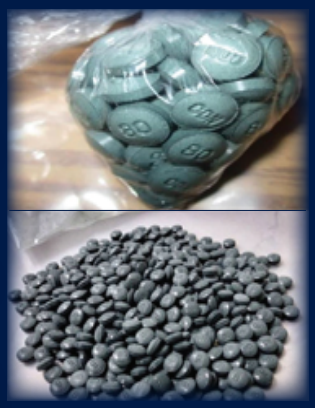
U.S. Department of Justice
Drug Enforcement Administration

Fentanyl

FURANYL-FENTANYL·ACRYL-FENTANYL·ACETYL-FENTANYL

A Briefing Guide for First Responders



CARFENTANIL·3-METHYLFENTANYL & SYNTHETIC OPIOIDS

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Disclaimer

This document contains recommendations on potential best practices for first responders that may encounter, test and transport exhibits that could contain fentanyl-related substances. It also contains recommendations for handling and processing of crime scenes and non-drug evidence, like money, that could be contaminated. This interim guidance is intended for educational and awareness purposes only, and should not to be treated as technical guidance related to the handling and processing of fentanyl.

EXECUTIVE SUMMARY

In the last several years, U.S. Law Enforcement has seen a dramatic increase in the availability of dangerous synthetic opioids. A large majority of these synthetic opioids are structural derivatives of the synthetic drug "fentanyl." Fentanyl is a synthetic opioid currently listed as a Schedule II prescription drug that mimics the effects of morphine in the human body, but has potency 50–100 times that of morphine. Due to the high potency and availability of fentanyl, both transnational and domestic criminal organizations are increasingly utilizing these dangerous synthetic opioids as an adulterant in heroin and other controlled substances. The presence of these synthetic opioids in the illicit U.S. drug market is extremely concerning as the potency of these drugs has led to a significant increase in overdose incidents and overdose-related deaths throughout the nation.

WARNING

There is a significant threat to law enforcement personnel, and other first responders, who may come in contact with fentanyl and other fentanyl-related substances through routine law enforcement, emergency or life-saving activities. Since fentanyl can be ingested orally, inhaled through the nose or mouth, or absorbed through the skin or eyes, any substance suspected to contain fentanyl should be treated with extreme caution as exposure to a small amount can lead to significant health-related complications, respiratory depression, or death.

SECTION 1
History of Fentanyl

Fentanyl was first synthesized in 1959 by a Belgian chemist and later marketed as an intravenous analgesic drug, *Sublimaze*. Other formulations of pharmaceutical (legal) fentanyl were developed to provide opioid pain management including a transdermal patch, flavored lollipop, sublingual/effervescent tab, and nasal spray.

In the 1990's, the DEA discovered what is believed to be one of the first instances of domestically produced illicit fentanyl in the United States. In 1991 a brand of street heroin known as "Tango and Cash" was found to contain approximately 12 percent fentanyl and was believed to be responsible for an estimated 126 overdose deaths. Investigators were ultimately able to trace this clandestinely produced fentanyl to Wichita, Kansas where they seized two laboratories and approximately 40 pounds of additional fentanyl.

Between 2000 and 2005, U.S. law enforcement agencies identified and dismantled several clandestine fentanyl laboratories located throughout the United States. However, beginning in 2005, law enforcement agencies in the Midwest and Northeast, from Chicago to New Jersey, began noticing an alarming number of overdose deaths in their respective areas. Between 2005 and 2007, approximately 1,013 fentanyl-related deaths in this corridor were attributed to the lethal heroin/fentanyl mixture. This time, the adulterated heroin was traced to a clandestine laboratory located in Toluca, Mexico which was ultimately seized and dismantled.

Current Trends

Beginning in 2013, the DEA, along with its law enforcement partners, began noticing an alarming number of overdose incidents and deaths related to opioids throughout the nation. These cases were found to be the result of illicit opioids, such as counterfeit pharmaceutical products containing fentanyl, fentanyl-related substances and other synthetic opioids.

At present, opioids continue to be the most significant contributor to overdose deaths throughout the United States. The Centers

for Disease Control (CDC) reported 33,091 deaths in 2015 which were the result of opioid overdoses alone. Of those deaths, 9,580 were caused by synthetic opioids other than methadone, which includes fentanyl and fentanyl-related substances - an increase of 72.2 percent over previous years.

