DEA
INTELLIGENCE
BRIEF

Fentanyl Remains the Most Significant Synthetic Opioid Threat and Poses the Greatest Threat to the Opioid User Market in the United States

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EXECUTIVE SUMMARY

Fentanyl is the most prevalent and the most significant synthetic opioid[a] threat to the United States and will very likely remain the most prevalent synthetic opioid threat in the near term. The fentanyl threat remains most severe in the white powder heroin user market in the Midwest and Northeast United States, and fentanyl availability continues to be primarily by itself or with heroin. Fentanyl mixtures with non-opioid substances are a cause for public health concern due to the high potential for large numbers of fatal overdoses in short periods of time; however, there is no evidence that transnational criminal organizations (TCO) are trafficking strategic quantities of fentanyl already mixed with non-opioid drugs. Fentanyl's popularity is unlikely to be challenged in the near term, but traffickers will likely continue to produce new fentanyl-related substances and other novel opioids.

DETAILS

Fentanyl is the Most Prevalent Synthetic Opioid in the United States

According to data from the Centers for Disease Control and Prevention (CDC), 63,632[b] Americans died from drug-involved poisoning deaths in 2016, the most ever recorded. Synthetic opioid-involved drug overdose deaths[c] represented the largest number of drug poisoning deaths among all illicit drug classes analyzed. In 2016, 19,413 Americans died from drug poisoning deaths involving synthetic opioids—an increase of 110 percent from 2015 (see Figure 1).[d] The significant increase in synthetic opioid-involved drug poisoning deaths means this class of drugs was present in approximately 31 percent of all drug-involved poisoning deaths in 2016. Although many drugs are present in this category, CDC has reported fentanyl as the drug responsible for most of the deaths in this category. In addition, in 2016, there were more deaths involving synthetic opioids than involving natural and semi-synthetic opioids for the first time, highlighting the rise of fentanyl. In 2016, there were over 14,000 overdose deaths involving natural and semi-synthetic opioids compared to the over 19,000 overdose deaths involving synthetic opioids.

Scope Note

This assessment only focuses on fentanyl availability and prevalence in the United States, to include the relationship between fentanyl and synthetic opioids, natural and semi-synthetic opioids (i.e. oxycodone and hydrocodone), fentanyl and heroin, and fentanyl with non-opioid drugs. This assessment does not discuss the supply side of the fentanyl threat or any such related topics.

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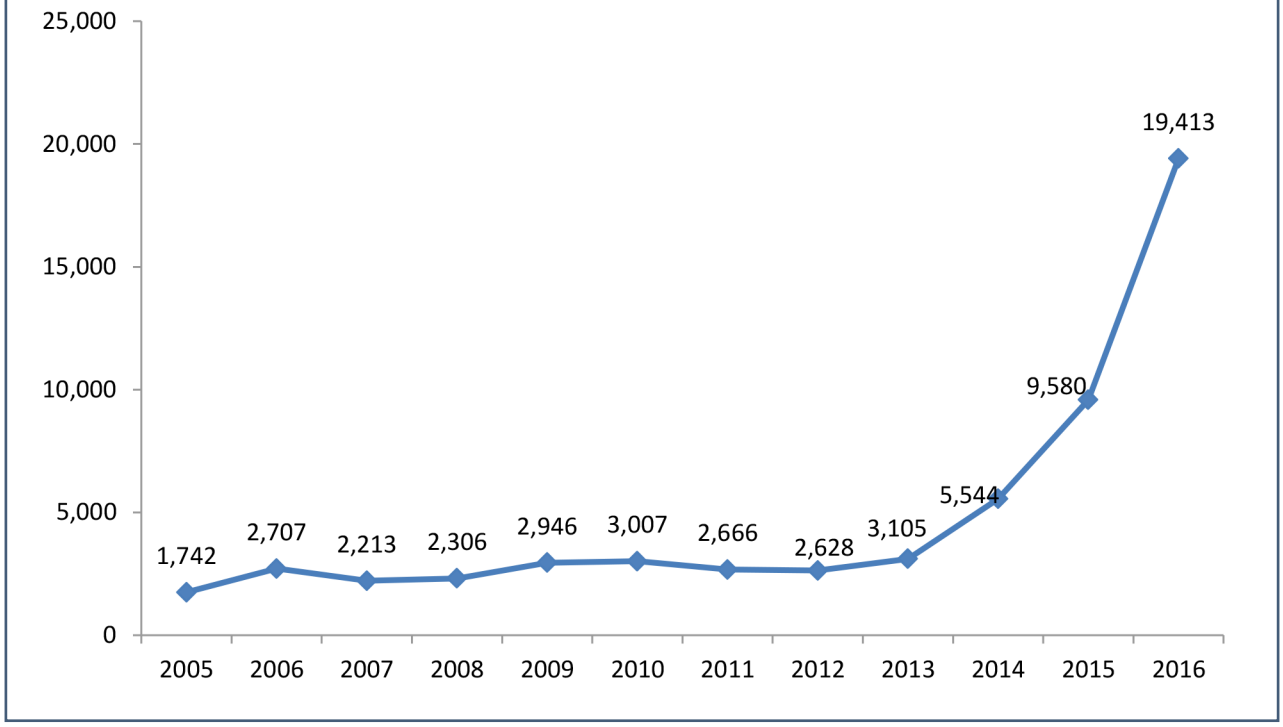
[a] In this report, the phrase "synthetic opioid" refers to only those compounds which are classified as opioids and are not derived from plant materials in their production (i.e. fentanyl, fentanyl-related substances, and other novel opioids) and therefore does not include heroin

[b] Drug overdose deaths are identified using ICD-10 underlying cause-of-death codes X40-X44, X60-X64, X85, and Y10-Y14. Drug overdose deaths involving selected drug categories are identified using ICD-10 multiple-cause-of-death codes (MCOD): heroin, T40.1; natural and semisynthetic opioids, T40.2; methadone, T40.3; synthetic opioids other than methadone, T40.4; cocaine, T40.5; and psychostimulants with abuse potential, T43.6. Categories are not mutually exclusive because deaths may involve more than one drug.

