PRIMA'S 2019 RISK MANAGEMENT
WEBINAR SERIES

Fentanyls and the Safety of First Responders

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Objectives

Attendee Takeaways:

- Learn the signs and symptoms of acute opioid intoxication
- Describe the probable routes of opioid exposure related to job exposures
- Learn how to limit opioid exposures

Overview

First responders can protect themselves from fentanyl exposure by:

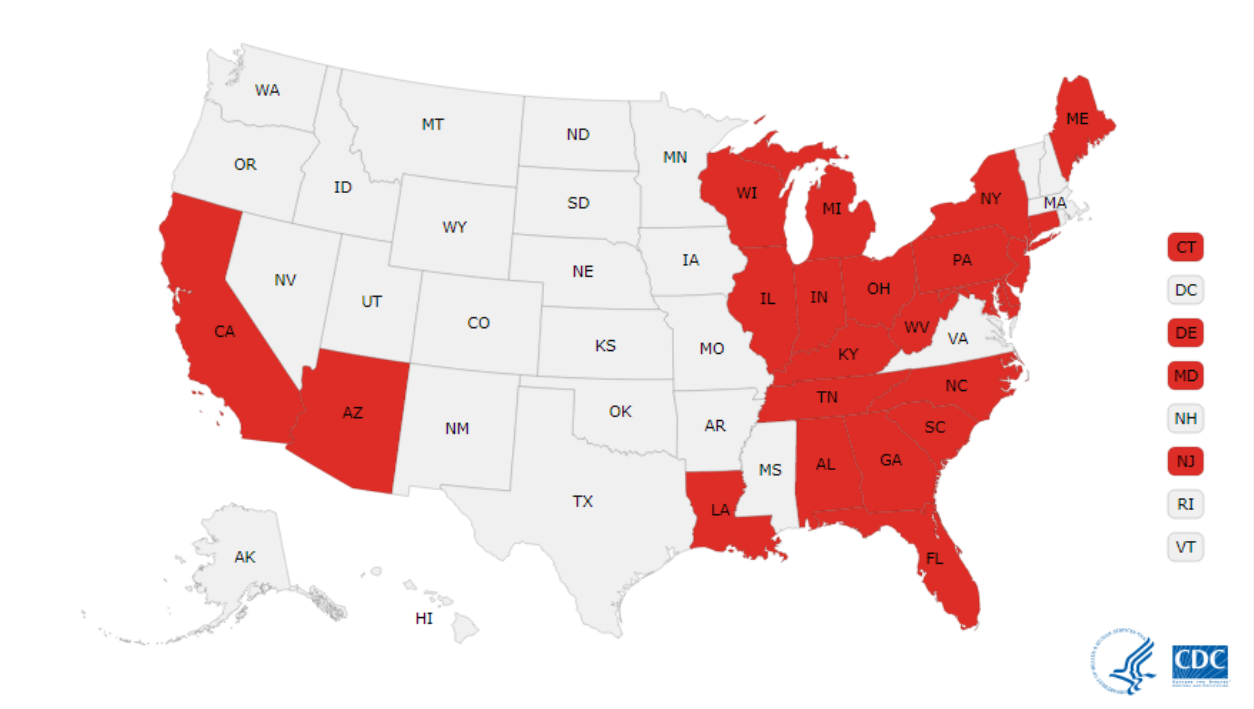
1. Knowing the risks of fentanyl exposure
2. Taking appropriate precautions when fentanyl might be present
3. Knowing the signs of fentanyl intoxication, and having naloxone readily available

U.S. Overdose Deaths

- 70,237 drug overdose deaths occurred in the United States in 2017.
- The age-adjusted rate of overdose deaths increased significantly by 9.6% from 2016 (19.8 per 100,000) to 2017 (21.7 per 100,000).
- Opioids—mainly synthetic opioids (other than methadone)—are currently the main driver of drug overdose deaths.
- Opioids were involved in 47,600 overdose deaths in 2017 (67.8% of all drug overdose deaths).

https://www.cdc.gov/drugoverdose/data/statedeaths.html

Statistically significant drug overdose death rate increase from 2016 to 2017, US States



Overdose Deaths Involving Synthetic Opioids

- Death rates involving synthetic opioids (other than methadone), which include drugs such as tramadol and fentanyl.
- In 2017, more than 28,000 deaths involving **synthetic opioids** (other than methadone) occurred in the United States, which is more deaths than from any other type of opioid.
- Also in 2017, the largest increase in synthetic opioid overdose death rates was in males aged 25-44.