> *"… (CDC) reported 33,091 deaths in 2015 which were the result of opioid overdoses alone. Of those deaths, 9,580 were caused by synthetic opioids …"*

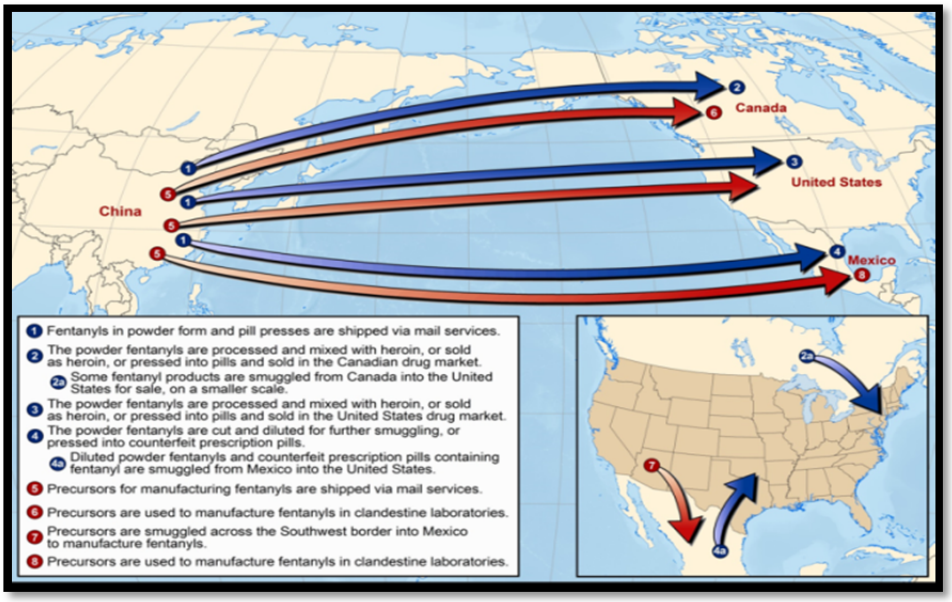
While pharmaceutical fentanyl in the form of transdermal patches or sublingual tablets is diverted on a small scale, the current increase in opioid-related deaths appears to be driven by illicitly produced fentanyl products.

Due to the high potency of fentanyl and other synthetic opioids, transnational criminal organizations across the globe are competing for the U.S. market. China and Mexico appear to be the main source countries for illicit fentanyl smuggled into the United States for domestic-based processing and distribution. Seizures indicate that China supplies lower volumes of high-purity fentanyl, whereas fentanyl seizures from Mexico are higher volume but lower in purity. Fentanyl is also routed and smuggled through Canada. China-based trafficking organizations have also been known to use the internet to distribute fentanyl, fentanyl-related substances, and synthetic opioids globally.

Given China's role as an exporter of illicit fentanyl products destined for the United States, DEA officials recently met with Chinese officials in Beijing. This meeting prompted China to regulate four fentanyl-related substances under Chinese law, effective March 1, 2017, in an effort to help stem the flow of these dangerous synthetic opioids into the United States.

In 2014, the DEA established the Heroin-Fentanyl Task Force (HFTF). The HFTF consists of several government agencies working together to facilitate a "whole of government" approach to the fentanyl and synthetic opioid epidemic in the United States.

The HFTF currently consists of personnel from the DEA, HSI, CBP, FBI, USPIS, and the IRS. The HFTF is using every available resource to support U.S. law enforcement agencies in their respective synthetic opioid investigations.



SECTION II
Description of Fentanyl-Related Substances

Legal forms of fentanyl are prescribed with, or as a replacement for, morphine and are used in both human and veterinary medicine as an anesthetic during surgery, to manage pain after surgery, and to treat chronic pain in patients physically tolerant to other pain killers.

Illicit forms of fentanyl have been, and continue to be, identified in conjunction with heroin, as a replacement for heroin, or in the production of counterfeit pharmaceutical tablets which mimic oxycodone, hydrocodone, and alprazolam products.

Fentanyl and fentanyl-related substances have potency much greater than that of morphine, but effects can vary greatly depending on the identity, potency, and purity level of the substances encountered.

