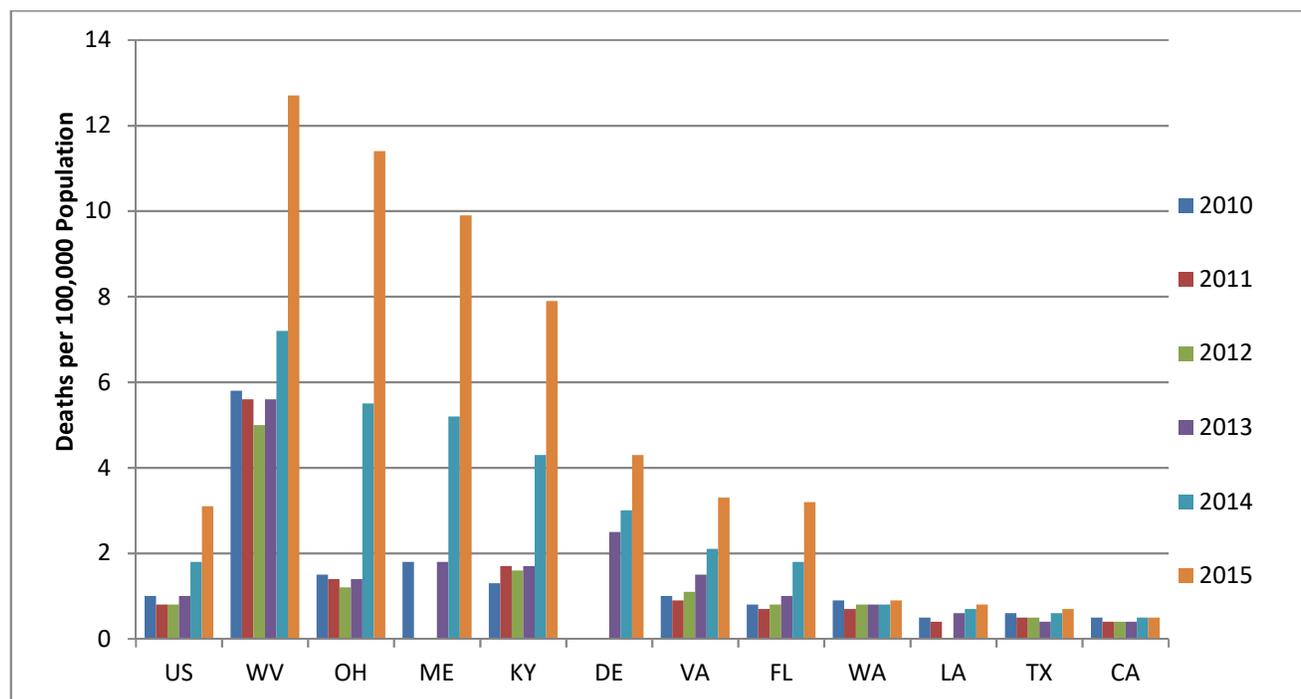
PBSS (Prescribing Rates)

The [Prescription Behavior Surveillance System \(PBSS\)](#) collects prescription drug monitoring program (PDMP) data from 12 states – California, Delaware, Florida, Idaho, Kentucky, Louisiana, Maine, Ohio, Texas, Virginia, Washington, and West Virginia –referred to in this report as *PBSS states*. The system uses these data to calculate aggregate indicators of controlled substance prescribing behaviors, such as the rate of opioids prescribed per 1,000 population and average dose prescribed.

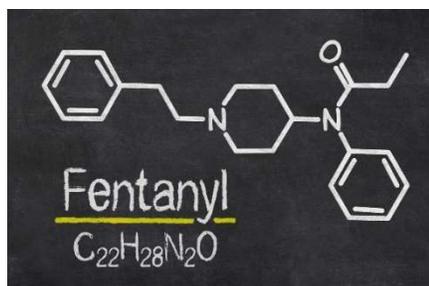
States See Sharp Rise in Overdose Death Rates Involving Synthetic Opioids

The national rate of overdose deaths involving synthetic opioids was at or below 1 per 100,000 from 2010 through 2013, then more than tripled from 2013 to 2015, reaching 3.1 per 100,000.¹ This rapid rise is reflected in similar increases in synthetic opioid overdose death rates in several PBSS states located east of the Mississippi river, including West Virginia, Ohio, Maine, Kentucky, and Florida. However, in PBSS states west of the Mississippi river (Washington, Louisiana, Texas, and California) much lower and more stable rates of synthetic opioid overdose deaths were observed during this time period (Figure 1).

