

Prescription Behavior Surveillance System (PBSS)

ISSUE BRIEF



Increase in overdose deaths involving synthetic opioids other than methadone linked to increase in supply of 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%. Synthetic opioids are made from chemicals in a lab, and include such drugs as fentanyl, tramadol, and Demerol.TM

The dramatic rise in synthetic opioid overdose deaths has likely been driven primarily by a rise in deaths involving fentanyl, 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 impacts 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 five PBSS states to trends in law enforcement drug reports for fentanyl in those states, as well to trends in the number of prescriptions of pharmaceutical fentanyl.

Analysis was limited to five states based on their record of good to excellent reporting on death certificates of at least one specific drug involved in drug overdose deaths. These comparisons provide evidence for the dominant role of illicitly manufactured fentanyl (IMF) in the rise of synthetic opioid overdose deaths in several regions of the U.S., particularly in states east of the Mississippi River.

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.

NVSS (Overdose Deaths)

The **National Vital Statistics System** is an inter-governmental data sharing system that 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 Reports)

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 federal, state, and local forensic laboratories around the U.S.

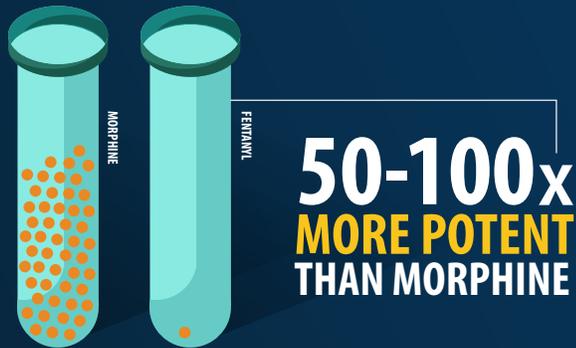


Centers for Disease
Control and Prevention
National Center for Injury
Prevention and Control

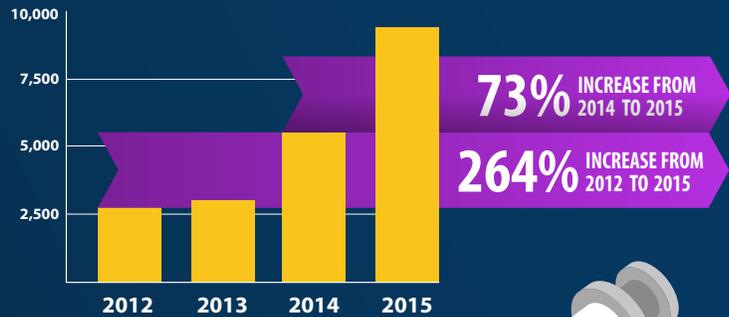
PBSS Prescription Behavior
Surveillance System

FENTANYL: Overdoses On The Rise

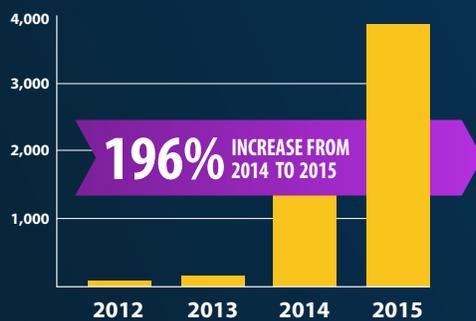
Fentanyl is a synthetic opioid approved for treating severe pain, such as advanced cancer pain. Illicitly manufactured fentanyl is the main driver of recent increases in synthetic opioid deaths.



SYNTHETIC OPIOID DEATHS ACROSS THE U.S.