[c] In this report, "synthetic opioid-involved" deaths refers to ICD-10 MCOD T40.4, synthetic opioids other than methadone.

[d] CDC and law enforcement agencies have released guidance on the increased availability of fentanyl and have also strongly encouraged medical examiners' and coroners' offices to test suspected drug overdose deaths for the presence of fentanyl. Fentanyl requires specific tests to detect and therefore may not be identified in a traditional screening; thus, a significant increase in the number of reports of fentanyl-involved overdose deaths may likely be at least partially attributed to an increase in testing for fentanyl. In addition, not all states report data the same or at all to CDC, meaning nationwide counts of drug overdose deaths, especially deaths by a specific drug(s), may vary from statewide counts. As a result, CDC has stated fentanyl deaths are almost certainly underreported, meaning the true number of deaths is much higher.

(U) Figure 1. Synthetic Opioid Drug Poisoning Deaths, 2005-2016.

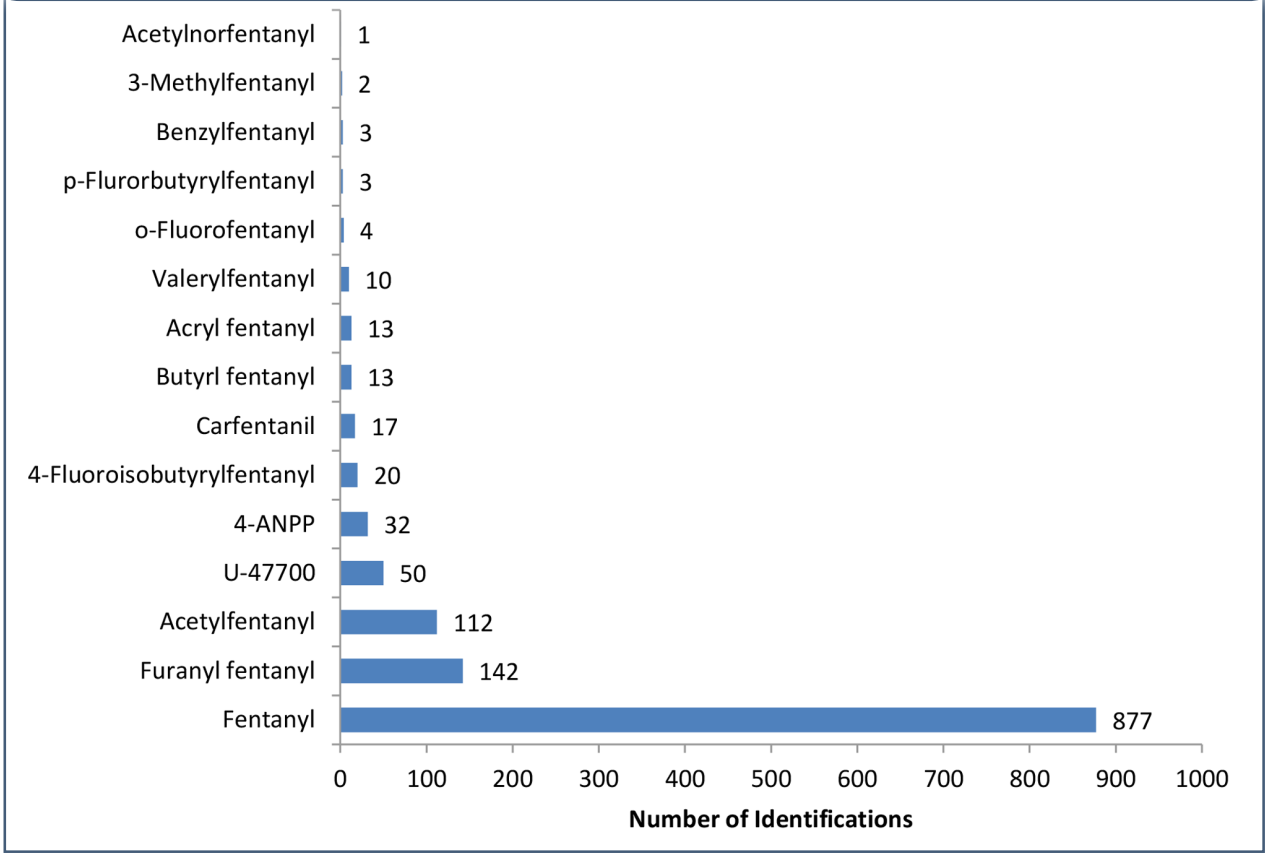


Source: Centers for Disease Control and Prevention

Fentanyl is the primary synthetic opioid available in the United States, even as more fentanyl-related substances and other new opioids continue to be identified. According to the Drug Enforcement Administration's (DEA) 2016 Annual Emerging Threat Report,[c] there were 1,299 fentanyl, fentanyl-related substances, and other new synthetic opioids seized and identified in 2016. Fentanyl accounted for 877, or 68 percent, of these identifications—the most for any single synthetic opioid (see Figure 2). The second and third most frequently identified synthetic opioids were furanyl fentanyl (142 identifications) and acetylfentanyl (112 identifications). Fentanyl's prevalence in 2017 is unlikely to change; analysis for each of the first two quarters of 2017 indicate fentanyl was the most identified synthetic opioid, accounting for 58 percent and 69 percent of all synthetic opioid identifications in first and second quarter of 2017, respectively.