Figure 1. Annual rates of synthetic opioid overdose deaths rose dramatically in many, but not all PBSS states during 2010-2015.



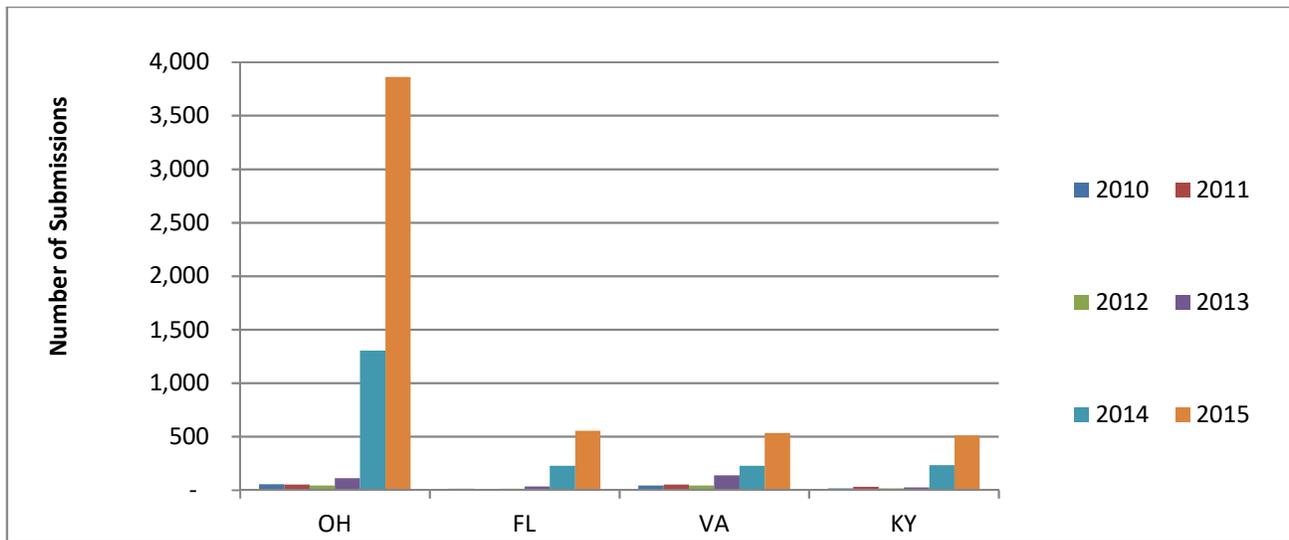
States are shown in order of death rates in 2015. No reliable data on rates for synthetic opioids were available from Idaho. Missing data for other states indicates no reliable data on rates were available for those years. It is important to note that states differ in the completeness of reporting of the drugs involved in overdose deaths. For example, in 2015, information on the specific drugs involved was not available for more than 20% of the drug overdose deaths in Kentucky, Delaware, Florida and California. For Louisiana, more than 50% of the drug overdose deaths lacked information on the specific drugs involved. The quality of the data and the improvement over time should be considered when showing state rates for deaths involving specific drugs.