While fentanyl may be 50-100 times more potent than morphine, and 30-50 times more potent than heroin, carfentanil, which is structurally related to fentanyl, is up to 10,000 times more potent than morphine. The toxic dose of carfentanil in humans is unknown. Regardless, any substance suspected to contain fentanyl should be treated with extreme caution as exposure to a small amount can lead to significant health-related complications, or death.

SECTION III
Common Illicit Forms of Fentanyl and Synthetic Opioids

There are currently numerous fentanyl-related substances available on the illicit domestic market including, but not limited to, 4-fluoroisobutyryl fentanyl, furanyl-fentanyl, acryl-fentanyl, acetyl-fentanyl, carfentanil, and 3-methylfentanyl, as well as other synthetic opioids such as U-47700.

Fentanyl and carfentanil are currently listed under ***Schedule II*** of the Controlled Substances Act (CSA) meaning they have a currently approved medical use and a high potential for abuse which may lead to severe psychological and/or physical dependence.

Other illicit opioids, including several fentanyl-related substances, AH-7921, and U-47700, are found in ***Schedule I*** of the CSA. This means they have no currently accepted medical use in the United States, a lack of accepted safety for use under medical supervision, and a high potential for abuse.

While fentanyl and some fentanyl-related substances (such as alfentanil, carfentanil, remifentanil, and sufentanil) can have a legitimate medical use, other illicit forms, both imported and clandestinely manufactured have been used as an adulterant in other controlled substances such as heroin, cocaine, and methamphetamine. In addition, fentanyl and fentanyl-related substances have been identified in counterfeit pharmaceutical products, such as tablets that mimic oxycodone, hydrocodone, and alprazolam.

Fentanyl and fentanyl-related substances are increasingly also found as a component of "speedball" mixtures with stimulants such as cocaine.

More recently, fentanyl and fentanyl-related substances have been combined with heroin and other synthetic opioids, such as U-47700, to create a deadly opioid mix called "Grey Death," due to the unique grey, concrete colored appearance.

> *"…fentanyl and fentanyl-related substances have been combined with heroin and other synthetic opioids, such as U-47700, to create a deadly opioid mix called "Grey Death,"*

Further, information gleaned from recent seizures and arrests nationwide have indicated that some criminal organizations are importing and distributing pure fentanyl

and fentanyl-related substances as the profit margins can be significantly higher.

For example, due to the elevated potency of fentanyl over traditional opioid drugs (i.e., heroin), criminal organizations can use one kilogram of fentanyl to produce approximately 1 million (1 milligram) counterfeit pills, resulting in potentially 10-20 million dollars in revenue. There are also reports that consumers in some areas are seeking fentanyl over heroin, as the "rush" is greater.

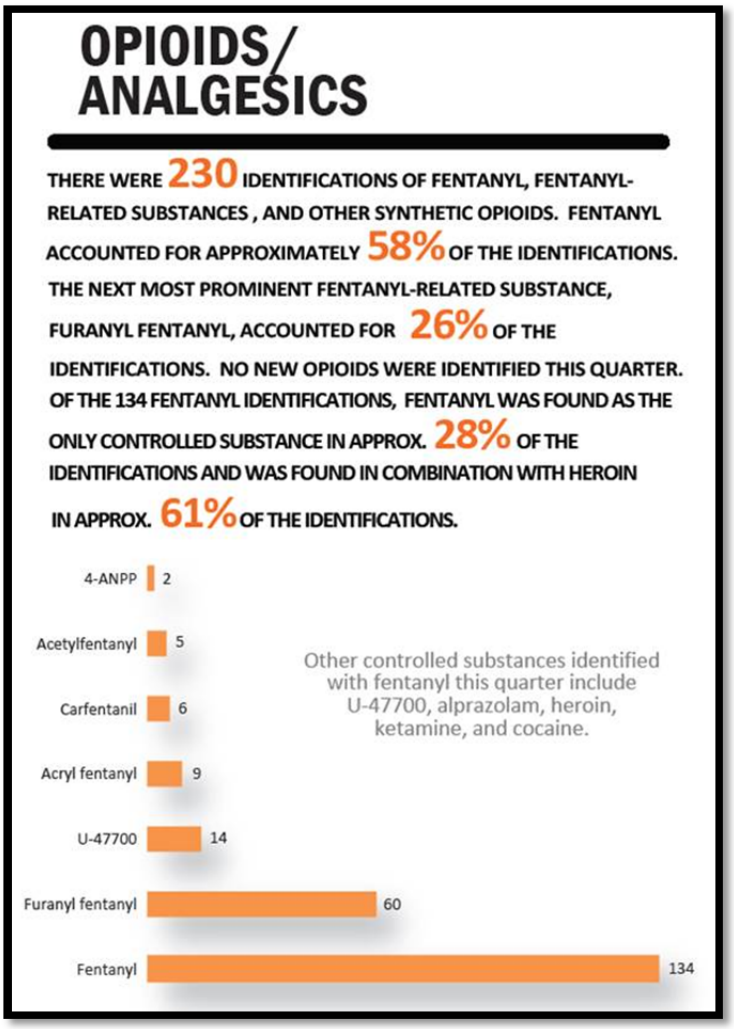
Currently illicit fentanyl, fentanyl-related substances, and other synthetic opioids can resemble powdered drugs such as heroin or cocaine. Fentanyl, or other synthetic opioids, in pill or capsule form have been represented as OxyContin (oxycodone), Xanax (alprazolam), or other diverted pharmaceutical drugs.