[c] DEA's Emerging Trends program only reports on those exhibits which have been analyzed by DEA laboratories and is not based on systematic random sampling or other such methodologies. These reports are intended to provide a snapshot of emerging drug trends in the United States and do not claim to represent true market share. However, data from this program is consistent with reporting from DEA, as well as open sources.

(U) Figure 2. Synthetic Opioids Seized and Identified in 2016.



Source: DEA

Fentanyl Availability Remains Highly Correlated to Heroin and Prescription Opioid Availability

Overdose death data and forensic laboratory submissions demonstrate the link between fentanyl, heroin, and prescription opioid availability, indicating fentanyl availability will likely pose the greatest threat to states already dealing with opioid problems in the near term. In 2016, the last year for which data is available, many of the states with the highest rates of synthetic opioid-involved overdose deaths per 100,000 people, and the largest number of fentanyl exhibits submitted to the National Forensic Laboratory Information System (NFLIS),[f] are the same states that experienced the highest rates of overdose deaths and NFLIS exhibits for either heroin and/or prescription opioids. In 2016, West Virginia experienced the second highest age-adjusted totals for both heroin- and fentanyl-involved overdose deaths in addition

[f] NFLIS is a DEA program that systematically collects drug chemistry analysis results, as well as other related information, from cases analyzed by state, local, and federal forensic laboratories. These laboratories analyze substances secured in law enforcement operations across the country. NFLIS offers a valuable resource for monitoring illegal drug abuse and trafficking, including the diversion of legally manufactured pharmaceutical drugs into illegal markets. NFLIS data are used to support drug regulatory and scheduling efforts as well as to inform drug policy and drug enforcement initiatives both nationally and in local communities. Data in the NFLIS database are based on case-and item/exhibit-level information analyzed by forensic laboratories. It should be noted that NFLIS data are not "real time," as participating laboratories report to NFLIS on different schedules and delays in evidence analysis can create backlogs on occasion. Further, during exhibit analysis, laboratories may identify several distinct drug reports within an exhibit; therefore, a single exhibit reported to NFLIS may include several individual drug reports. All identified distinct drug reports are stored in the NFLIS database. Also, drug evidence that is seized by law enforcement but not analyzed by participating laboratories is not included in the NFLIS system.

to the highest total of prescription opioid-involved overdose deaths (14.9 heroin overdose deaths per 100,000 people; 26.3 fentanyl-involved overdose deaths per 100,000 people; and 18.5 prescription opioid-involved overdose deaths per 100,000 people) (see Figure 3). Per NFLIS data, in 2016, Ohio ranked first in heroin lab submissions, fentanyl lab submissions, and combined hydrocodone and oxycodone lab submissions (20,964 heroin submissions; 9,224 fentanyl submissions; and 5,702 combined oxycodone and hydrocodone submissions) (see Figure 4). In addition, many states present among the top 10 in age-adjusted rates of overdose deaths are also present among the top 10 states for NFLIS submissions, emphasizing the relationship between the number of forensic laboratory exhibits and the number of overdose deaths in a given state. Further, the number of states reporting high levels of both fentanyl-involved deaths and fentanyl lab submissions which also report high levels of heroin and prescription opioid lab submissions and overdose deaths reinforces fentanyl's continued role as one part of the ongoing opioid crisis.

(U) Figure 3. Top 10 States by Age-Adjusted Rate of Overdose Each for Heroin, Fentanyl, and Semi-Synthetic Prescription Pain Medications.

Heroin		Fentanyl		Semi-Synthetic Prescription Pain Medications	
States	**Overdose Rate**	**States**	**Overdose Rate**	**States**	**Overdose Rate**
District of Columbia	17.3	New Hampshire	30.3	West Virginia	18.5
West Virginia	14.9	West Virginia	26.3	Utah	11.5
Ohio	13.5	Massachusetts	23.5	Maine	10.8
Connecticut	13.1	Ohio	21.1	Maryland	10.7
Maryland	10.7	District of Columbia	19.2	Tennessee	10.2
New Jersey	9.7	Maryland	17.8	Kentucky	9.3
Massachusetts	9.5	Rhode Island	17.8	Rhode Island	8.1
Vermont	8.7	Maine	17.3	Nevada	7.6
Illinois	8.2	Connecticut	14.8	New Mexico	7.5
New Mexico	8.2	Kentucky	11.5	District of Columbia	7.4