Illicitly Manufactured Fentanyl on the Rise

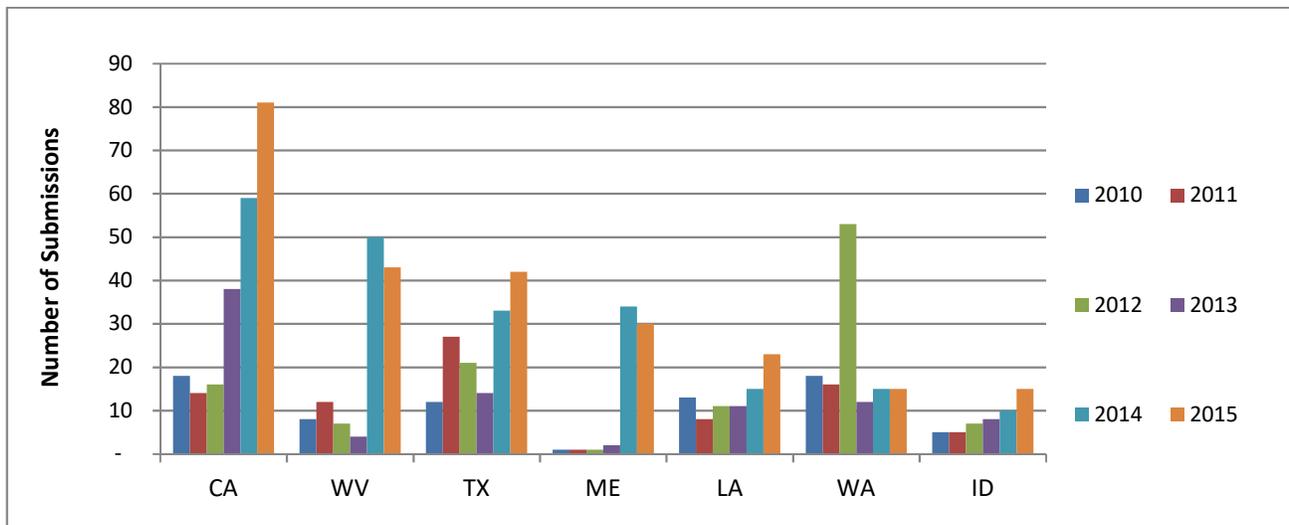
During 2010-2015, dramatic changes were also occurring in the illegal drug market. Data from the DEA's National Forensic Laboratory Information System (NFLIS) indicate that drug submissions (drug cases submitted to laboratories for analysis) testing positive for illicitly manufactured fentanyl rose dramatically in several PBSS states, particularly Ohio, Florida, Virginia, and Kentucky (Figure 2a).

Figure 2a. Annual submissions of illicitly manufactured fentanyl rose dramatically in four PBSS states located east of the Mississippi River.



Sudden increases in drug submissions testing positive for illicitly manufactured fentanyl also occurred in some of the other PBSS states during this time period, including California, West Virginia, and Maine, though on a much smaller scale compared to the four states mentioned above. (Note the vastly different scale of the vertical axis in Figure 2b).

Figure 2b. Drug submissions testing positive for illicitly manufactured fentanyl in the remaining PBSS states.



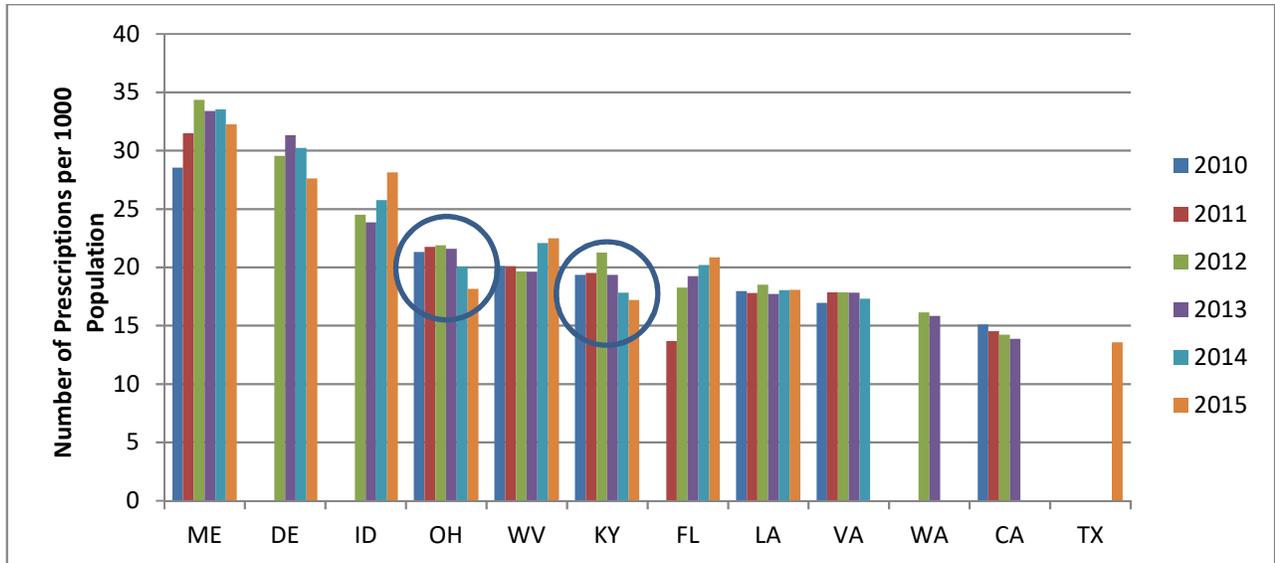
States shown in order of numbers of submission testing positive for fentanyl in 2015. Drug submission data were incomplete for Delaware and thus were excluded from this analysis.