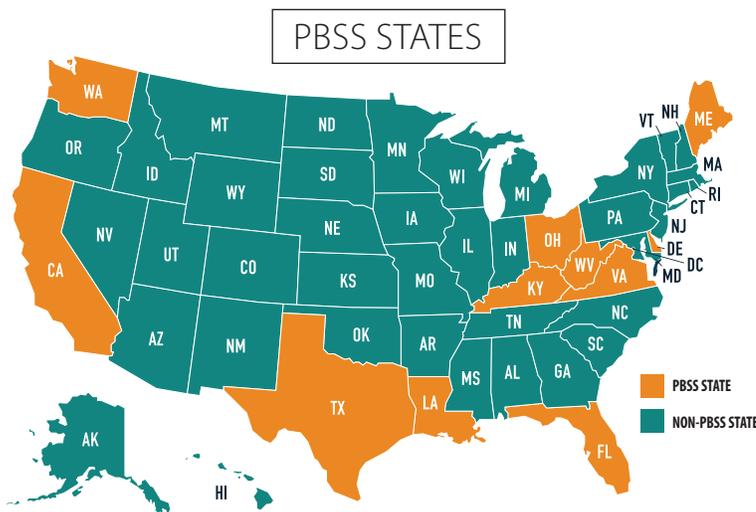
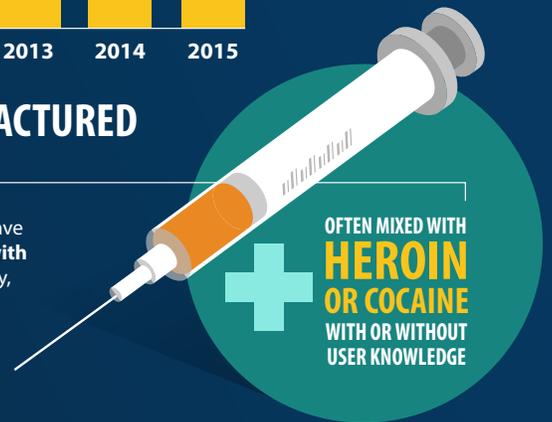


Ohio Drug Submissions Testing Positive for Illicitly Manufactured Fentanyl



ILLICITLY MANUFACTURED FENTANYL

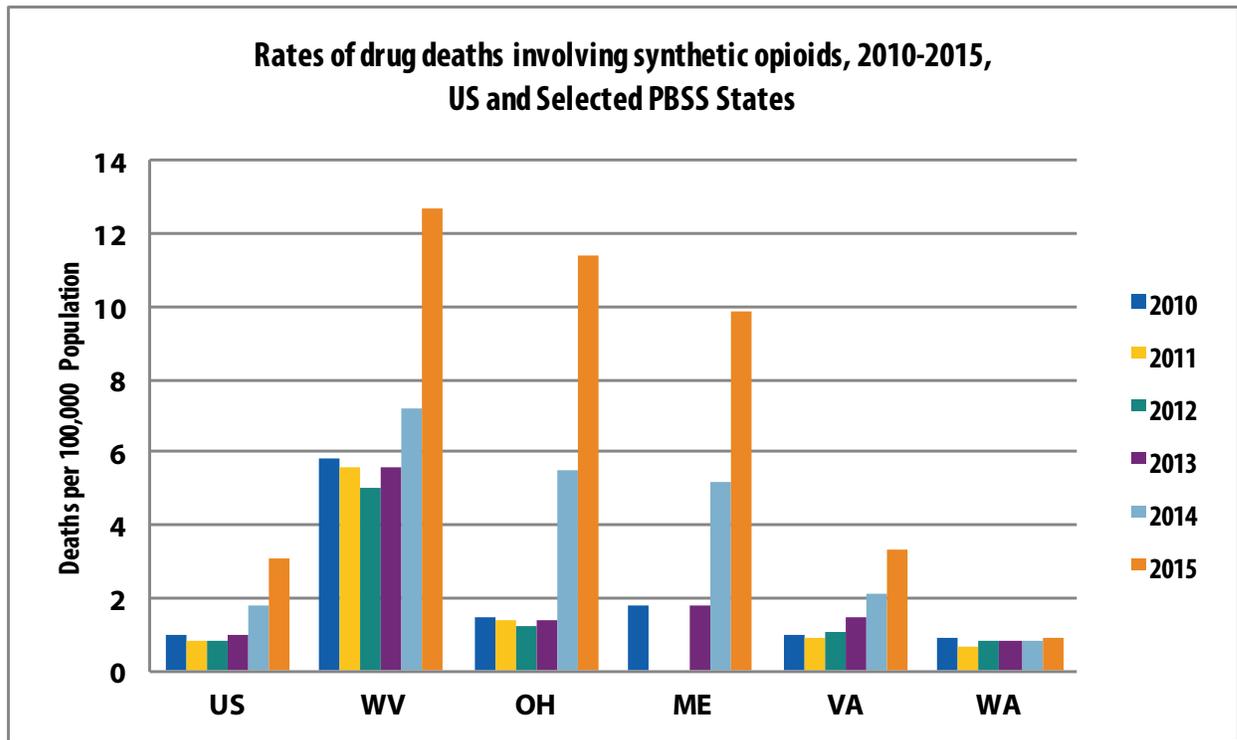
Although prescription rates have fallen, overdoses associated with fentanyl have risen dramatically, contributing to a sharp spike in synthetic opioid deaths.



