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CDC HEALTH ADVISORY

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Increases in Fentanyl Drug Confiscations and Fentanyl-related Overdose Fatalities

Summary

The Centers for Disease Control and Prevention (CDC) and the Drug Enforcement Administration (DEA) are investigating recent increases in fentanyl-related unintentional overdose fatalities in multiple states across the U.S. The purpose of this HAN advisory is to: (1) alert public health departments, health care providers, first responders, and medical examiners and coroners to the possibility of additional increases in other jurisdictions, (2) provide recommendations for improving detection of fentanyl-related overdose outbreaks and (3) encourage states to expand access to naloxone and training for administering naloxone to reduce opioid overdose deaths.

Background

Fentanyl, a synthetic and short-acting opioid analgesic, is 50-100 times more potent than morphine and approved for managing acute or chronic pain associated with advanced cancer.¹ Although pharmaceutical fentanyl can be diverted for misuse, most cases of fentanyl-related morbidity and mortality have been linked to illicitly manufactured fentanyl and fentanyl analogs, collectively referred to as non-pharmaceutical fentanyl (NPF).² NPF is sold via illicit drug markets for its heroin-like effect and often mixed with heroin and/or cocaine as a combination product—with or without the user's knowledge—to increase its euphoric effects. While NPF-related overdoses can be reversed with naloxone, a higher dose or multiple number of doses per overdose event may be required to revive a patient due to the high potency of NPF.^{3,4}

In March 2015, DEA issued a nationwide alert identifying fentanyl as a threat to public health and safety.⁵ This was followed by a DEA National Heroin Threat Assessment Summary, which noted that “beginning in late 2013 and throughout 2014, several states have reported spikes in overdose deaths due to fentanyl and its analog acetyl-fentanyl.”⁶ Similar to previous fentanyl overdose outbreaks, most of the more than 700 fentanyl-related overdose deaths reported to DEA during this timeframe were attributable to illicitly-manufactured fentanyl—not diverted pharmaceutical fentanyl—and either mixed with heroin or other diluents and sold as a highly potent form (sometimes under the street name “China White”). The DEA report noted that the “true number is most likely higher because “many coroners’ offices and state crime laboratories do not test for fentanyl or its analogs unless given a specific reason to do so.”⁶

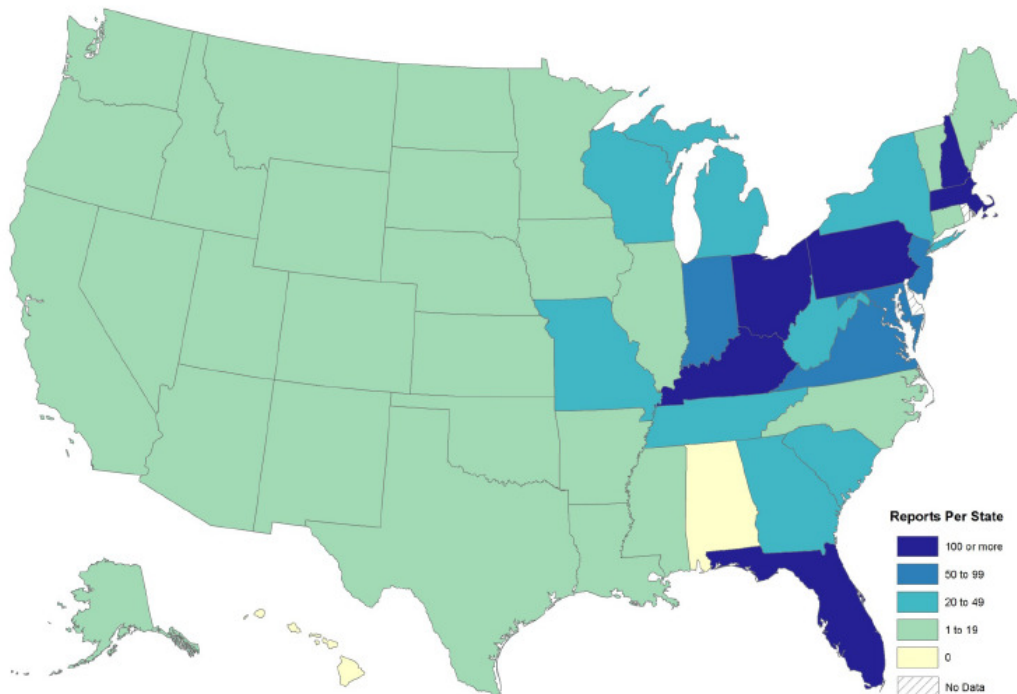
Reports on state drug seizures (or confiscations) from the National Forensic Laboratory Information System (NFLIS), a program of the DEA's Office of Diversion Control, indicate a significant increase in the total number of fentanyl drug seizures reported by forensic laboratories around the country from 2012 to 2014 (618 in 2012; 945 in 2013; 4,585 in 2014).⁷ More than 80% of drug seizures in 2014 were concentrated in 10 states (Table 1). The number of states reporting 20 or more fentanyl seizures every six months is increasing. From July to December 2014, 18 states reported 20 or more fentanyl drug seizures (See Figure 1). Previously, six states reported 20 or more fentanyl drug seizures from July to December 2013.