Opioid Overdose



WHAT ARE OPIOIDS?

Opioids are a class of drugs that bind to opioid receptors in the brain. There are three broad classes: natural, semi-synthetic, and synthetic.

Natural Opioids: Derived from naturally-occurring opiates found in the opium resin of the opium poppy.

Examples: morphine (*MS Contin*, *Avinza*) & codeine (*Tylenol 3*).

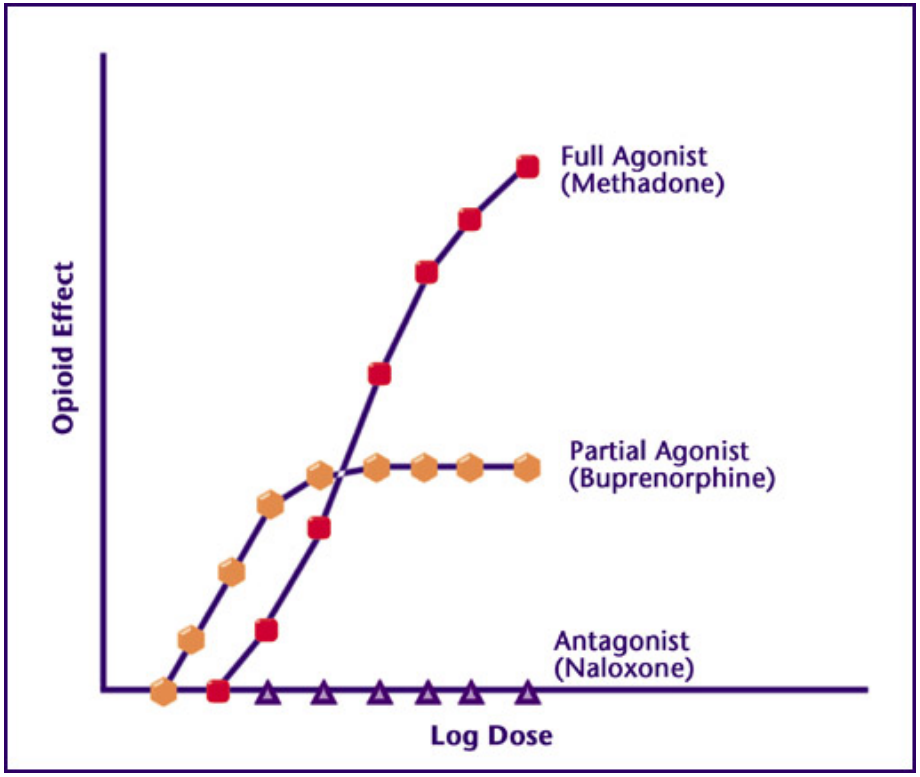
Semi-synthetic Opioids: Hybrid opioids resulting from chemical modifications to naturally-occurring opium alkaloids.

Examples: Hydrocodone (*Vicodin, Lortab*), hydromorphone (*Dilaudid*), oxycodone (*OxyContin, Percocet*) & oxymorphone (*Opana*). Heroin is in this class of drugs.

Synthetic Opioids: made from other chemicals and molecules unrelated to opium alkaloids.

Examples: methadone and **fentanyl** (*Actiq*).

Opioid Receptor Activity

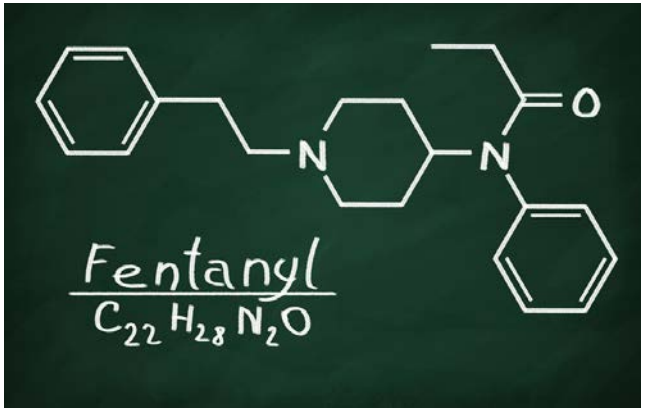


www.naabt.org/education/technical_explanation_buprenorphine.cfm

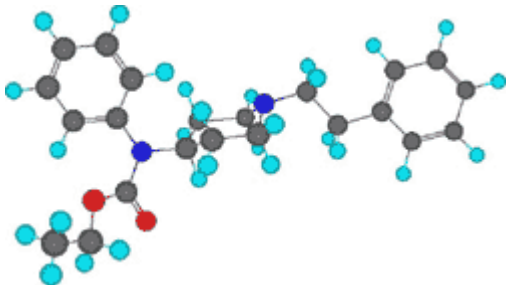
Fentanyl

- Fentanyl is a powerful synthetic opioid 50 to 100 times more potent than morphine.