States See Sharp Rise in Overdose Death Rates Involving Synthetic Opioids other than Methadone

The national rate of synthetic opioid overdose deaths 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 in the East, Midwest, and Appalachian regions of the country, including West Virginia, Ohio, Maine, and Virginia. However, in one western state, Washington, a much lower and more stable rate of synthetic opioid overdose deaths was observed during this same 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.

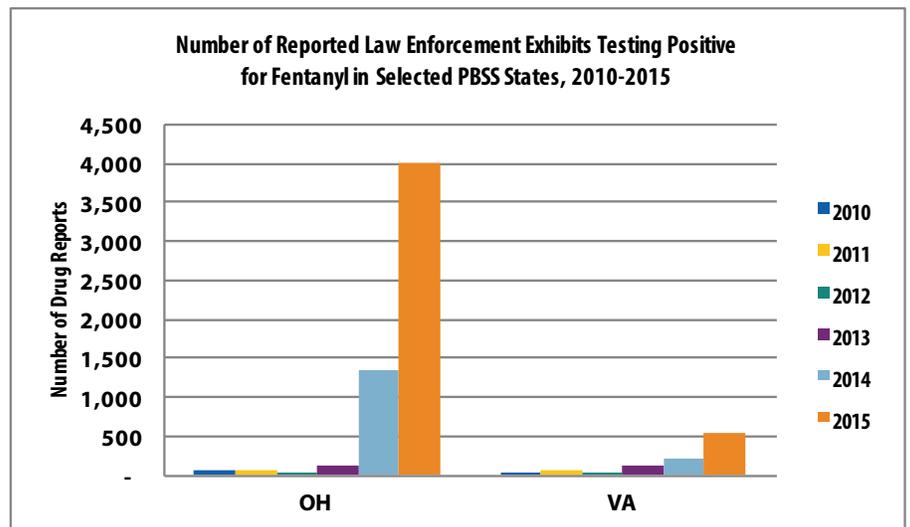


Source: CDC Wonder online database, <https://wonder.cdc.gov/>, queried May 15, 2017
 States shown in order of death rates in 2015. Missing data for 2011-12 in Maine are due to low numbers of synthetic opioid overdose deaths (<20) in those years leading to unstable rates. All states depicted have reporting percentages of at least 80% of death certificates with at least one specific drug involved in overdose deaths in 2010, with the exception of Ohio, whose percentages ranged from 76% to 79% during 2010-2012. Ohio data were included despite not meeting the 80% threshold because of numerous other sources that have corroborated the sharp rise in synthetic opioid overdose deaths that have occurred in Ohio beginning in 2014.^{2,16}

Fentanyl Reports on the Rise

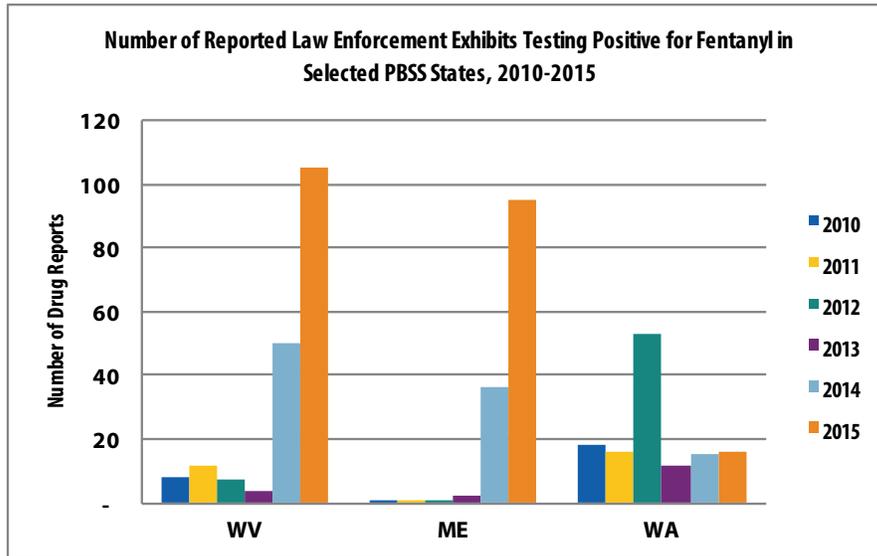
During 2010-2015, dramatic changes were also occurring in the illegal drug market. Data from the DEA's National Forensic Laboratory Information System (NFLIS) indicate that drug submissions (drug exhibits submitted to laboratories for analysis) testing positive for fentanyl (fentanyl reports) rose dramatically in several PBSS states, particularly Ohio and Virginia. (Figure 2a). Fentanyl reports in Ohio increased from 56 in 2010 to 4,009 in 2015. During the same time period, fentanyl reports in Virginia increased from 42 to 557.