Fentanyl-related substances have been identified in:

- ***Powder***
- ***Pill***
- ***Capsule***
- ***Liquid***
- ***(and on) Blotter Paper***

First Quarter 2017 Emerging Threat Report

During the 1st quarter of 2017, the DEA laboratory system had **230** identifications of fentanyl, fentanyl-related substances, and other synthetic opioids based on seized drug evidence. Fentanyl accounted for approximately **58 percent** of the identifications. The second most prominent fentanyl-related substance was furanyl-fentanyl, which accounted for **26 percent** of the identifications. Of all 230 exhibits, heroin was found in combination with fentanyl in **61 percent** of the identifications, while U-47700, alprazolam, ketamine and cocaine were found in other fentanyl-related exhibits in varying degrees.



SECTION IV
Recommendations for First Responders

Fentanyl-related substances are designed to be absorbed into the body by all means, including injection, oral ingestion, contact with mucous membranes, inhalation, and via transdermal transmission (through the skin). As such, accidental exposure by first responders is a real danger.

> *"...accidental exposure by first responders is a real danger."*

Accidental exposure can occur under a number of circumstances, including during the execution of search or arrest warrants, the purchase of fentanyl during undercover operations, the processing of drug evidence containing fentanyl or fentanyl-related substances, or the processing of non-drug evidence (e.g., drug proceeds, pill presses, scales, or drug paraphernalia) which may be contaminated with these substances.

Due to the high potency of fentanyl and fentanyl-related substances, exposure to small quantities can cause serious negative health effects, respiratory depression, and even death.

However, fentanyl can be handled safely with proper training and equipment to include hazard recognition and use of personal protective equipment (PPE).

Police dogs are also at risk of serious health effects from exposure to fentanyl and fentanyl-related substances.

PERSONAL PROTECTIVE EQUIPMENT

PPE DEFINED:

PPE:	Personal Protective Equipment
Personal PPE:	Nitrile gloves, safety glasses, N-95 dust mask, disposable paper suit or coveralls, shoe covers
Level C PPE:	Chemical resistant suit, air purifying respirator, gloves, booties
Level B PPE:	Chemical resistant suit, self-contained breathing apparatus, gloves, and boots.
Level A PPE:	Level "A" suit and a self-contained breathing apparatus

In situations involving gross fentanyl contamination, where exposure risks are high, Level "A" PPE (worn by specially trained personnel) should be used to first monitor and assess the environment prior to proceeding. Level "A" PPE is routinely used by DEA in situations involving fentanyl or suspected fentanyl-related substances.

Personnel, equipment, and tactics can be deployed, evaluated, and downgraded as appropriate depending on the presumptive identification of the substance and/or level of potential contamination.