- As little as two milligrams, about the size of 5 grains of salt, can cause negative health effects including trouble breathing, dizziness, and possible overdose.



Fentanyl



- There are 42 known *illicitly* manufactured fentanyl analogs on the market.
- Fentanyl has been detected in counterfeit pills, powder, blotter paper, heroin, cocaine, crack cocaine, and crystal methamphetamine
- Fentanyl can be swallowed, snorted, injected or absorbed in the mouth

Fentanyl

- Because of fentanyl's strength and increasing prevalence there is growing concern about fentanyl exposure for *first responders* and others who might be potentially exposed.

OPIOID SYMPTOMS

- A person that has been exposed to opioids may experience the following symptoms:
- Respiratory distress, respiratory depression or arrest
- Nervous system depression
- Drowsiness
- Reduced level or loss of consciousness
- Dizziness
- Nausea/vomiting
- Limp body

Lethal doses of heroin and fentanyl



Credit: from Bruce Taylor/NHSP Forensic Lab

Exposure Situations

- First responders may find themselves exposed to opioids during operational situations such as……
- traffic stops,
- overdose calls and
- other first responder duties.

What are the risks of fentanyl exposure for first responders?

A first responder can be exposed to fentanyl in one of **five ways**:

1. skin contact,
2. inhalation,
3. ingestion,
4. contact with a mucous membrane (eyes, nose, etc), or
5. a needlestick.

LD50 (lethal dose) for pure Fentanyl

- estimated at 2 milligrams (mgs) for a typical adult*
- Since illicit drugs are typically diluted or cut with inert materials, exposure of first responders to pure forms of opioids are less likely.
- Inconsistent mixing of illicit drugs may mean that high concentrations may still be encountered, and small amounts can still be dangerous.

*[Reference: RCMP and United States Drug Enforcement Administration (DEA]

What are the risks of fentanyl exposure for first responders?

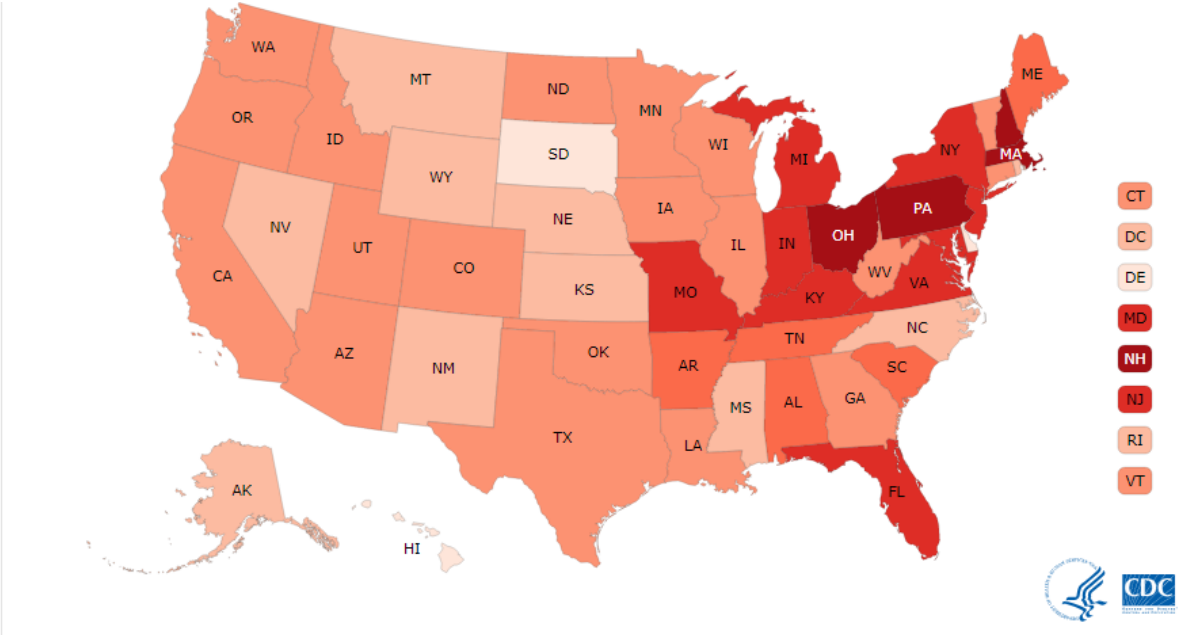
- The most likely way for a first responder to be exposed to fentanyl is through brief skin exposure.
- For skin exposure, clinical toxicology experts state: “The risk of clinically significant exposure to emergency responders is extremely low.”
- Skin exposure is not expected to lead to toxicity due to its *extremely poor penetration of the skin barrier*, and symptoms of intoxication from skin exposure are unlikely.