Source: DEA and Centers for Disease Control and Prevention

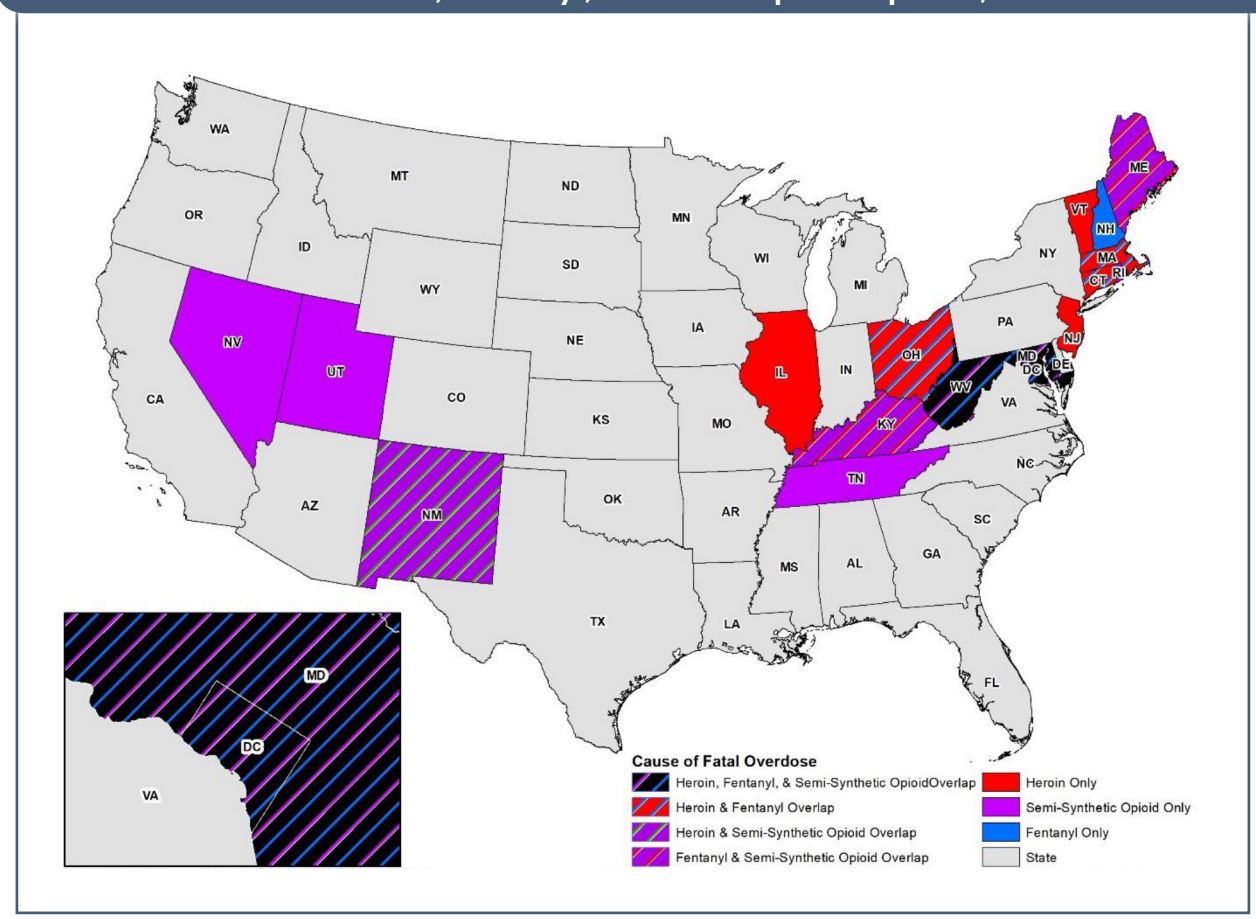
(U) Figure 4. Top Ten States by Number of NFLIS Submissions Each for Heroin, Fentanyl, and Combined Hydrocodone and Oxycodone.

Heroin		Fentanyl		Hydrocodone and Oxycodone	
State	**Submissions**	**State**	**Submissions**	**State**	**Submissions**
Ohio	20,964	Ohio	9,224	Ohio	5,702
Pennsylvania	17,222	Massachusetts	6,028	Arkansas	3,533
New Jersey	14,970	Pennsylvania	3,173	Tennessee	3,478
California	12,837	New York	2,365	Virginia	3,331
Illinois	11,240	New Jersey	1,770	Georgia	3,237
New York	10,597	Maryland	1,587	Louisiana	2,709
Massachusetts	9,461	Illinois	1,582	Florida	2,695
Maryland	7,933	New Hampshire	1,524	Kentucky	2,655
Virginia	6,584	Virginia	1,450	Pennsylvania	2,537
Texas	5,212	Florida	1,137	New York	2,403