Example:

Personnel are utilizing:

- **Level B PPE** to conduct initial breach
- **Level A PPE** for on-site assessment
- **Level C PPE** for stand-by assistance

Level "A" Suits

Level "B" Suits

Individual PPE Kits

First responders who may encounter fentanyl or fentanyl-related substances should maintain an individual (personal) PPE kit, which includes:

- Nitrile gloves
- N-95 dust masks
- Sturdy eye protection
- Paper coveralls - shoe covers
- Naloxone Injector(s)

General Safety Recommendations

Due to the hazardous nature of the synthetic opioids described in this overview, law enforcement personnel, or any first responders, who encounter fentanyl or fentanyl-related substances should NOT take samples or otherwise disturb any powdered substances without employing proper PPE, as this could lead to accidental exposure.

> *"…law enforcement personnel, or any first responders, who encounter fentanyl or fentanyl-related substances should NOT take samples or otherwise disturb any powdered substances without employing proper PPE…"*

Further, it is possible that illicit fentanyl or fentanyl-related substances could be mixed with other drugs or concealed in innocuous devices (such as nasal spray or eye dropper bottles) in varying amounts and purities, thus causing unintentional exposure.

Law enforcement personnel, as well as first responders, should exercise appropriate safety precautions at all times when fentanyl or fentanyl-related substances are suspected.

If the presence of fentanyl or any synthetic opioid is suspected, personnel should immediately contact the appropriate officials within their agency who have been trained to handle hazardous materials, or contact the nearest DEA field office for assistance. Having specially trained law enforcement (or hazardous materials "HAZMAT" incident response team) professionals equipped with the necessary equipment, to include Level "A" PPE, on-site to assess the situation prior to exposure or contamination is recommended. This includes situations involving unknown powdered substances and/or pill milling or encapsulating operations.

When encountering unknown powders, personnel should use, at the minimum, Personal PPE to include nitrile gloves, N-95 dust mask, eye protection, disposable paper suit, or paper coveralls, and shoe covers. Naloxone should also be readily available for administration.

To limit the potential for exposure, personnel should refrain from eating, drinking, or smoking while in the presence of any suspected fentanyl-related substance.

Incidents of Overdose and Death

First responders should always employ universal safety precautions and use, at a minimum, Personal PPE when they arrive at a scene where there has been a suspected overdose incident, or suspected overdose death.

Assessment

Upon arrival, personnel should carefully examine the environment and situation before proceeding in order to detect any signs of fentanyl contamination.

Indicators

Personnel should look for any cyanosis (turning blue or bluish color) of victims, including the skin or lips, as this could be a sign of fentanyl overdose caused by respiratory arrest. Further, before proceeding, personnel should examine the scene for any loose powders (no matter how small), as well as nasal spray bottles, as these could be signs of fentanyl use.

Opened mail and shipping materials located at the scene of an overdose with a return address from China could also indicate the presence of fentanyl, as China-based organizations may utilize conventional and/or commercial means to ship fentanyl and fentanyl-related substances to the United States.

After assessing the scene, should fentanyl be suspected, on-site personnel should employ the above described safety protocols referenced under ***General Safety Recommendations*** as appropriate, depending on the potential level of contamination.

First responders should also be mindful of the potential ***"Fentanyl Footprint"*** in their respective jurisdictions, which are clusters of overdoses and overdose deaths occurring within a small geographic area, within 48-72 hours. Based on incident reporting and analysis, this could possibly indicate fentanyl or fentanyl-related substances being present.

Routine Activity

Due to the current opioid crisis and prevalence of fentanyl and fentanyl-related substances on the domestic market, law enforcement personnel and first responders should look for any fentanyl indicators such powders, pills, or capsules when conducting their respective activity such as motor vehicle stops, or responding to calls for service. If observed, personnel should utilize, at a minimum, nitrile gloves, eye protection, and N-95 dust mask (which should be part of their Personal PPE kit).

Drug Related Evidence Collection:

Do **NOT** attempt to collect or otherwise disturb any suspected fentanyl, fentanyl-related substance, synthetic opioid or unknown powdered substance without employing proper PPE as this could cause an unintentional exposure during the evidence collection process.

Due to the high risk potential associated with these substances, only law enforcement personnel employing the proper PPE (from Personal PPE to Level "A" PPE) as referenced under ***General Safety Recommendations*** should consider handling any substance suspected to contain fentanyl or a fentanyl-related substance.