First Responders

If skin is exposed to fentanyl….

- Wash the area with water as quickly as possible.
- Do not use alcohol based hand sanitizers or bleach; they do not effectively wash opioids off skin and **may increase** skin absorption of fentanyl.

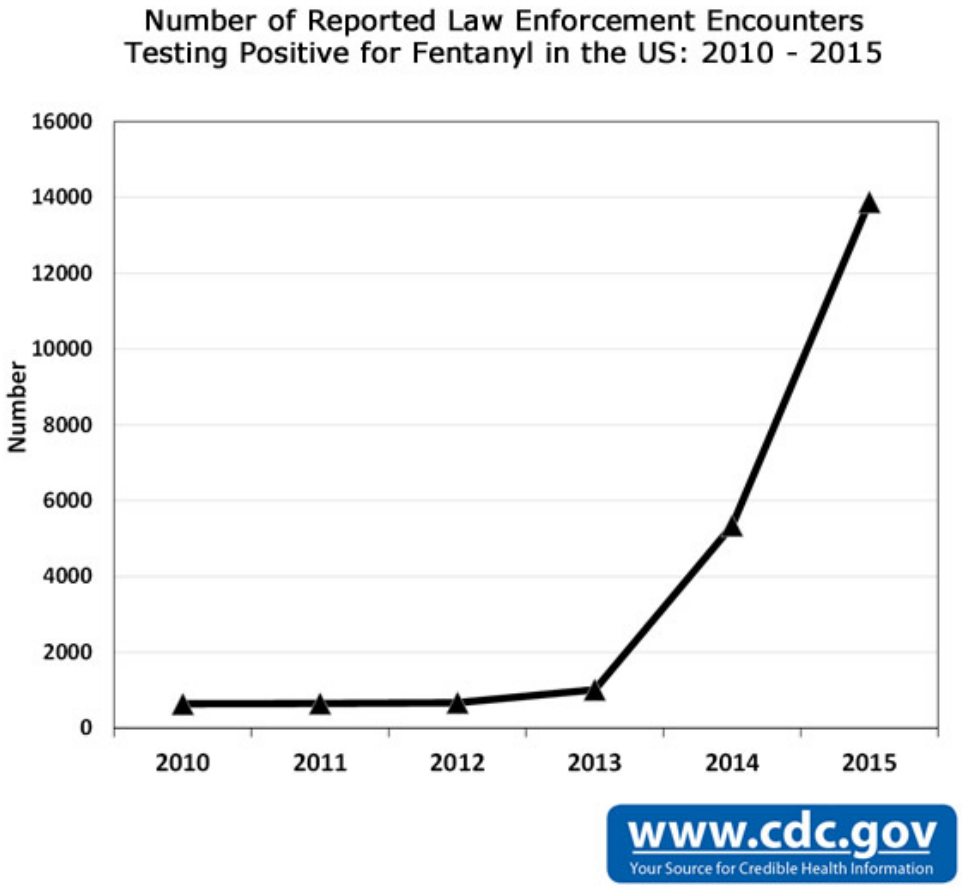
Change in Law Enforcement Encounters



Change in Reported Law Enforcement Fentanyl Encounters 2014-2015

- No reports for at least one year
- -20 to 0
- 0 to 50
- 50 to 100
- 100 to 500
- Greater than 500

Reported Law Enforcement Encounters Testing Positive for Fentanyl Increase Across US



*This graph uses data from the DEA National Forensic Laboratory Information System (NFLIS) on the number of law enforcement drug submissions that test positive for fentanyl from 2014 to 2015 as of July 1, 2016.