Source: DEA

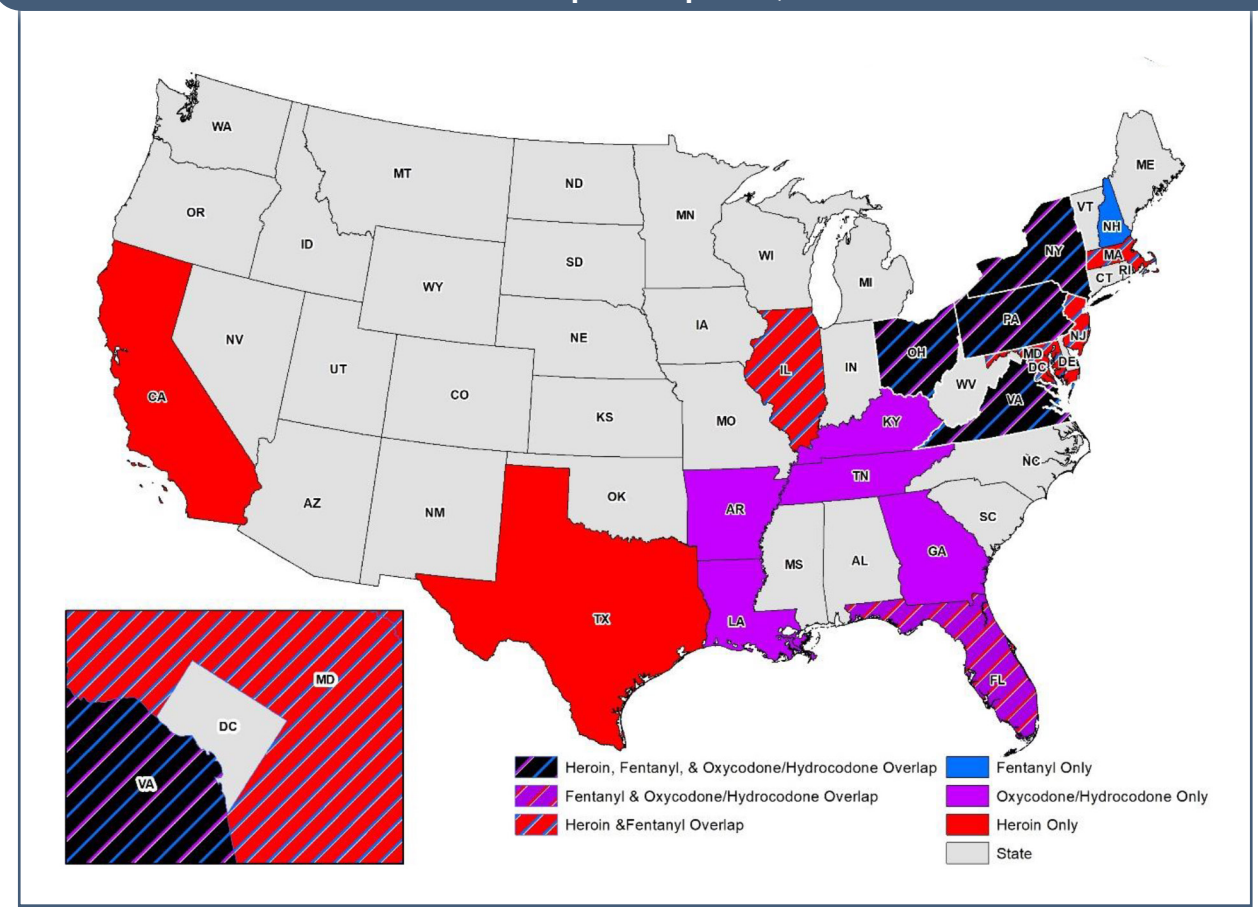
Further examination of this state/drug data shows correlations between fentanyl and both heroin and prescription opioids. Fentanyl's top 10 list for overdoses share three states in common with heroin's top 10 list for overdoses (Ohio, Connecticut, and Massachusetts) and two states in common with prescription opioids' top 10 overdose list (Rhode Island and Maine) (see Figure 5). For NFLIS submissions, Ohio reported the most heroin submissions, fentanyl submissions, and combined hydrocodone and oxycodone submissions for 2016. The top 10 lists for NFLIS submissions among all three drugs shared three states in common (Ohio, Pennsylvania, and New York) (see Figure 6). NFLIS submissions demonstrate a strong link between states with most fentanyl submissions and the most heroin submissions, with the two drugs sharing four states in common on their respective top ten NFLIS submissions list (Illinois, Massachusetts, Maryland, and Virginia). In comparison, only Florida was linked between fentanyl and prescription opioid lab submissions, possibly because of the state's history with high levels of prescription drug abuse.

(U) Figure 5. Top 10 States with Most Drug Poisoning Deaths per 100,000 People Each for Heroin, Fentanyl, and Prescription Opioids, 2016.



Source: DEA and Centers for Disease Control and Prevention

(U) Figure 6. Top 10 States with Most NFLIS Submissions Each for Heroin, Fentanyl, and Prescription Opioids, 2016.