Table 1: Top 10 states by total Fentanyl Seizures, 2014, unpublished NFLIS data

Rank	State	Number of Fentanyl seizures
1	Ohio	1245
2	Massachusetts	630
3	Pennsylvania	419
4	Maryland	311
5	New Jersey	238
6	Kentucky	232
7	Virginia	222
8	Florida	183
9	New Hampshire	177
10	Indiana	133

Figure 1:

Fentanyl reports in NFLIS, by State July – December 2014



Drug Enforcement Administration, Office of Diversion Control, Drug and Chemical Evaluation Section, Data Analysis Unit

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These increases raise serious concerns for public health if fentanyl seizures serve as a proxy for increased overdose risk. Recent fentanyl-related fatal overdose data from several of the top 10 states with highest seizure counts suggest fatalities

have increased in states reporting large increases in fentanyl seizures. Two of the top-five states, Ohio and Maryland, both reported sharp increases in fentanyl-related deaths in 2014—Ohio reported 514 fentanyl-related fatal overdoses in 2014 compared to 92 in 2013,⁸ and Maryland reported 185 fentanyl-related fatal overdoses in 2014 compared to 58 in 2013⁹. Massachusetts, another top-five state, is currently investigating whether an abnormally sharp increase in opioid-related deaths in 2014 is attributable to fentanyl.¹⁰ Florida, another state reporting increases in fentanyl-related drug seizures, recently reported 397 fatal overdoses attributable to fentanyl in 2014, up from 185 in 2013¹¹.

Fentanyl poses a significant danger to public health workers, first responders, and law enforcement personnel that may unwittingly come into contact with it either by absorbing through the skin or accidental inhalation of airborne powder. In August 2015, New Jersey law enforcement officers conducting a narcotics field test on an illicit substance experienced shortness of breath, dizziness, and respiratory distress after coming into contact with an unknown substance, which forensic laboratory testing determined to be a mix of cocaine, heroin, and fentanyl.

Recommendations

CDC suggests the following actions in response to increases in fentanyl-related overdose deaths:

- **Improve detection of fentanyl outbreaks** to facilitate effective response.
 - *Public health departments:* Explore methods for more rapidly detecting drug overdose outbreaks, including fentanyl.¹²
 - Use existing surveillance systems such as medical examiner data, emergency medical services data or near real-time emergency department data
 - In outbreak situations of dramatically increased opioid overdose, at sentinel sites, or in jurisdictions with high drug overdose burden, consider asking emergency departments to report fatal and nonfatal opioid overdose cases to them within 48 hours.¹³ This may be a resource-intensive approach.
 - Consider engaging local poison centers to assist with tracking and treatment of patients.
 - Review data on drug seizures involving fentanyl or acetyl-fentanyl within the jurisdiction such as those published by National Forensic Laboratory Information System (NFLIS) to stay abreast of geographic changes in supply (see [NFLIS Report](#) or (http://www.deadiversion.usdoj.gov/nflis/spec_rpt_opioids_2014.pdf).
 - Identify and track decedent demographics and risk factors (e.g., drug type and route of administration) along with geographic concentrations of cases to better inform public health surveillance and overdose prevention efforts.¹⁴
 - *Medical examiners and coroners:* Screen for fentanyl in suspected opioid overdose cases in regions reporting increases in fentanyl seizures, fentanyl-related overdose fatalities or unusually high spikes in heroin or unspecified drug overdose fatalities. Not all jurisdictions routinely test for fentanyl.
 - Screen specimens from fatal drug overdose deaths using an enzyme-linked immunosorbent assay (ELISA test) with the capacity to detect fentanyl. If an ELISA test is positive for fentanyl, conduct confirmatory testing by gas chromatography/mass spectrometry (GC/MS). If no fentanyl is detected by GC/MS, then fentanyl analogs should be suspected and subsequent testing considered.¹⁵
 - Implement standardized mechanisms for determining cause of death and methods of reporting to ensure death reports are complete and accurate.¹⁶ SAMHSA has published consensus recommendations for uniform standards and case definitions for classifying opioid-related deaths (See [Consensus Recommendations](#) or <http://www.tandfonline.com/doi/pdf/10.1080/10550887.2013.824334>). It is especially important to include the word “fentanyl” on the death certificate when the drug is a contributing cause of death.
 - *Law enforcement:* Law enforcement can play an important role identifying and responding to increases in the distribution and use of illicitly manufactured fentanyl.

