Understanding Ohio's Decline in Fentanyl-related Deaths: Trends, Interventions, and the Evolving Drug Supply

Introduction

Across the United States drug-related deaths rose steadily from 2014, drastically increasing during the COVID-19 pandemic and peaking in 2023. Ohio has been among the states most severely impacted by this crisis, with synthetic opioids such as fentanyl—a substance 100 times more potent than morphine—being the primary driver. Nearly four-fifths of Ohio's overdose deaths have involved fentanyl, underscoring its central role in the epidemic.[1] However, Ohio's trends have diverged slightly from national patterns. While overdose deaths nationwide peaked in 2023, Ohio experienced its highest number of drug-related deaths in 2021, followed by consecutive decreases in 2022 and 2023. Provisional data for 2024 suggests that this decline is continuing and may result in the lowest number of fentanyl-related deaths in Ohio since 2016.[2]

This encouraging trend is mirrored by reductions in related metrics, such as naloxone administration by EMS, suspected overdose visits to emergency departments, and fentanyl drug seizures by law enforcement that are then tested by forensic labs (detailed below). These parallel declines raise important questions: Is the decrease in fentanyl-related deaths primarily driven by a reduction in the fentanyl supply or are other factors—such as expanded access to treatment and harm reduction initiatives—also contributing? This research brief explores these questions by analyzing several key measures related to the drug supply, overdose, and intervention efforts in Ohio.

Key Takeaways

The data reveal a complex interplay of factors that may be contributing to these declines. The following key takeaways are detailed further throughout the research brief:

- **Ohio's 2021 Peak**: Fentanyl-related deaths and lab submissions peaked in Ohio in 2021 and are now trending downward, suggesting a potential disruption or change in the illicit fentanyl market.
- **Supply Chain Factors**: Alleged cartel bans and geographic shifts may partially explain changes in the fentanyl supply and subsequent decreases in Ohio.
- **Harm Reduction**: Significant expansion of naloxone distribution through programs like Project DAWN has likely saved lives.
- **Medicaid MOUD/MAT**: Data through late 2022 indicate there have been progressively increasing numbers of Medicaid recipients accessing medication-assisted treatment.
- **Buprenorphine Decline**: Statewide buprenorphine prescriptions have steadily–and curiously–dropped since 2022. Further exploration of this trend is needed.

[1] Harm Reduction Ohio, "*Overdose death falls to 9-year low in Ohio as fentanyl's presence in drugs ebbs*," July 2024.
[2] CDC National Center for Health Statistics, National Vital Statistics System, *Provisional Drug Overdose Death Counts*, 2024

This research brief aims to foster discussion and reflection on these findings, identifying areas for future research, lessons learned, and activities that could further reduce fentanyl-related overdose deaths. By examining trends across multiple indicators, it underscores the need for a multifaceted approach to understanding and addressing the ongoing opioid crisis in Ohio.

The Data We Explored

This brief examines seven key measures that offer valuable insights into the recent decline in fentanyl-related deaths in Ohio. These indicators serve as vital surveillance tools for tracking trends in fentanyl-related mortality:

1. Fentanyl-related overdose death counts
2. Ohio emergency medical services naloxone dose administration counts
3. Ohio emergency department suspected overdose visit counts
4. Ohio fentanyl submissions[3] as reported by the National Forensic Laboratory Information System
5. National US border fentanyl submissions as reported by US Customs and Border Protection
6. Cuyahoga County fentanyl submissions as reported by the Cuyahoga County Medical Examiner's Office
7. Ohio naloxone distribution count (Project DAWN only)
8. Ohio Medicaid enrollees with OUD receiving MOUD/MAT
9. Ohio Buprenorphine Prescriptions

Part I. On the Decline: Fentanyl-Related Deaths, EMS Naloxone Dose Administration, and Suspected Overdose Visits to Emergency Departments

Ohio fentanyl-related **overdose deaths** have decreased since their peak in 2021, with a strong downward trend between 2022 and 2023 and significant projected decreases through 2024. Two other related indicators are following similar trends: the number of **naloxone doses administered** by Ohio emergency medical service (EMS) agencies; and the number of **suspected overdose visits** in Ohio emergency departments (EDs).[4] The shared decreasing trend among all three data points suggests there is some factor or factors impacting these related measures. Figure 1 compares these trends using a common scale (z-score). The z-score comparison allows us to visualize the changes for each measure year-over-year based on the deviation from each measure's average.[5] For

[3] Fentanyl Submissions are defined as the number of drug products obtained by law enforcement that tested positive for fentanyl upon submission to forensics laboratories.

[4] Naloxone is an opioid antagonist medication which is used to reverse opioid related overdoses that might otherwise be fatal. Source: National Institute on Drug Abuse, "*Naloxone Drug Facts*," January 2022.

[5] Estimates for 2024 were calculated using different methodologies depending on the availability and reporting intervals of each dataset. While some datasets included partial 2024 data (e.g., mid-year or through Q3), others required projections based on historical trends or percent changes from previous years. These estimates aim to provide a conservative outlook and account for variations in data completeness and reporting timelines across sources. Additional note on mortality data: If current trends hold–CDC NVSS mid-year data (June 2024) predicts 2,839 fentanyl deaths in Ohio in 2024 (T40.4)–the total deaths could be lower than any year since 2016.

example, in 2017 suspected overdose visits to Ohio EDs peaked, as did the number of naloxone doses. While fentanyl-related overdose deaths also jumped in 2017, this measure exhibited its highest reported totals in 2021. Table 1 provides each measure's values/counts for each year and the percent change from the previous year.