Source: DEA

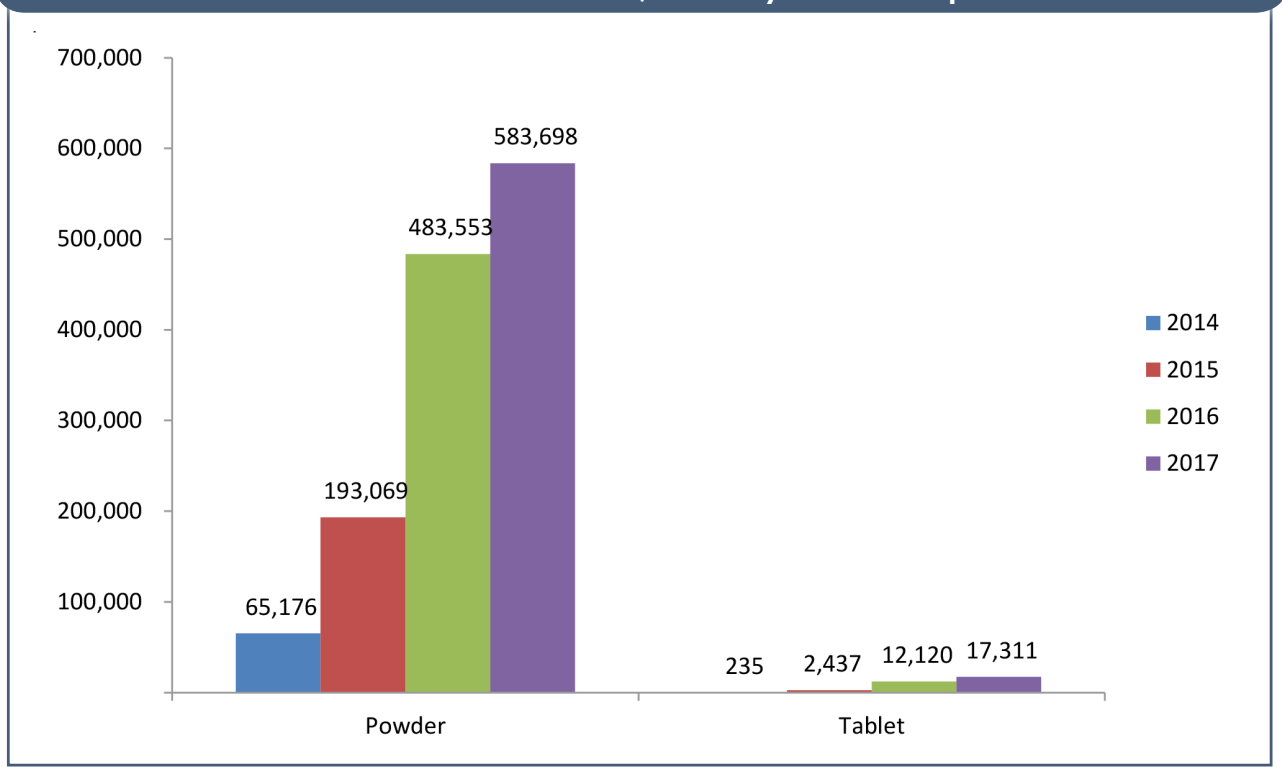
In 2016, fentanyl was most commonly identified as being either the only controlled substance identified or as being identified with heroin, indicating fentanyl still represents the greatest threat in established opioid user communities, including heroin and prescription opioids. According to DEA's 2016 Annual Emerging Threat Report, of the previously highlighted 877 fentanyl identifications, fentanyl was found as the only controlled substance in 46.5 percent of the identifications and was found in combination with heroin in approximately 42 percent of the identifications. Fentanyl has routinely been observed with other controlled substances, including methamphetamine, cocaine, alprazolam, and other fentanyl-related compounds.

In 2016, DEA laboratory information indicated more heroin exhibits than fentanyl exhibits were seized domestically and analyzed, indicating heroin's continued prevalence in the United States opioid user market. DEA analyzed the following quantities of opioids in 2016: over 5,400 kilograms of heroin and over 490 kilograms of fentanyl). This means DEA seized and analyzed over 1000 times more heroin than fentanyl in 2016, demonstrating heroin's continued importance in the domestic opioid market. It is important to note, however, that fentanyl seizures have been increasingly rapidly since at least 2014 and there are currently no signs indicating DEA should expect to seize less fentanyl in the near future.

Fentanyl and Fentanyl-Related Substances Continue to be Primarily Marketed to Opioid Users

Fentanyl intended for use in powder form is likely still marketed towards heroin users, while fentanyl-laced pills can be marketed towards prescription drug users, especially prescription opioid users. The overwhelming majority of fentanyl and fentanyl-related substances seized and analyzed between 2014 and 2017 has been fentanyl in powder form. As of September 2017, DEA had analyzed approximately 584 kilograms of fentanyl and fentanyl-related substances in powder form, an increase of 796 percent from the 65 kilograms of powder analyzed in 2014 (see Figure 8). Heroin-dependent individuals who develop a tolerance may seek out powder fentanyl to continue injecting themselves. In addition, individuals who use heroin may also be exposed to fentanyl-laced white powder heroin without having intentionally sought out fentanyl. These users may also then convert to using powder fentanyl the same as those who developed an initial tolerance for heroin.

(U) Figure 7. Total Weight of Analyzed Fentanyl and Fentanyl Related Substance Exhibits in Powder and Tablet Form, January 2014 to September 2017.