If feasible, personnel should contact the appropriate officials within their agency who have been trained to handle hazardous materials, or contact the nearest DEA field office for assistance. For any situations involving gross contamination, it is highly recommended that Level "A" PPE be utilized.

If an exigent situation exists where drug-related material might be disturbed and/or collected in order to protect life, personnel should employ, at a minimum, the above-referenced Personal PPE to include nitrile gloves, an N-95 dust mask, eye protection, disposable paper suit or paper coveralls.

NOTE: Personal PPE should only be used when a valid urgent or emergency situation exists and/or the evidence is located in small amounts which can easily be contained and sealed without risk of spillage. This PPE and collection method however, should not be employed where there is loose powder, liquid, and/or gross contamination. Any situation involving a large-scale accidental spill or release of a fentanyl-related substance is a public health emergency which requires law enforcement personnel to immediately vacate the area and call a HAZMAT incident response team.

Non-Drug Related Evidence Collection

It is possible that fentanyl residue could be present on items of non-drug evidence such as currency, money counters, cellular telephones, or drug paraphernalia which could create an additional vulnerability to law enforcement. Thus, personnel should always follow the above described universal safety precautions to avoid accidental exposure.

Any items of non-drug evidence which have been identified at a location involving suspected fentanyl should be treated with the same care and caution as drug evidence. If gross contamination is present Level "A" PPE should be utilized by personnel specially trained to assess and handle these materials.

NOTE: If feasible, while employing Level "A" PPE, safely remove any excess or noticeable gross contamination from non-drug evidence prior to packaging.

Once collected, properly packaged, and removed from the scene, all items of non-drug evidence which have been contaminated should be handled and processed by personnel using, at a minimum, Personal PPE in an area specifically designated to process such tainted evidence with plenty of fresh air or while employing a dedicated fume hood.

When packaging evidence which has potentially been contaminated, a notation should be made on the outer evidence packaging and evidentiary custody forms that the item of non-drug evidence in question has potentially been exposed to fentanyl.

Packaging of Drug Evidence

Any suspected fentanyl or fentanyl-related substance should be processed per the above safety guidelines while employing the proper PPE.

Any suspected fentanyl-related exhibit should be "double bagged" by placing the exhibit within two agency-approved evidence envelopes. The inner envelope could be a non-labeled version, while the outer evidence envelope should contain a standard evidence label with the required information needed for documentation and tracking purposes per agency policy and procedure. Both evidence envelopes should be clearly marked ***"Suspected Fentanyl."***

The evidence should be transported directly to the requisite forensic laboratory, ensuring all evidence exhibits are clearly marked as ***"Suspected Fentanyl."***

If suspected fentanyl or fentanyl-related drug evidence must be transported back to an agency's office prior to submission to a laboratory, personnel should secure the evidence in the agency's designated drug vault and/or secure drug processing area, not on work desks, in conference rooms or other public areas.

When transporting exhibits, evidence should be placed in sturdy, crush-proof boxes such as a U.S. Department of Transportation (DOT) compliant, level 4G (non-crush) fiberboard shipping boxes. For added safety evidence exhibits could instead be placed inside a reusable "Pelican" style case which can be locked and can maintain an air-tight seal.

SECTION V
Exposure Risks and Treatment

Due to their hazardous nature, fentanyl and fentanyl-related substances pose a significant threat to law enforcement personnel and to other first responders, including fire and emergency medical personnel.

As matter of reference it has been determined that it would only take 2-3 milligrams of fentanyl to induce respiratory depression, arrest and possibly death ***(see photo of penny).*** When visually compared, 2 to 3 milligrams of fentanyl is about the same as five to seven individual grains of table salt.

Fentanyl can be ingested orally, inhaled through the nose or mouth, or absorbed through the skin or eyes. Overdose symptoms can include drowsiness, disorientation, sedation, pinpoint pupils, skin rash, clammy skin, and respiratory depression or arrest. The onset of these symptoms usually occurs within minutes.

> *"Overdose symptoms include drowsiness, disorientation, sedation, pinpoint pupils, skin rash, clammy skin, and respiratory depression or arrest."*

If an exposure occurs, seek ***immediate*** medical attention as fentanyl and other fentanyl-related substances can be very fast-acting. In cases of suspected exposure, contact emergency medical services (EMS), or, if feasible, have EMS on scene prior to conducting enforcement activity.

