

NFLIS Brief: Fentanyl and Fentanyl-Related Substances Reported in NFLIS, 2015–2016

Revised March 2018

The National Forensic Laboratory Information System (NFLIS) represents an important Drug Enforcement Administration (DEA) resource in monitoring drug abuse and trafficking. Current NFLIS data reflect the results from drug chemistry analyses conducted by Federal, State, and local forensic laboratories across the country (NFLIS-Drug). NFLIS-Drug serves the forensic and law enforcement communities by providing updated findings on changing trends of drugs submitted to and analyzed by the Nation's forensic laboratories. A previous research brief on fentanyl presented data from 2001 through 2015 (see <https://www.nflis.deadiversion.usdoj.gov/Reports.aspx>). This research brief presents updated findings on fentanyl and information on fentanyl-related substances submitted to State and local laboratories from January 1, 2015, through December 31, 2016, and analyzed within three months of each calendar year reporting period.

Drug Facts

- Carfentanil is 10,000 times more potent than morphine.¹
- Fentanyl-related substances such as acetyl fentanyl have contributed to overdose deaths in the United States.²

National Estimates

Table 1 shows that from January 2015 through December 2016, a total of 57,308 fentanyl and fentanyl-related substance reports were identified by State and local forensic laboratories in the United States.

Table 1 National Annual Estimates of Fentanyl and Fentanyl-Related Substances Reported in NFLIS, 2015–2016¹

Fentanyl and Fentanyl-Related Substances	2015		2016		Total	
	Number	Percent	Number	Percent	Number	Percent
Fentanyl	14,440	84.59%	34,199	84.99%	48,639	84.87%
Acetyl fentanyl	2,412	14.13%	1,669	4.15%	4,080	7.12%
Furanyl fentanyl	0	0.00%	2,273	5.65%	2,273	3.97%
Carfentanil	0	0.00%	1,251	3.11%	1,251	2.18%
3-Methylfentanyl	1	0.01%	427	1.06%	428	0.75%
Butyryl fentanyl	205	1.20%	93	0.23%	298	0.52%
Fluoroisobutyryl fentanyl	0	0.00%	82	0.20%	82	0.14%
p-Fluoroisobutyryl fentanyl	0	0.00%	76	0.19%	76	0.13%
p-Fluorobutyryl fentanyl	2	0.01%	72	0.18%	74	0.13%
Valeryl fentanyl	0	0.00%	52	0.13%	52	0.09%
Acryl fentanyl	0	0.00%	26	0.06%	26	0.04%
p-Fluorofentanyl	8	0.05%	5	0.01%	13	0.02%
ANPP	0	0.00%	8	0.02%	8	0.01%
o-Fluorofentanyl	0	0.00%	3	0.01%	3	0.01%
Beta-hydroxythiofentanyl	3	0.02%	0	0.00%	3	0.01%
Acetyl-alpha-methylfentanyl	1	0.01%	0	0.00%	1	0.00%
Alpha-methylfentanyl	0	0.00%	1	0.00%	1	0.00%
4-Methoxy-butyryl fentanyl	0	0.00%	*	*	*	*
Total²	17,071	100.00%	40,236	100.00%	57,308	100.00%

ANPP=4-Anilino-N-phenethyl-4-piperidine

¹ Includes drugs submitted to laboratories from January 1, 2015, through December 31, 2016, that were analyzed within three months of the calendar year reporting period.

² Numbers and percentages may not sum to totals because of rounding.

* The estimate for this drug does not meet the standards of precision and reliability.

Acetyl Fentanyl, Furanyl Fentanyl, and Carfentanil Reports, by State and County

The geographic data presented in this research brief are actual reported data or counts rather than national and regional estimates. The data are based on information provided to the forensic laboratories by the submitting law enforcement agencies in the county of origin associated with the drug seizure incident. It is important to note that these data represent only those items that were submitted to and analyzed by forensic laboratories. In addition, a small number of laboratories within a few States were not reporting data to NFLIS-Drug, and their absence may affect the relative distribution of drugs seized and analyzed.