Figure 1: Three Ohio Fentanyl-related Indicators, 2016-2024* Visualized on a Standard Scale (Z-Score) to Compare Trends/Changes Over Time. Actual values in Table 1. *See footnote 5 for note on estimate calculations

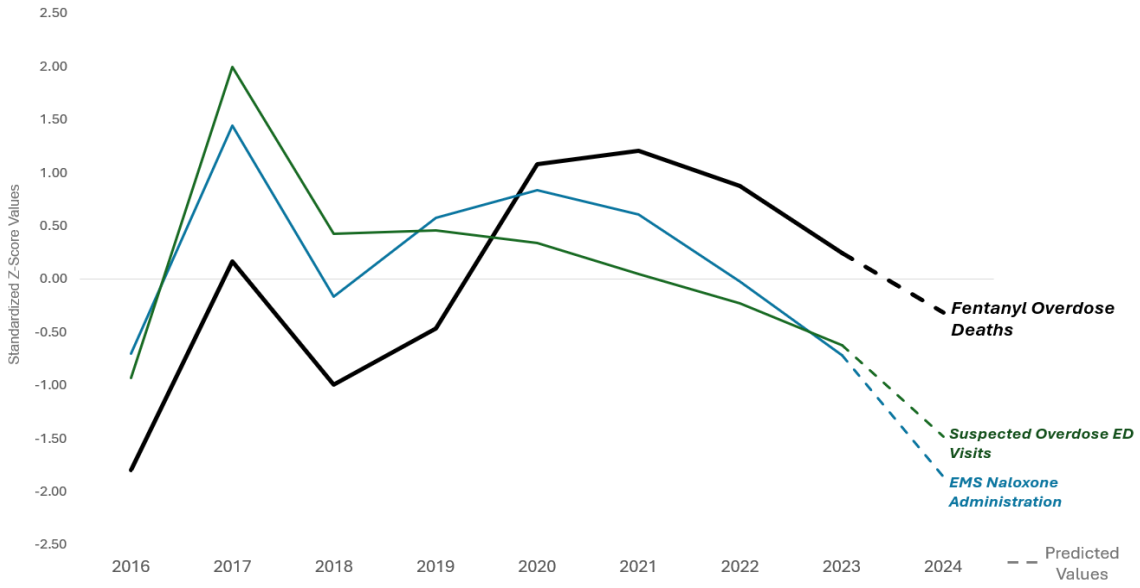

Table 1: Annual Reporting of Three Fentanyl-related Metrics in Ohio, 2016-2024*: Annual Counts and Percent Change from the Previous Year. *See footnote 5 for note on estimate calculations

Year	*Ohio Fentanyl-related Deaths (CDC NVSS Predicted Values) frequency (% change)*	*EMS Naloxone Doses Administered frequency (% change)*	*Ohio Emergency Department Suspected Overdose Visits frequency (% change)*
2016	2,310 (baseline)	32,443 (baseline)	25,256 (baseline)
2017	3,550 (+54%)	51,375 (+58%)	55,472 (+120%)
2018	2,819 (-21%)	37,168 (-28%)	39,257 (-29%)
2019	3,152 (+12%)	43,722 (+18%)	39,598 (+1%)
2020	4,129 (+31%)	46,014 (+5%)	38,310 (-3%)
2021	4,209 (+2%)	43,975 (-4%)	35,343 (-8%)
2022	3,997 (-5%)	38,381 (-13%)	32,478 (-8%)
2023	3,600 (-10%)	32,305 (-16%)	28,363 (-13%)
2024*	3,244* (-10%)	22,163* (-31%)	19,514* (-31%)

Part II. Fentanyl Seizures by Law Enforcement and Subsequent Forensic Lab Testing Suggest a Decrease in Fentanyl in the Drug Supply

The illicit drug supply and drug-overdose deaths are extremely complex, with various factors contributing to fluctuations in both. However, at a very basic level the amount of fentanyl in the drug supply will directly relate to the level of exposure experienced by persons who use drugs and subsequently the number of overdoses caused by fentanyl (both fatal and non-fatal).

In light of the decreasing trends in fentanyl-related deaths, EMS naloxone administration, and emergency department visits for overdose, we examined potential changes in the drug supply chain as a contributing factor. While precise changes in the illicit drug supply remain unknown, trends in drug submissions reported by law enforcement to forensic laboratories can serve as a valuable proxy for monitoring shifts in the supply. These submissions represent drugs seized through enforcement actions, ranging from small quantities confiscated during routine traffic stops to large quantities seized in multi-kilogram drug investigations. Such submissions provide a snapshot of what is currently circulating in the drug supply.

Although these submissions are only a sample, numerous studies have demonstrated a strong association between fentanyl-positive drug submissions and overdose deaths. This relationship has been validated using both Ohio-specific and national data on drug seizures and forensic submissions, underscoring the value of this measure as an indicator of supply-related trends.[6]

The most comprehensive data available to monitor drug submissions is the National Forensic Lab Information System (NFLIS), a Drug Enforcement Administration (DEA) sponsored program.[7] Ninety-eight percent of forensics labs in the United States participate in data sharing with NFLIS. To understand the possible change in fentanyl in the drug supply and its relationship with current overdose death trends, we accessed the most current drug submission data available. We then examined the correlation between our first three Ohio measures and **the number of fentanyl-positive samples reported by Ohio forensic laboratories**.