If an exposure occurs, remove the exposed individual from the contaminated environment (preferably to a location with fresh air). If they exhibit overdose symptoms, immediately administer naloxone by personnel trained in its use. ***Naloxone*** is an antidote for opioid overdose. **Immediately administering naloxone can reverse an opioid overdose.**

Depending on the drug's purity and potency multiple doses of naloxone may be required to stabilize the victim. Continue to administer a dose of naloxone every 2-3 minutes until the individual is breathing on his/her own for at least 15 minutes, or until EMS arrives.

As a best practice, it is recommended that anyone who has entered a grossly contaminated environment, or otherwise been exposed to a suspected fentanyl-related laboratory or milling operation without wearing proper PPE should undress and shower, using soap and water, as soon as possible. It is recommended that grossly contaminated clothing be bagged and destroyed as soon as possible.

If a suspected fentanyl-related substance has been inhaled, move the victim to fresh air.

If a suspected fentanyl-related substance has been ingested through the mouth or eyes and the victim is conscious, rinse the victim's eyes and mouth with cool water.

Where there has been any skin contact, wash the exposed area immediately with soap and water.

NOTE: Any personnel exposed to a suspected fentanyl substance as noted above should be carefully monitored by EMS personnel for any signs of opioid exposure.

Do NOT use hand sanitizer. Hand sanitizers may contain alcohol, a skin penetrant, which may increase the absorption of fentanyl through the skin.

"Do NOT use hand sanitizer."

DEA's Fentanyl Roll Call Video

DEA has released a "Fentanyl Roll Call" video to all law enforcement and first responders nationwide about the dangers of improperly handling fentanyl and its deadly consequences. Acting DEA Administrator Chuck Rosenberg and two local police detectives from New Jersey appear on the video to urge any law enforcement or first responders who come in contact with fentanyl or fentanyl-related substances to observe proper safe handling procedures to avoid exposure.

DEA's Roll Call video can be accessed at:

https://www.dea.gov/media.shtml

Exposure Risks and Treatment

Exposure	Fentanyl can be ingested or inhaled through the nose or mouth, or absorbed through the skin or eyes
Symptoms	Respiratory depression, drowsiness, sedation, disorientation, pinpoint pupils and clammy skin
Immediate Action	Move to fresh air, wash exposed area immediately with soap and water
Medical Intervention	Seek medical attention, monitor victim, be prepared to administer naloxone

SECTION VI
Fentanyl Detection

DEA is evaluating detection devices to be used in the field-testing of evidence for the presence of fentanyl and fentanyl-related substances.

Should your agency need assistance with the examination or field-testing of suspected fentanyl or a fentanyl-related substance, contact your nearest DEA field office or HAZMAT incident response team for assistance.

SECTION VII
Remediation and Decontamination Recommendations

Universal Precautions

Due to the hazardous nature of fentanyl law enforcement personnel should notify any concerned parties of the fact that a clandestine drug laboratory or pill milling site may pose a significant health hazard and prominently display the appropriate warning sign at the site following the identification and/or seizure of a clandestine laboratory or pill milling operation involving fentanyl, fentanyl-related substances, or synthetic opioids.

The property owner should also be notified of the situation via certified letter with copies to local health officials and local law enforcement agencies. State/local public health departments will ultimately determine the appropriate remediation action and if/or when the location is fit for future occupancy.

General Hygiene

To reduce the potential for accidental exposure, handle all items suspected of being contaminated with fentanyl or fentanyl-related substances with extreme caution, to include the application of universal safety precautions and, at a minimum, the Personal PPE mentioned above. Avoid skin contact, inhaling or ingesting powders, liquids, or sprays. Wash your hands frequently with copious amounts of soap and water.

RESOURCES

www.dea.gov

www.deadiversion.usdoj.gov

www.cdc.gov

www.cdc.gov/drugoverdose/opioids/fentanyl.html

www.emergency.cdc.gov/han/han00384.asp

www.cdc.gov/niosh/

www.drugabuse.gov

www.drugabuse.gov/publications/drugfacts/fentanyl

www.drugabuse.gov/drugs-abuse/fentanyl