As shown in Figure 1, a total of 31 States reported analyzing acetyl fentanyl during 2016. During that time, four States had more than 20 acetyl fentanyl reports, and four States had 100 or more reports. During 2016, 37 States reported analyzing furanyl fentanyl (Figure 2). Six States identified 20 to 49 furanyl fentanyl reports, four States identified 50 to 99 reports, and four States identified 100 or more reports. As shown in Figure 3, a total of 11 States reported analyzing carfentanil during 2016. Seven States identified 1 to 19 carfentanil reports, two States identified 20 to 49 reports, and two States identified more than 100 reports. States with the most reports of acetyl fentanyl, furanyl fentanyl, and carfentanil were in the South, Northeast, and Midwest.

Figures 4 through 6 show reports of acetyl fentanyl, furanyl fentanyl, and carfentanil by county in selected States. In 2016, Massachusetts reported analyzing 657 reports of acetyl fentanyl, with Essex and Middlesex Counties accounting for more than half of the reports (Figure 4). Figure 5 shows that five counties in New Jersey identified 50 to 99 furanyl fentanyl reports during 2016. New Jersey as a whole in 2016 reported analyzing a total of 517 reports of furanyl fentanyl. During 2016, Ohio reported analyzing 982 reports of carfentanil (Figure 6). Cuyahoga, Hamilton, and Summit Counties identified more than 100 reports of carfentanil, totaling more than half of the reports in Ohio.

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Figure 1 Acetyl fentanyl reports in NFLIS, by State, 2016*