Our analysis of Ohio fentanyl-**related** deaths and Ohio fentanyl-positive drug submissions revealed a relatively strong correlation between the two measures. Figure 2 illustrates this relationship, showing that increases or decreases in laboratory submissions are associated with corresponding changes in fentanyl-related deaths. Again, previous studies focusing specifically on Ohio have identified the statistically significant relationship between these measures.[6] Our analysis utilizing more current data shows that both fentanyl-related deaths and fentanyl submissions in Ohio peaked in 2021 and have both progressively declined each year. Estimates for 2024 reveal that Ohio will likely report the lowest number of fentanyl-related deaths since 2016 and the second lowest number of drug submissions since 2016.

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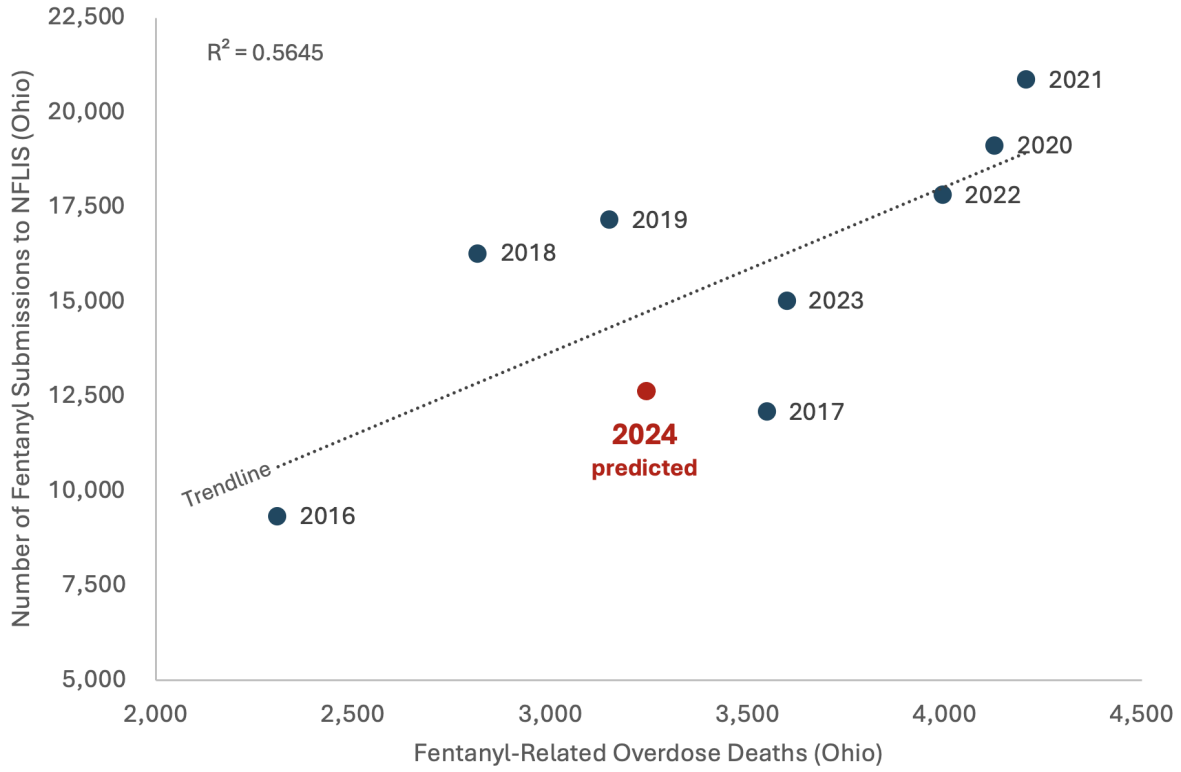
[6] Zibbell et al., *Association of Law Enforcement Seizures of Heroin, Fentanyl, and Carfentanil with Opioid Overdose Deaths in Ohio, 2014-2017,* 2019; Ma et al., *A Statistical Analysis of Drug Seizures and Opioid Overdose Deaths in Ohio from 2014 to 2018*, 2021. Palamar et al., *National and regional trends in fentanyl seizures in the United States, 2017–2023*, 2024.

[7] Drug Enforcement Agency, *NFLIS-Drug 2021 Annual Report*, 2021

Figure 2: Ohio Drug Chemistry / Forensic Lab Fentanyl-Positive Submissions vs Ohio Fentanyl-Related Deaths, 2016-2024*.



*See footnote 5 for note on estimate calculations

Part III. Digging Further Into the Illicit Fentanyl Supply

Alleged Cartel Bans on Fentanyl Production

In early 2023 both the Sinaloa and Jalisco cartels—the two main producers and distributors of fentanyl bound for the U.S. illicit drug market—were rumored to have ordered the halt of production and trafficking of fentanyl.[8] Further warnings regarding a ban on fentanyl production and sales—which were reported to be legitimate by local sources—emerged within the Mexican State of Sinaloa in October 2023.[9] These orders, if true, could have a significant impact on fentanyl availability in the United States. While the recent decreases in Ohio fentanyl-related deaths, fentanyl drug submissions, and other indicators cannot be conclusively tied to these alleged orders, the trends evident in these measures at least suggest there have been recent changes or disruptions in the fentanyl supply.

Comparing County, State, and National Trends in Fentanyl Data

We analyzed two additional fentanyl seizure and submission data sources to compare national and county-level patterns with previously reviewed Ohio data. First, we examined **county-level fentanyl**

[8] Drug Enforcement Agency, *National Drug Threat Assessment 2024*, May 2024.
[9] ABC News, "*El Chapo's sons purportedly ban fentanyl in Mexico's Sinaloa state*," October 2023.

submissions from the Cuyahoga County Regional Forensic Laboratory (CCRFSL), which reports to NFLIS. CCRFSL data were compiled from various annual and quarterly reports. Second, we reviewed U.S. Customs and Border Protection (CBP) public data on fentanyl seizures, detailing the **weight of fentanyl intercepted by U.S. Border Patrol and the CBP Office of Field Investigations**.