- Investigating officers are advised to consider the potential exposure to fentanyl through skin exposure and/or inhalation of aerosolized drug, and utilize appropriate safety precautions and personal protective equipment¹⁷.
 - Test drug samples seized or collected by law enforcement or found at the scene of death to detect fentanyl or fentanyl analogs.¹⁸
 - 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.
- **Expand Use of Naloxone:** Naloxone is a safe and effective antidote to all opioid-related overdoses, including heroin and fentanyl, and is a critical tool in preventing fatal opioid overdoses.^{19,20} Depending on state and local laws, this medication can potentially be administered effectively by EMS, law enforcement²¹, people at high risk for overdose²², or family and friend bystanders who have obtained the medication²³,
 - *Health Care Providers:* Multiple doses of naloxone may need to be administered per overdose event because of fentanyl's increased potency relative to other opioids.³
 - Increase the amount of naloxone on hand for first responders such as law enforcement and other EMS personnel given the increased amount needed and rate of use during a fentanyl outbreak⁴
 - Recognize and treat opioid overdose patients, with particular focus on how to respond to fentanyl and acetyl fentanyl overdose.⁴
 - *Harm reduction organizations:* Expand naloxone access to persons at risk for opioid-related overdose and their family members.²⁴
 - Provide take-home naloxone kits and encourage people who use heroin and/or misuse opioid analgesics—or know people that do—to carry them.
 - Train those using drugs how to effectively administer naloxone and emphasize the importance of overdose prevention tactics, such as rescue breathing and calling 911.

For more information

- *CDC Health Advisory: Recommendations for Laboratory Testing for Acetyl Fentanyl and Patient Evaluation and Treatment for Overdose with Synthetic Opioid* at <http://emergency.cdc.gov/han/han00350.asp>
- DEA Issues Nationwide Alert on Fentanyl as Threat to Health and Public Safety at <http://www.dea.gov/divisions/hq/2015/hq031815.shtml>
- *Fentanyl SAMHSA letter to physicians* and fact sheet at: <http://buprenorphine.samhsa.gov/20130715114030811.pdf>
- *Special Report: Opiates and Related Drugs Reported in NFLIS, 2009-2014* at http://www.deadiversion.usdoj.gov/nflis/spec_rpt_opioids_2014.pdf
- *SAMHSA Opioid Overdose Toolkit* at: http://store.samhsa.gov/shin/content/SMA13-4742/Overdose_Toolkit_2014_Jan.pdf
- Call Poison Control at 1-800-222-1222 or use the [webPOISONCONTROL®](#) online tool for guidance

¹ Algren D, Monteilh C, Rubin C, et al. Fentanyl-associated fatalities among illicit drug users in Wayne County, Michigan (July 2005-May 2006). *Journal Of Medical Toxicology: Official Journal of the American College Of Medical Toxicology* [serial online]. March 2013; 9(1):106-115.

² U. S. Department of Justice, Drug Enforcement Administration, DEA Investigative Reporting, January 2015

³ Centers for Disease Control and Prevention. Notes from the field: Acetyl fentanyl overdose fatalities - Rhode Island, March-May 2013. *MMWR: Morbidity & Mortality Weekly Report* [serial online]. August 30, 2013; 62(34):703-704. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6234a5.htm>

⁴ Centers for Disease Control and Prevention. Recommendations for Laboratory testing for Acetyl Fentanyl and Patient Evaluation and Treatment for Overdose for Synthetic Opioids. *HAN Health Advisory*. June 20, 2013. <http://stacks.cdc.gov/view/cdc/25259>