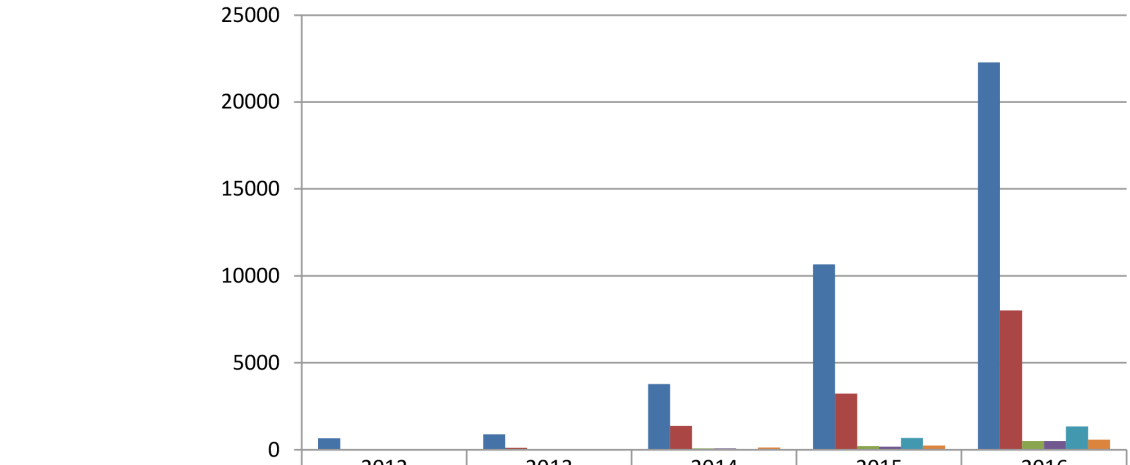


Source: DEA

Concurrently, the availability of fentanyl and fentanyl-related substances in tablet form has also increased dramatically, indicating that traffickers are expanding the fentanyl market to include users of prescription opioids. As of September 2017, DEA had analyzed approximately 17 kilograms of fentanyl and fentanyl-related substances in tablet form, a 7,266 percent increase from the 235 grams analyzed in 2014. Fentanyl tablets generally contain a small amount of fentanyl, which may help explain the significant difference in the quantity of fentanyl powder versus fentanyl-laced tablets seized. DEA's Fentanyl Signature Profiling Program (FSPP) analyzed approximately 300 fentanyl powder exhibits totaling 55 kilograms from exhibits seized between January 1, 2017 and December 31, 2017. The average purity of the powder exhibits was 6.5 percent, meaning a 1 kilogram fentanyl powder seizure probably has 65 grams of actual fentanyl present in the substance. Conversely, FSPP analysis of 8 kilograms of fentanyl tablets indicated the average illicit fentanyl-laced tablet contained 1.1 milligrams of fentanyl with a range of 0.03 to 1.9 milligram per tablet.

According to NFLIS data, analyzed fentanyl exhibits overwhelmingly contain either only fentanyl or fentanyl with heroin, further emphasizing fentanyl's continuing relationship with heroin as opposed to other illicit drugs. In 2016, there were approximately 35,217 confirmed exhibits in NFLIS that contained fentanyl. Of this total, 63 percent of fentanyl exhibits analyzed (or 22,278 exhibits) contained fentanyl alone, with no other illicit drugs (see Figure 9). The second largest category was exhibits containing fentanyl and heroin, which represented 23 percent of fentanyl exhibits analyzed. Exhibits of fentanyl and other drugs, including fentanyl and cocaine, have increased substantially over the past few years. However, as a percentage of all fentanyl exhibits in NFLIS, fentanyl and cocaine exhibits consistently represented approximately one percent of all fentanyl exhibits between 2014 and 2016, while fentanyl and heroin exhibits went from representing 18 percent to 23 percent of all fentanyl exhibits in the same timeframe.

(U) Figure 8. Analyzed Fentanyl Exhibits in NFLIS by Drug Combination, 2012-2016.



	2012	2013	2014	2015	2016
Fentanyl Alone	664	880	3,787	10,657	22,278
Fentanyl + Heroin	2	106	1,380	3,232	8,017
Fentanyl + Heroin + Cocaine	1	9	72	210	492
Fentanyl + Cocaine	1	9	81	174	496
Fentanyl + Other Opioids	2	6	33	671	1,341
Fentanyl + Other Substance	3	19	130	235	577

Source: DEA

Opioid Users Do Not Display a Uniform Preference for Using Exclusively Fentanyl or Heroin

Opioid users varied in their preferences for using fentanyl over heroin or vice versa based on several different variables, indicating fentanyl will likely remain intertwined with the heroin market in the near term. According to research conducted by the University of California's Department of Family and Community Medicine,[g] users described fentanyl as having a more intense "rush," greater potency, and a shorter duration of effect compared to heroin. Respondents who were proponents of fentanyl described the powerful "rush" (the explosive onset of strong opioid effect) as one of the main benefits compared to

[g] The research was conducted using a "rapid ethnographic assessment." Ethnography is a branch of anthropology dedicated to the scientific description the customs of individual peoples and cultures. Data for this study were collected through semi-structured interviews and ethnographic observation carried out in June 2016. Individuals using heroin were recruited during the course of their daily activities and most were introduced to researchers by harm reduction workers.

heroin. However, respondents also negatively characterized fentanyl as having a shorter duration versus heroin, which led some respondents to state they preferred the less intense, but longer lasting heroin. This led some users to state fentanyl-heroin mixtures represented the "best of both worlds," as it provided the intense fentanyl high upon initial use but the heroin high lingers after the fentanyl wears off, mitigating the harsh "come down" after fentanyl that other users described.

Fentanyl's potency and associated risk of overdose and death were enough to deter some users from seeking fentanyl, but others sought out fentanyl because of its potency, especially when overcome by withdrawal symptoms. Many respondents attributed their own overdoses to fentanyl and stated their belief that fentanyl was central to the rates of overdoses and deaths happening around them. One respondent stated openly that they disliked fentanyl but also admitted they were unable to always avoid it when they were sick and needed a fix. This is very significant, as even users who claim to be able to identify fentanyl adulterated heroin on sight may be unable to avoid using fentanyl during a time of weakness and therefore risk developing an opioid tolerance that can only be satisfied by fentanyl.