Prescription Fentanyl Rates Remain Steady

In contrast to the rising supply of illicitly manufactured fentanyl during 2010-2015, prescribing rates for pharmaceutical fentanyl in PBSS states remained fairly stable. In fact, some states with high numbers of drug submissions testing positive for illicitly manufactured fentanyl and high rates of synthetic opioid

overdose deaths (e.g., Ohio, Kentucky) actually experienced *decreasing* levels of pharmaceutical fentanyl prescribing rates overall during this time period (see circles in Figure 4).

Figure 4. Annual fentanyl prescription rates remained relatively stable and included some decreases.



States shown in order of mean prescribing rate for the period from 2010 to 2015. Not all PBSS states were able to provide prescription data for all years in this period.

What This Means

Overall, these data strongly suggest that illicitly manufactured fentanyl (IMF) is the main driver of the recent increase in deaths involving synthetic opioids and has disproportionately affected states in the Midwest, Northeast, and parts of the South. Increasing numbers of synthetic opioid overdose deaths in states with increasing levels of drug submissions testing positive for fentanyl highlights the need for close collaboration between public health and public safety in order to optimize the response to the ongoing opioid epidemic.

What Can Be Done

The following recommendations can be found among those listed in CDC's October 26, 2015 Health Advisory "[Increases in Fentanyl Drug Confiscations and Fentanyl-related Overdose Fatalities.](#)"

Preventing Overdoses with Naloxone

A vital means by which promoters of both public health and safety can work together to respond to IMF overdose deaths is through the expanded use of naloxone. Naloxone is a safe and effective antidote to all opioid-related overdoses, including fentanyl, and is a critical tool in preventing fatal opioid overdoses.^{3,4} Depending on state and local laws, this medication can potentially be administered effectively by EMS, law enforcement,⁵ people at high risk for overdose,⁶ or family and friend bystanders who have obtained the medication.⁷



Health Care Providers

- Increase the amount of naloxone on hand for first responders such as law enforcement and other EMS personnel.⁸
- Recognize and treat opioid overdose patients, with particular focus on how to respond to fentanyl and acetyl fentanyl overdose.⁸
- Understand that multiple doses of naloxone may need to be administered per fentanyl overdose event because of the drug's increased potency relative to other opioids.⁹

Harm Reduction Organizations

- Expand naloxone access to persons at risk for opioid-related overdose and their family members¹⁰ and train those using drugs how to effectively administer naloxone.
- Provide take-home naloxone kits and encourage people who use heroin and/or misuse opioid analgesics—or know people that do—to carry them.

Improving Detection of Fentanyl Outbreaks

Other critical steps can be taken by public health departments, medical examiners and coroners, and law enforcement to improve the detection of fentanyl outbreaks.

Public Health Departments

- Explore methods for more rapidly detecting drug overdose outbreaks, including fentanyl,¹¹ by using existing surveillance systems such as medical examiner data, emergency medical services data or near real-time emergency department data.
- In critical areas, consider asking emergency departments to report fatal and nonfatal opioid overdose cases within 48 hours.¹²
- Identify and track decedent demographics and risk factors, along with geographic concentrations of cases, to better inform public health surveillance and overdose prevention efforts.¹³

Medical Examiners/Coroners

- Screen specimens from fatal drug overdose deaths using an enzyme-linked immunosorbent assay (ELISA test) with the capacity to detect fentanyl.
- Implement standardized mechanisms for determining cause of death and methods of reporting to ensure death reports are complete and accurate.¹⁴



Law Enforcement

- Test drug samples seized or collected by law enforcement or found at the scene of death to detect fentanyl or fentanyl analogs.¹⁵
- Prioritize and expedite testing of drug samples taken from drug overdose scenes, if possible.
- Share data on fentanyl and acetyl-fentanyl drug seizures with local health departments, coroners, and medical examiners.

About PBSS: The Prescription Behavior Surveillance System (PBSS) provides epidemiological analyses of de-identified data from state prescription drug monitoring programs to help target and evaluate interventions aimed at reducing prescription drug abuse and diversion. For further information, see pdmpassist.org.

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