Figure 3: National, State, and County (Cuyahoga) Fentanyl Seizures and Ohio Fentanyl-Related Overdose Deaths (2016-2024*) Visualized on a Standard Scale (Z-Score) to Compare Trends/Changes Over Time. Actual values in Table 2.

*See footnote 5 for note on estimate calculations

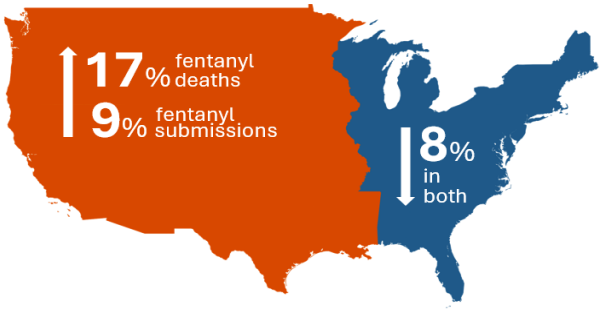
The three drug seizure and submission data sources show varying year-to-year patterns but all exhibited steady increases from 2016 to 2021. Figure 3 compares these three measures—county-level (Cuyahoga County), state-level (Ohio), and national CBP fentanyl seizures—with fentanyl-related deaths in Ohio based on a common scale as described previously for Figure 1. As expected, state-level fentanyl submissions align most closely with state-level overdose death trends, reflecting a strong association in the increase in availability or exposure to fentanyl (using drug submission data as a proxy measure) and its impact on mortality at that particular geographic level. While Figure 3 & Table 2 highlight the variation in trends across different drug submission data sources and reinforce the overarching trend observed across all measures we have reviewed thus far—a projected decline in 2024.

Table 2: Annual Reporting for Fentanyl-Related Drug Seizures and Submissions at the National-, State-, and County-Levels, 2016-2024*: Annual Counts and Percent Change from the Previous Year.

Year	*Ohio Fentanyl-Related Deaths (CDC NVSS Predicted Values) frequency (% change)*	*NFLIS Lab Submissions in Ohio (% Change)*	*CBP Fentanyl Seizures by Weight (% Change)*	*CCMEO Lab Submissions (% Change)*
2016	2,310 (baseline)	9,356 (baseline)	596 (baseline)	1,036 (baseline)
2017	3,550 (+54%)	12,105 (+11%)	1,875 (+215%)	1,466 (+42%)
2018	2,819 (-21%)	16,310 (+35%)	1,895 (+1%)	2,299 (+57%)
2019	3,152 (+12%)	17,180 (+5%)	2,575 (+36%)	2,036 (-11%)
2020	4,129 (+31%)	19,142 (+11%)	3,967 (+54%)	1,820 (-11%)
2021	4,209 (+2%)	20,876 (+9%)	10,753 (+171%)	2,622 (+44%)
2022	3,997 (-5%)	17,827 (-15%)	19,289 (+79%)	2,042 (-22%)
2023	3,600 (-10%)	15,041 (-16%)	25.041 (+30%)	2,784 (+36%)
2024*	**3,244* (-10%)**	**12,634* (-16%)**	**22,880* (-9%)**	**2,247* (-19%)**

*See footnote 5 for note on estimate calculations

Figure 4. Percent Change (2022-2023) in Fentanyl Deaths and Submissions: East vs. West U.S.



Geographic Shifts in Fentanyl Distribution

Additional potential changes within the supply chain include a shift in the geographic distribution of fentanyl. This trend is evidenced in the most recent CDC provisional data that identifies Oregon, Washington, Nevada, Utah, and Alaska and several other western states as exhibiting the highest percent changes in drug overdose deaths over the last 12 months (June 2023 to June 2024).[10] We further explored this recent east-to-west shift utilizing the most current statewide NFLIS fentanyl drug submission data, available through 2023, accessed through the NFLIS-Drug Data Query System.