Dealers' Lack of Knowledge About Their Products Complicates Assessments of User Preferences

DEA reporting also indicates that heroin and fentanyl distributors often use the same or similar terminology to describe the sales and availability of heroin, fentanyl, and fentanyl-adulterated heroin, leading to confusion and wariness among customers. For example, one of the most popular names associated with high-quality heroin is "China White," but distributors across the United States all use "China White" to mean different products. It is very likely that many distributors do not know exactly what they are selling when it comes to differentiating between heroin, fentanyl, and fentanyl-laced heroin, as well as differentiating between regular counterfeit pills and fentanyl-laced counterfeit pills. This probably means many distributors are not intentionally deceiving their customers, but rather the distributors themselves are not always informed by their suppliers as to what substances they are specifically selling. Still, other distributors actively cut heroin with fentanyl to extend their heroin supply; however, it is often unclear whether customers in these cases are aware of how/if their heroin has been cut.

- In October 2017, a Boston-area illicit drug distributor was actively involved in selling heroin and fentanyl. This distributor was also reportedly specifically involved in the distribution of kilogram quantities of "China White," described as fentanyl-laced heroin.

- In October 2017, a Phoenix-area illicit drug distributor offered to sell pills to multiple customers. Based on the response from one of the customers, the referenced pills were blue fentanyl pills marked with "30", made to resemble oxycodone pills. The customer was hesitant when offered the pills and indicated customers are afraid of the pills from Mexico because "they have poison in them." Another customer explained nobody wanted to buy these pills because they had fentanyl, which was killing people, and individuals selling these pills were being charged for the deaths of persons who died from consuming them.

- In August 2017, a San Antonio-area illicit drug distributor was selling kilogram quantities of "China White" heroin. The distributor stated that caution should be used with the white-powder substance being sold because it may contain fentanyl.

- In July 2017, a Philadelphia-area heroin and fentanyl distributor sold what was claimed to be brown/beige colored heroin that was later determined to contain both fentanyl and heroin, according to DEA lab analysis. During this same time period, the distributor discussed being able to obtain "China White," described as high-quality fentanyl. Later, in August 2017, the same distributor sold what he/she claimed to be "white" heroin, which was later determined to contain fentanyl and acetyl fentanyl with no heroin.

- In March 2017, a Cincinnati-area illicit drug distributor sold heroin, fentanyl, and fentanyl-laced heroin to various customers. The same distributor would often alter the quality of the substance being provided based on the number of customers and how much product the customers were seeking to purchase. Whenever several customers were seeking to purchase 1 to 2 ounces of heroin, the distributor would cut the heroin more to stretch supplies. The distributor also sold retail quantities of fentanyl-laced heroin and fentanyl with other cuts.

The ability for distributors and users to successfully identify what substance(s) they possess will likely continue to be important, given users' preferences for one substance over another and the reluctance of some users to use anything that might contain fentanyl. As fentanyl, typically a white powder, is often mixed in with or sold as white powder heroin, it can be difficult for both users and law enforcement officials to quickly differentiate between heroin, fentanyl, and fentanyl-adulterated heroin. However, at least one opioid user in the previously discussed ethnography study claimed to be able to distinguish between heroin, fentanyl, and heroin-fentanyl mixtures by the color of the drug, both in powder form and in solution. The user claimed it was widely known fentanyl was a pale powder—described as white, off-white, or gray—and a yellow colored liquid when water is added. The same user described heroin as darker in color when ready for injection, but other users were unsure of the differences between pure fentanyl and heroin.

- In July 2017, a Greenville, South Carolina-area illicit drug distributor explained that there is no real way to truly determine "good heroin" (heroin without fentanyl) from "bad heroin" (heroin with fentanyl or fentanyl being sold as heroin) due to the many different cuts currently being used, including fentanyl. However, the distributor further elaborated that pink- or white-colored heroin was sometimes considered more dangerous than normal, tan-colored heroin, with white-colored heroin assumed to likely contain fentanyl. The distributor explained most people would not allow a purchaser to see or know what exactly was being used to dilute heroin.

- In May 2017, a Manchester, New Hampshire-area illicit drug distributor explained heroin and fentanyl could be told apart by the color of the substance. The distributor claimed to know when the product in question was fentanyl, not only because of the price paid or the drugs, but because fentanyl was typically a white or brown powder. The differences in color depended on how the fentanyl was cut, according to the distributor.

- In March 2017, reporting from the Wilmington, Delaware, area indicated fentanyl-adulterated heroin had a dark coloration and appearance. Because of this, users reportedly sought heroin with a darker coloration, believing it to be high-quality heroin. This inconsistency in the colors of heroin associated with purity is typical among retail users and distributors.

OUTLOOK

Fentanyl will likely remain the most popular synthetic opioid available in the United States in the near term. Given users' divided preferences on fentanyl over heroin, or vice versa, it is unlikely fentanyl will supplant heroin as opioid users' preferred drug of choice. Fentanyl's popularity is growing in the United States, but it is unlikely that fentanyl will make significant inroads with non-opioid drug users, as fentanyl exhibits overwhelmingly contain either fentanyl alone or fentanyl mixed with heroin. The use of fentanyl will continue to cause overdoses and deaths, as distributors and users alike often are unaware of what substance(s) they are selling or consuming respectively.

(U) This product was prepared by the DEA Strategic Intelligence Section. Comments and questions may be addressed to the Chief, Analysis and Production Section at dea.onsi@usdoj.gov. For media/press inquiries call (202) 307-7977.