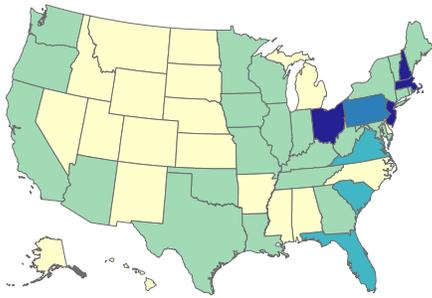


Figure 2 Furanyl fentanyl reports in NFLIS, by State, 2016*

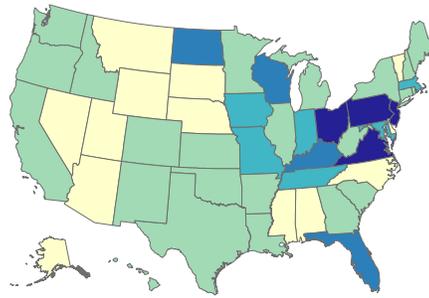


Figure 3 Carfentanil reports in NFLIS, by State, 2016*

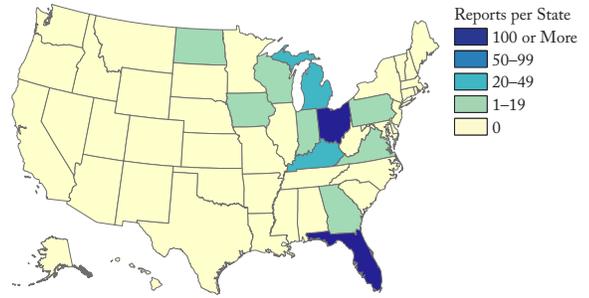


Figure 4 Acetyl fentanyl reports in NFLIS, by county, in Massachusetts, 2016*

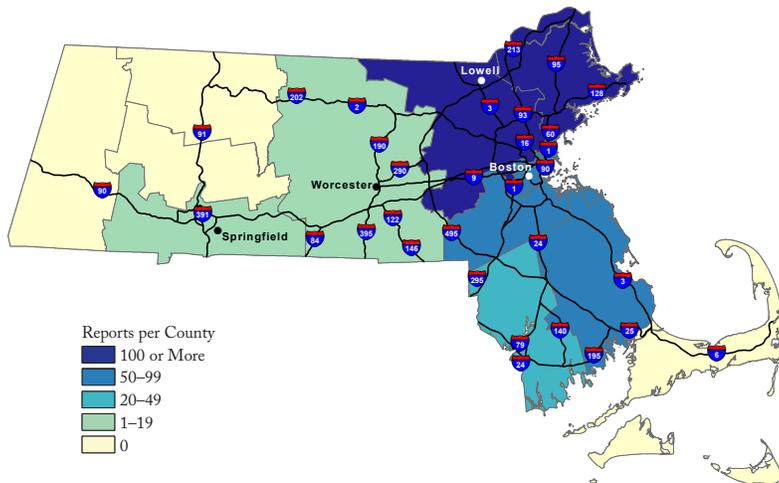


Figure 5 Furanyl fentanyl reports in NFLIS, by county, in New Jersey, 2016*

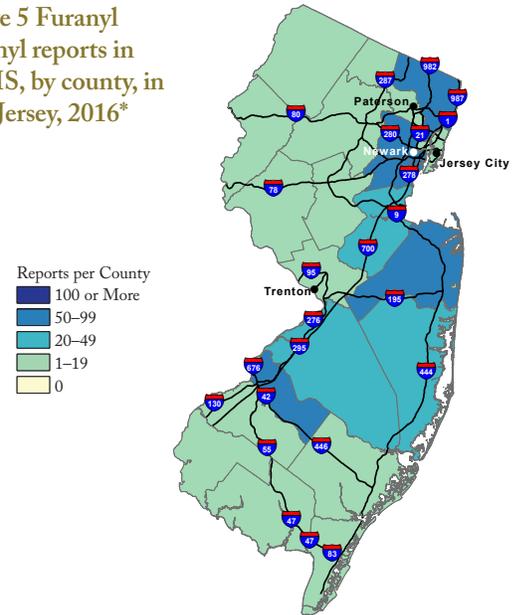
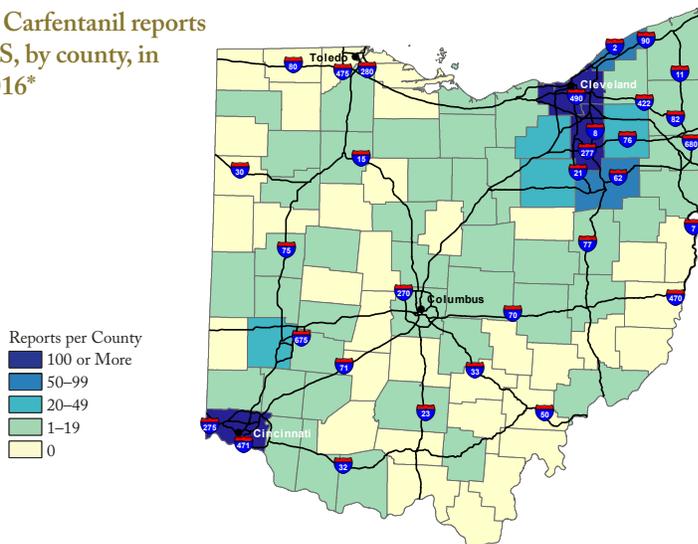


Figure 6 Carfentanil reports in NFLIS, by county, in Ohio, 2016*



References

- 1 Van Bever, W. F., Niemegeers, C. J., Schellekens, K. H., & Janssen, P. A. (1976). N-4-Substituted 1-(2-arylethyl)-4-piperidinyl-N-phenylpropanamides, a novel series of extremely potent analgesics with unusually high safety margin. *Arzneimittel-Forschung*, 26, 1548-1551.
- 2 U.S. Department of Justice, Drug Enforcement Administration, Diversion Control Division, Drug & Chemical Evaluation Section. (2015, July). *Acetyl fentanyl (N-(1-phenethylpiperidin-4-yl)-N-phenylacetamide)*. Retrieved from https://www.deadiversion.usdoj.gov/drug_chem_info/acetylfentanyl.pdf

*Includes drugs submitted from January through December that were analyzed within three months of the calendar year reporting period.

Methodology: A summary of the NFLIS estimation methodology can be found in the current *NFLIS Statistical Methodology* publication at <https://www.nflis.deadiversion.usdoj.gov/Reports.aspx>.

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U.S. Drug Enforcement Administration, Diversion Control Division. (2017). *NFLIS Brief: Fentanyl and Fentanyl-Related Substances Reported in NFLIS, 2015–2016*. Springfield, VA: U.S. Drug Enforcement Administration.

Errata: A previous version of this publication included state estimate errors. The Drug Enforcement Administration has corrected these errors within the updated version of this publication.

Obtaining Copies of This Publication: Electronic copies of this publication can be downloaded from the NFLIS website at <https://www.nflis.deadiversion.usdoj.gov>.