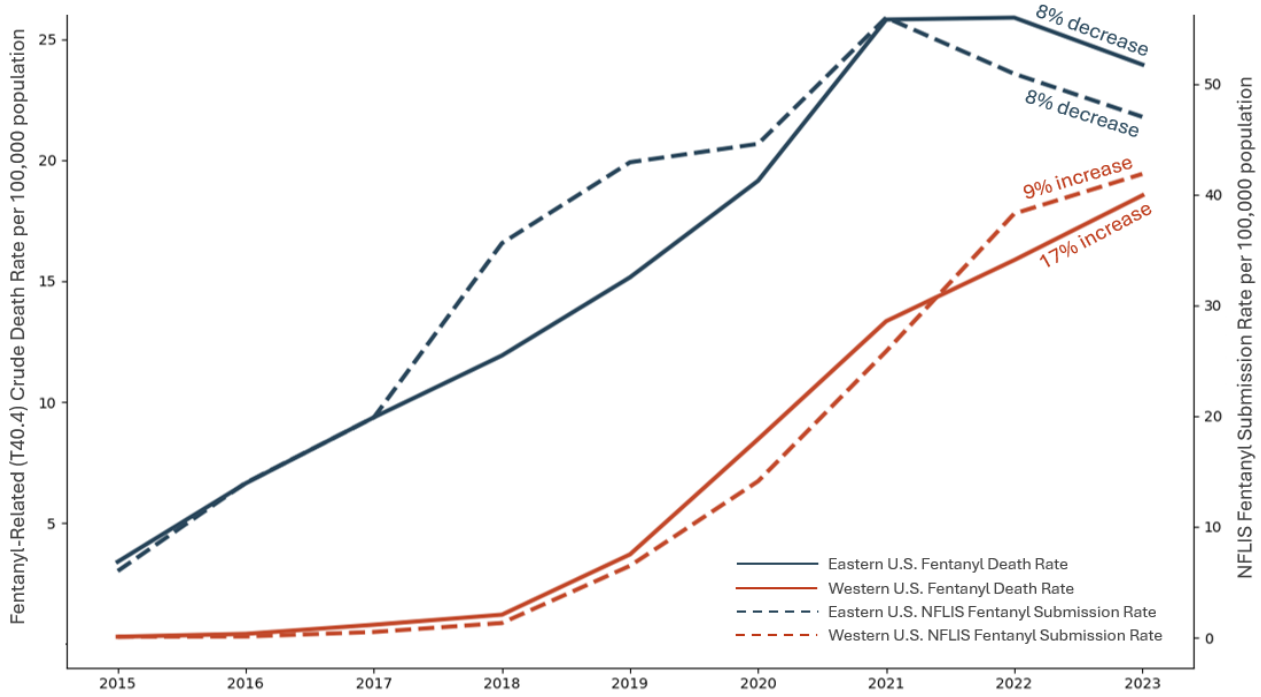
Our analysis of mortality data and drug submission data revealed a shift in the geographic distribution of both fentanyl-related deaths and fentanyl submissions by law enforcement. Opioid-related death rates have historically been highest in states east of the Mississippi River. In 2022 the combination of all eastern states that reported synthetic opioids (including and primarily fentanyl, ICD-10 T40.4) totaled 44,710 deaths, the highest on record, slightly exceeding 2021's 44,572

[10] CDC, National Vital Statistics System, "*Provisional Drug Overdose Death Counts*," 2024.

deaths.[11] These peaks coincided with record submissions of fentanyl to forensic labs: 96,657 submissions in 2021, and 87,899 in 2022. However, the 9.1% decrease in fentanyl submissions in the Eastern U.S. from 2021 to 2022 continued into 2023 with submissions falling another 7.6% to 81,194. Fentanyl-related deaths followed the same trajectory, dropping 7.5% from 2022 to 2023 to 41,359 deaths (Figures 4 and 5).

In comparison, western states experienced continued increases in both measures through 2023, with fentanyl-related deaths reaching a record 21,178 in 2023, a 16.8% rise from 18,125 in 2022. Fentanyl submissions in the west also climbed by 9.4%, from 43,724 in 2022 to 47,818 in 2023. While it's still too early to draw definitive conclusions, these trends suggest a potential geographical shift in the fentanyl crisis, as the Western U.S. continues to experience year-over-year increases in both drug submissions and deaths, approaching equal levels with Eastern states in both measures for the first time since the opioid epidemic began.

Figure 5: Tracking the Geographic Shift in Fentanyl Trends: East vs. West U.S. Analysis of Deaths and Submissions (2015-2023).



[11] Alaska and Hawaii were included in the Western U.S. grouping. These 13 states and territories were excluded from the analysis due to missing values or lack of fentanyl-specific reporting: Alabama, Arkansas, Idaho, Louisiana, Michigan, Minnesota, Montana, North Dakota, Nebraska, Pennsylvania, Puerto Rico, District of Columbia, and the Virgin Islands.

Part IV. Other Factors Potentially Playing a Role in the Decline of Overdose Deaths

Many factors may be contributing to the decrease in fentanyl-related overdoses. While we are unable to examine every potential factor, it is important to acknowledge the complexity of this issue. We understand that while interview data remains very limited, ongoing Begun Center research in the community has surfaced that people with lived experience of fentanyl are working to limit their exposure to overdose death by changing their drug of choice from fentanyl use to others (e.g., cocaine, methamphetamine), changing modes of ingestion (e.g., from injecting to snorting and smoking), and not using alone so someone can revive them with naloxone, if needed. We also recognize the significant progress being made across the U.S. in areas such as treatment, harm reduction, education, and awareness. These efforts collectively aim to reduce drug-related deaths. In this section, we highlight some of the initiatives that may be positively impacting drug-related mortality.

Take-Home Naloxone Distribution

A 2020 study found that bystanders were present in 37% of overdose deaths, highlighting missed opportunities for bystander intervention with naloxone administration. A study published in 2024 examined nationwide EMS responses to overdoses between June 2020 and June 2022 reported a 43.5% increase in naloxone administration by laypersons during that period.[12] The significant increase in lay persons administering naloxone is evidence of closing the gap identified in the first study, where many fatal overdoses occurred despite the presence of bystanders who could have intervened.

Efforts to distribute naloxone widely, as seen in several Ohio communities, are likely contributing to the observed decrease in fatal overdoses. We believe this demonstrates the potential impact of community-level naloxone distribution and improved access initiatives including harm reduction vending machines.[13]

Programs like the Ohio Department of Health's Project DAWN support organizations across Ohio in distributing take-home naloxone to the general public and individuals positioned to provide immediate care to those at high risk of opioid overdose. In 2023 alone, over 290,000 naloxone kits were distributed in Ohio by Project DAWN organizations. While the number of kits distributed is well-documented, it is currently impossible to track how many were used during overdose incidents, making it difficult to fully assess their impact. Figure 6 visualizes a comparison of overdose metrics against statewide naloxone distribution through Project DAWN.