FIGURE 2A Annual fentanyl drug reports rose dramatically in Ohio and Virginia.



Sudden increases in fentanyl reports also occurred in some of the other PBSS states during this time period, particularly West Virginia and Maine, though on a much smaller scale compared to Ohio and Virginia. (Note the vastly different scale of the vertical axis in *Figure 2b*). Washington state had a spike in fentanyl reports in 2012, but otherwise experienced a relatively level trend.

FIGURE 2B Annual fentanyl drug reports in the remaining PBSS states.

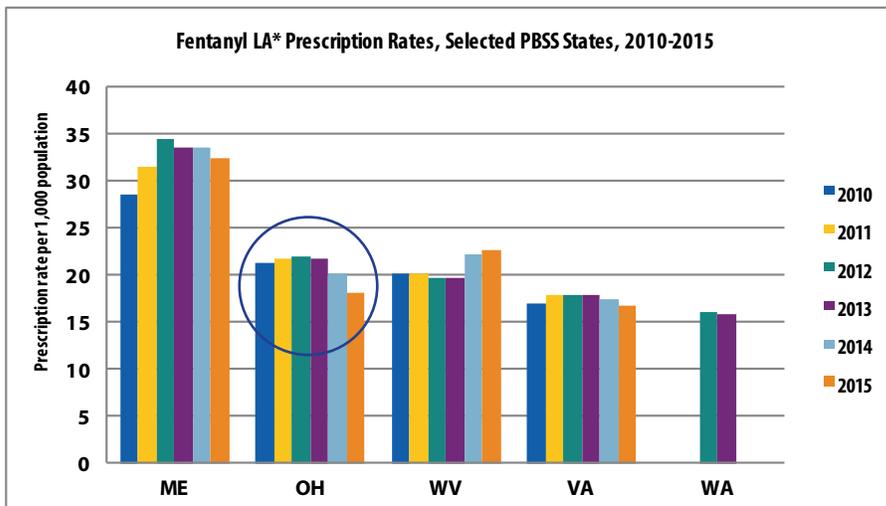


Source: NFLIS database, queried on June 26, 2017
States shown in order of numbers of submission testing positive for fentanyl in 2015.

Prescription Fentanyl Rates Remain Steady

In contrast to the rising law enforcement fentanyl drug reports during 2010-2015, prescribing rates for pharmaceutical fentanyl in PBSS states remained fairly stable. In fact, one state with high numbers of drug submissions testing positive for fentanyl and high rates of synthetic opioid overdose deaths (Ohio) actually experienced decreasing levels of pharmaceutical fentanyl prescribing rates during this time period overall (see circle in *Figure 3*).

FIGURE 3 Annual fentanyl prescription rates remained relatively stable and included some decreases.



Source: Prescription Behavior Surveillance System (PBSS), queried May 15, 2017
States shown in order of mean prescribing rate for the period from 2010 to 2015. The state of Washington was not able to provide prescription data for all years in this period.

*"LA" indicates long-acting, by far the most commonly prescribed formulation of fentanyl.

WHAT THIS MEANS

Overall, these data, along with other reports describing the geographic pattern of synthetic opioid overdose deaths versus law enforcement drug reports for fentanyl,² suggest that **illicitly manufactured fentanyl (IMF)**, as opposed to pharmaceutical fentanyl, is the main driver of the recent increase in deaths involving synthetic opioids other than methadone, and has disproportionately affected states located in the Midwest and Eastern regions of the U.S. Increasing numbers of **synthetic opioid overdose deaths** in states with increasing levels of **fentanyl drug reports** highlights the need for close collaboration between public health and public safety in order to optimize the response to the ongoing opioid overdose 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 public 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 those involving 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 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 persons 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 fentanyl analogues drug reports with local health departments, coroners, and medical examiners.

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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 pdmassist.org.

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