⁵ DEA Issues Nationwide Alert on Fentanyl as Threat to Health and Public Safety. March 8, 2015. <http://www.dea.gov/divisions/hq/2015/hq031815.shtml>

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- ⁶ National Heroin Threat Assessment Summary. DEA Intelligence Report. April 2015.
http://www.dea.gov/divisions/hq/2015/hq052215_National_Heroin_Threat_Assessment_Summary.pdf
- ⁷ Drug Enforcement Administration (DEA). Unpublished Data provided to CDC
- ⁸ <http://www.healthy.ohio.gov/~media/HealthyOhio/ASSETS/Files/injury%20prevention/2014%20Ohio%20Preliminary%20Overdose%20Report.pdf>
- ⁹ Maryland Department of Health. (2014). Drug and Alcohol Related Intoxication Deaths in Maryland, 2014
http://bha.dhmh.maryland.gov/OVERDOSE_PREVENTION/Documents/2015.05.19%20-%20Annual%20OD%20Report%202014_merged%20file%20final.pdf
- ¹⁰ Personal communication between CDC and Massachusetts Department of Public Health
- ¹¹ <https://www.fdle.state.fl.us/Content/Medical-Examiners-Commission/MEC-Publications-and-Forms/Documents/2014-Annual-Drug-Report-FINAL.aspx>
- ¹² Centers for Disease Control and Prevention. Nonpharmaceutical fentanyl-related deaths--multiple states, April 2005-March 2007. MMWR: Morbidity & Mortality Weekly Report [serial online]. July 25, 2008; 57(29):793-796.
<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5729a1.htm>
- ¹³ Mercado-Crespo M, Sumner S, Spelke M, Sugerman D, Stanley C. Notes from the field: Increase in fentanyl-related overdose deaths - Rhode Island, November 2013-March 2014. MMWR: Morbidity & Mortality Weekly Report [serial online]. June 20, 2014; 63(24):531. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6324a3.htm>
- ¹⁴ Levy B. Undetermined risk factors associated with drug overdose deaths, New Mexico – New Mexico, Feb.2014 (Epi-Aid 2012-022).
- ¹⁵ Centers for Disease Control and Prevention. Notes from the field: Acetyl fentanyl overdose fatalities - Rhode Island, March-May 2013. MMWR: Morbidity & Mortality Weekly Report [serial online]. August 30, 2013; 62(34):703-704.
<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6234a5.htm>
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<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5729a1.htm>
- ¹⁷ http://www.cdc.gov/niosh/ersbdb/emergencyresponsecard_29750022.html
- ¹⁸ US Department of Justice, Drug Enforcement Administration. 21 CFR part 1310. Control of a chemical precursor used in the illicit manufacture of fentanyl as a list 1 chemical. Federal Register 2007; 72:20039--47. Available at http://frwebgate.access.gpo.gov/cgi-bin/getpage.cgi?dbname=2007_register&position=all&page=20039.
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http://aspe.hhs.gov/sp/reports/2015/OpioidInitiative/ib_OpioidInitiative.pdf
- ²⁰ SAMHSA opioid overdose toolkit. https://store.samhsa.gov/shin/content/SMA13-4742/Overdose_Toolkit_2014_Jan.pdf
- ²¹ Davis C, Carr D, Southwell J, Beletsky L. Engaging law enforcement in overdose reversal initiatives: Authorization and liability for naloxone administration. American Journal of Public Health [serial online]. June 11, 2015.
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- ²² Coffin P, Sullivan S. Cost-effectiveness of distributing naloxone to heroin users for lay overdose reversal. Ann Intern Med. 2013;158:1-9 & Walley A, Xuan Z, Hackman H, et al. Opioid overdose rates and implementation of overdose education and nasal naloxone distribution in Massachusetts: interrupted time series analysis. BMJ 2013;346: 1-12.
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<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6324a3.htm>
- ²⁴ Centers for Disease Control and Prevention. [Vital Signs: Demographic and Substance Use Trends Among Heroin Users — United States, 2002–2013](#). MMWR 2015; 64(26);719-725.

The Centers for Disease Control and Prevention (CDC) protects people's health and safety by preventing and controlling diseases and injuries; enhances health decisions by providing credible information on critical health issues; and promotes healthy living through strong partnerships with local, national, and international organizations.

Categories of Health Alert Network messages:

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Health Update situation	Unlikely to require immediate action; provides updated information regarding an incident or situation
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