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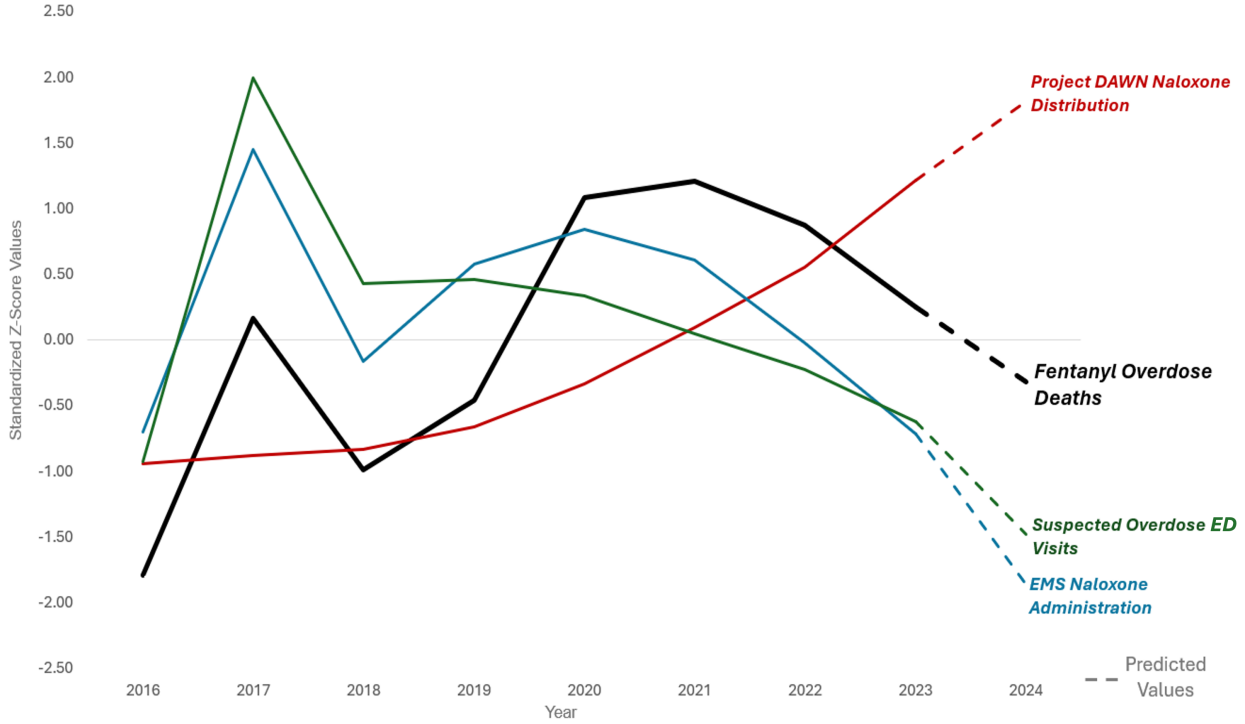
[12] Gladden et al., Vital Signs: Characteristics of Drug Overdose Deaths Involving Opioids and Stimulants — 24 States and the District of Columbia, January–June 2019, ; Gage, Powell, & Ulintz, Layperson-Administered Naloxone Trends Reported in Emergency Medical Service Activations, 2020-2022, 2024.

[13] Keane, Egan, & Hawk, *Effects of Naloxone Distribution to Likely Bystanders: Results of an Agent-based Model,* 2018; Lambert et al., *Factors Associated with Take Home Naloxone Refusal Among Emergency Department Patients Participating in an Opioid Overdose Prevention Program,* 2024.

Figure 6: Ohio Fentanyl Measures and Ohio Naloxone Distribution by Project DAWN Visualized on a Standard Scale (Z-Score) to Compare Trends/Changes Over Time.



*See footnote 5 for note on estimate calculations

Distributing naloxone directly to individuals offers another critical advantage: it addresses situations where people who use drugs intentionally avoid public safety interactions, particularly with EMS and law enforcement.[14] In such cases, community-based naloxone distribution provides a life-saving tool to individuals who might otherwise avoid seeking help during an overdose, significantly reducing the risk of fatality. However, further research is needed to determine the extent of influence and impact take-home naloxone has had on opioid-related overdoses and how this activity may also be impacting how individuals are (or are not) seeking further medical attention after experiencing an overdose.

Diluting Fentanyl in the Supply & Cutting-in Other Harmful Substances

Forensic lab drug submission data only indicate the presence of a drug without providing details on potency or purity. This leaves critical questions unanswered about broader trends in the drug supply, including whether changes in fentanyl-related deaths are linked to shifts in the supply's composition.

Recent evidence suggests that fentanyl is increasingly being diluted or "cut" with other substances potentially reducing its lethality. At the same time this practice can create new public health risks.

[14] Lagu, Anderson, & Stein, *Overdoses Among Friends: Drug Users are Willing to Administer Naloxone to Others*, 2006; Farrugia et al., *Take-Home Naloxone and the Politics of Care*, 2019.

For example, an increasingly common cutting agent is xylazine—a veterinary tranquilizer known on the street as "tranq"—that is raising serious concerns. Xylazine can decrease the immediate lethality of fentanyl but can cause severe side effects, including respiratory issues and necrotic skin wounds that may lead to amputations.[15] Additionally, an industrial chemical, BTMPS, has begun appearing in fentanyl supplies in several states. Its long-term health effects remain unknown, but short-term risks include blurred vision, nausea, coughing, and skin and eye irritation, particularly when smoked.[16]

Xylazine has been present in Ohio's drug supply for several years and continues to show an upward trend. BTMPS was recently reported in Ohio. Data from the newly implemented Cuyahoga County Pilot Drug Checking Program that tests syringes provided by persons who use drugs revealed that BTMPS was found in 6.4% of samples. Other new and emerging substances in Cuyahoga County include medetomidine and protonitizene found in 12.1% and 3.5% of samples, respectively.[17] This highlights the critical need for ongoing monitoring to better understand and address the risks posed by an increasingly unpredictable and evolving drug supply.

Medications for Opioid Use Disorder (MOUD) & Medication-Assisted Treatment (MAT)
MOUD/MAT are evidence-based treatment options that include the use of FDA-approved medications for individuals with opioid use disorder (OUD). The three medications approved for this treatment–buprenorphine, methadone, and naltrexone–improve the health and wellness of patients with OUD through reducing withdrawal symptoms (methadone, buprenorphine), blocking the effects of short-acting and semi-synthetic opioids (methadone, buprenorphine, naltrexone), and reducing cravings for opioid use (methadone, buprenorphine, naltrexone).[18] These medical treatments support patient efforts to abstain from using opioids and develop new habits and coping skills through simultaneous psychosocial support and treatment plans.

There is little information that provides statewide insight into treatment for OUD. However, there are two publicly available sources in Ohio that offer limited data on: (a) the number of prescriptions of buprenorphine, and (b) the number of Ohio Medicaid enrollees age 18 to 64 years who have been diagnosed with OUD and who received any MOUD/MAT.

Medicaid data shows a promising upward trend in the number of individuals receiving MOUD/MAT from 2018 through 2022 Q3 (Figure 5 right). This increase suggests good progress in addressing opioid use disorder among a population often at higher risk due to intersecting factors like socioeconomic challenges and co-occurring mental and physical health conditions.[19] However,

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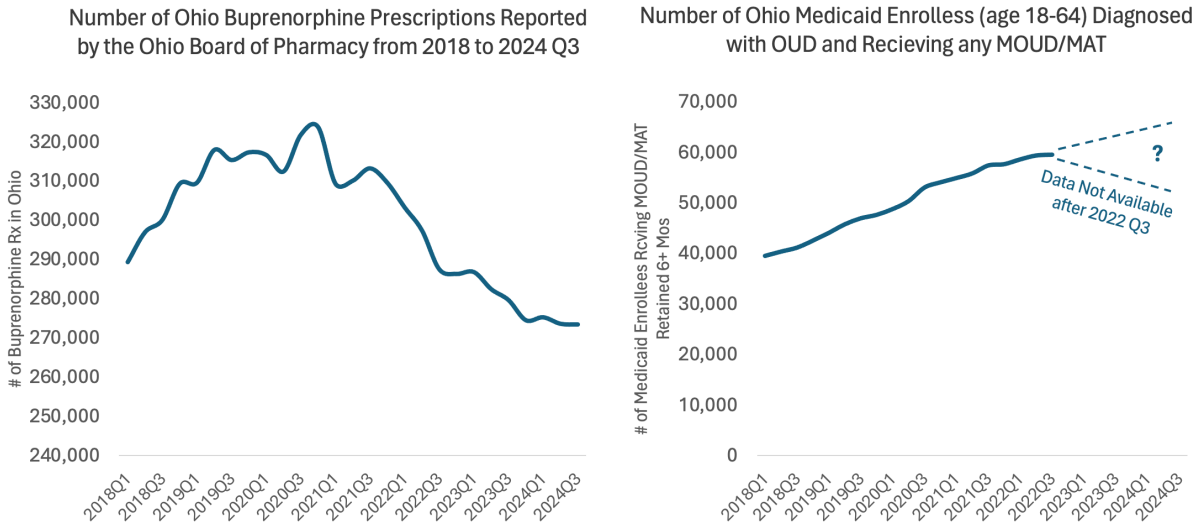
[15] Harm Reduction Ohio, "*New Study: Xylazine is Plentiful in Fentanyl – but not other drugs*," 2024.
[16] Los Angeles Times, "*An industrial chemical is showing up in fentanyl in the U.S., troubling scientists*," September 2024.
[17] Deo and Bhullar, *Preliminary Findings from Cuyahoga County's Pilot Drug Checking Program*, HOTF Data Subcommittee Meeting December 5, 2024
[18] Substance Abuse and Mental Health Services Administration, "Medications for Opioid Use Disorder For Healthcare and Addiction Professionals, Policymakers, Patients and Families: Treatment Improvement Protocol 63," 2021. US Food and Drug Administration, "*Information about Medications for Opioid Use Disorder (MOUD)*," 2024; Substance Abuse and Mental Health Services Administration, "Buprenorphine Quick Start Guide."
[19] Deana, Rudowitz, and Tolbert, *A Look at Navigating the Health Care System: Medicaid Consumer Perspectives*, 2023

as this dataset only includes Medicaid recipients, it represents a specific subset of the population, leaving treatment patterns for other groups unaccounted for.

In contrast, buprenorphine prescription data from the Ohio Board of Pharmacy shows a steady decline in prescriptions statewide starting in late 2021 and continuing through 2024 (Figure 5 left). With limited data to contextualize this trend, it is important to avoid speculation about the reasons behind such a significant and sustained decrease. Future research should explore whether this decline reflects changes in treatment access and availability across the broader population. While this dataset provides a broad view of state-level buprenorphine prescribing patterns across all insurance types, it does not include data on other MOUD/MAT options, such as methadone or naltrexone. Understanding trends in the prescribing and utilization of these other treatments would offer a more comprehensive picture of the overall trajectory of medication-based treatment for OUD.

Figure 5: Trends in Buprenorphine Prescriptions and Medicaid MOUD/MAT in Ohio (2018–2024)



Conclusion

The data presented in this research brief highlights a promising trend in the reduction of fentanyl-related overdose deaths in Ohio, along with declines in several closely related measures. These indicators collectively suggest that something (or multiple factors) has influenced the role of fentanyl in these outcomes. However, the illicit drug market and the various health outcomes observed are extremely complex and multifaceted, requiring continued and further investigation into the interplay between changes in the drug supply, treatment access, harm reduction efforts, and public health initiatives.

While the reduction in fentanyl-positive submissions and overdose deaths may point to disruptions in the fentanyl supply chain, such as alleged cartel bans or shifts in geographic distribution, these

factors alone cannot fully explain the observed trends. Other key contributors, including the increasing availability of naloxone coupled with other community-based harm reduction strategies and increasing access to MOUD/MAT, are likely playing substantial roles. This highlights the importance of near real-time surveillance systems for both fatal and non-fatal overdoses, which enable the access, sharing, analysis, and utilization of data to inform prevention, education, awareness, interdiction, treatment, and policy efforts.

Ultimately, this brief underscores the critical need for robust, comprehensive, and up-to-date data to guide effective policy, interventions, and public health surveillance. Future research should aim to bridge existing data gaps, examine the nuanced factors influencing these trends, and explore ways to sustain and build upon the progress made.

Methodology

In order to compare the above fentanyl-related measures in relation to the state of Ohio, the Begun Center team utilized the following public data sets:

1. CDC National Vital Statistics System Drug Overdose Data (Fentanyl Overdose Death Count) [Note: Data was downloaded from the CDC and filtered for data pertaining to Ohio and fentanyl variables only(synthetic opioids excluding methadone (ICD-10 T40.4)). As the data represents 12-month rolling values, December values were used as annual counts for analysis.]
2. EMS Ohio Emergency Medical Services Naloxone Watch: The number of naloxone doses administered by Ohio EMS agencies who submit the data (~85% of agencies).
3. The Ohio Department of Health's Syndromic Surveillance System (EpiCenter) Suspected Overdose Dashboard (Emergency Department Visits for Suspected Drug Overdose Among Ohio Residents Ages 11 Years and Older; ~91% of Ohio hospitals report) [Note: Available 2016 Data only reflects July-December 2016].
4. National Forensic Laboratory Information System Public Data & the NFLIS Data Query System (NFLIS Count of Seized Drugs Submitted by state and year)
5. U.S. Customs and Border Protection, CBP Enforcement Statistics Fiscal Year 2020 (CBP Fentanyl Seizures by Weight [National])
6. Cuyahoga County Medical Examiner's Office & the Cuyahoga County Regional Forensics Science Lab Drug Chemistry/Lab Submissions
7. Ohio Department of Health Project DAWN, Naloxone Distribution 2016-2024
8. State of Ohio Integrated Behavioral Health Dashboard. Measure name "Medicaid enrollees with OUD receiving MOUD/MAT
9. Ohio Board of Pharmacy, Ohio Automated Rx Reporting System (OARRS) PDMP Interactive Data Tool. Measure name "Ohio Buprenorphine Prescriptions by Year."

In order to best compare trends over time in relation to each other, the various measures/data were often represented visually on a standard scale. These standardized values (z-scores) allow for more comparable visualization of changes over time. Several measures include corresponding tables containing actual and estimated values year-over-year.

Estimates for 2024 for several measures were calculated using different methodologies depending on the availability and reporting intervals of each dataset. While some datasets included partial 2024 data (e.g., mid-year or through Q3), others required projections based on historical trends or percent changes from previous years. These estimates aim to provide a conservative outlook and account for variations in data completeness and reporting timelines across sources.

Limitations

Data Coverage and Completeness

- Incomplete 2024 data: Several figures that include 2024 data are based on estimates rather than complete data, which may not fully reflect actual trends.
- Limited timeframes for some datasets: Medicaid MOUD/MAT data available on the Ohio Integrated Behavioral Health Dashboard only extends to 2022 Q3, preventing analysis of more recent trends.

Generalizability

- Focus on Ohio: Most of the analyses reflect Ohio-specific trends, limiting its applicability to other regions with different drug markets and public health dynamics.

Measurement Constraints

- Lack of drug potency or purity information: Forensic lab submissions only indicate the presence of fentanyl, not its potency or purity, leaving gaps in understanding the lethality of the drug supply.
- Buprenorphine data gaps: The decline in buprenorphine prescriptions does not account for other MOUD options like methadone or naltrexone, which could influence treatment trends.

Causality and interactions

- Correlations, not causation: Relationships between fentanyl-related deaths and other indicators (e.g., drug submissions, naloxone distribution) cannot definitively establish cause-and-effect.
- Overlapping interventions: It is challenging to disentangle the effects of various interventions, such as naloxone distribution, treatment access, and changes in the fentanyl supply chain.

Data Granularity

- Lack of subpopulation analysis: Datasets do not provide detailed demographic or geographic breakdowns, making it difficult to assess variations in impact across subpopulations.
- Missing Behavioral Insights: Data does not account for changes in drug use behaviors, such as intentional avoidance of fentanyl or shifts to other substances.

External Influences

- National vs. Local Trends: The data compares Ohio trends to national metrics, but differences in drug supply chains and enforcement efforts may complicate direct comparisons.
- Potential Bias in Seizure Data: Law enforcement seizure data may reflect changes in enforcement priorities rather than actual changes in the drug supply.

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