Conduct a risk assessment for the presence of fentanyl

- Is a person unconscious and the cause unknown?
- Are suspected drugs or paraphernalia visible?
- What is the form and volume of suspected drugs?

During the assessment assume any white powder is fentanyl.

Fentanyl: Preventing Occupational Exposure to Emergency Responders.
The National Institute for Occupational Safety and Health (NIOSH).

- Do not eat, drink, smoke, or use the bathroom while working in an area with known or suspected fentanyl.
- Do not touch your eyes, mouth, or nose after touching any surface potentially contaminated with fentanyl.
- Field testing fentanyl or its analogs is not recommended because it increases the risk of exposure to responders.
- Avoid performing tasks that may cause fentanyl to become airborne, including handling and field testing.

Fentanyl: Preventing Occupational Exposure to Emergency Responders.
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- Activities that cause fentanyl to become **airborne** require higher levels of Personal Protective Equipment (PPE) and should be conducted by appropriately trained personnel and in accordance with agency policies and procedures.
- Wash hands with soap and water immediately after a potential exposure and after leaving a scene where fentanyl is known or suspected to be present to avoid potential exposure and to avoid cross contamination.
- Do not use hand sanitizers or bleach solutions to clean contaminated skin.

Haddon Matrix

- The **Haddon Matrix** is the most commonly used paradigm in the injury prevention field.
- Developed by William **Haddon** in 1970, the **matrix** looks at factors related to personal attributes, vector or agent attributes and environmental attributes; before, during and after an injury or death

Haddon Matrix

	Human (or host)	Vector	Physical environment	Socio-economic environment
Pre-event	Is host pre-disposed or overexposed to risk?	Is vector hazardous?	Is environment hazardous? Does it have hazard-reduction features?	Does environment encourage or discourage risk-taking and hazard?
Event	Is host able to tolerate force or energy transfer?	Does vector provide protection?	Does environment contribute to injury during event?	Does environment contribute to injury during event?
Post-event	How severe is the trauma or harm?	Does vector contribute to the trauma?	Does environment add to the trauma after the event?	Does environment contribute to recovery?

[a] The terms used in the table are modified versions of the terms originally used by Haddon. Source: Haddon (7)

Response

- Due to the potency of fentanyl, a person may need multiple doses of naloxone until breathing has returned to normal.

- Those who do not improve with naloxone should receive airway support.



Naloxone

- Exposure to Fentanyl can be TEMPORARILY interrupted by the administration of Naloxone.
- If possible, have a co-worker who is trained in it's administration and is appropriately equipped for handling present.
- If any unknown powder gets on you, immediately notify a co-worker and either remove the clothing or seek assistance to rinse it off.

SCENE ASSESSMENT

- When arriving at the scene, it is important to take note of the following to prevent serious injury, harm or even death of First Responders:
- Is there any information to suggest the method of potential exposure or hazard such as drug paraphernalia or indications of large volumes of unknown powders?
- If identified or unknown, use personal protective equipment (PPE)

RISK ASSESSMENT

- Conduct a risk assessment for any scene where Fentanyl may be present:
- Man down situation where cause is unknown.
- Suspected drugs located on a person who uses drugs (user).
- Suspected drug located on a suspected drug trafficker.
- Location where pure Fentanyl may be present in large volumes, such as a tableting operation, drug load house, etc.
- In what form are the drugs? Tablet, powder, large volumes or single flap?
- What is the background history of the location where the drugs were found? (User, trafficker, etc.)

EXPOSURE SIGNS

- If you encounter an individual who is unresponsive, determine whether they were exposed by identifying the possible source of exposure:
- Drug paraphernalia
- Tablet wrappers around the person
- Powdery substance on their person or in the air
- Ensure you wear all required Personal Protective Equipment (PPE) (gloves, respirator or mask, etc.) to protect yourself from the suspected highly toxic substance present. Do not approach or touch the individual without appropriate PPE.

Response

- Proper care of overdose victims and handling of suspected drug samples requires maintaining an awareness of:
- possible presence of opioids;
- protocols and training in the use of personal protective equipment;
- handling of suspected opioid-containing samples and contaminated materials; and
- recognition of opioid toxicity and administration of naloxone.

Handling

- Proper handling of suspected drug samples is essential to keeping
- yourself,
- your co-workers,
- your family members and
- the general public safe.

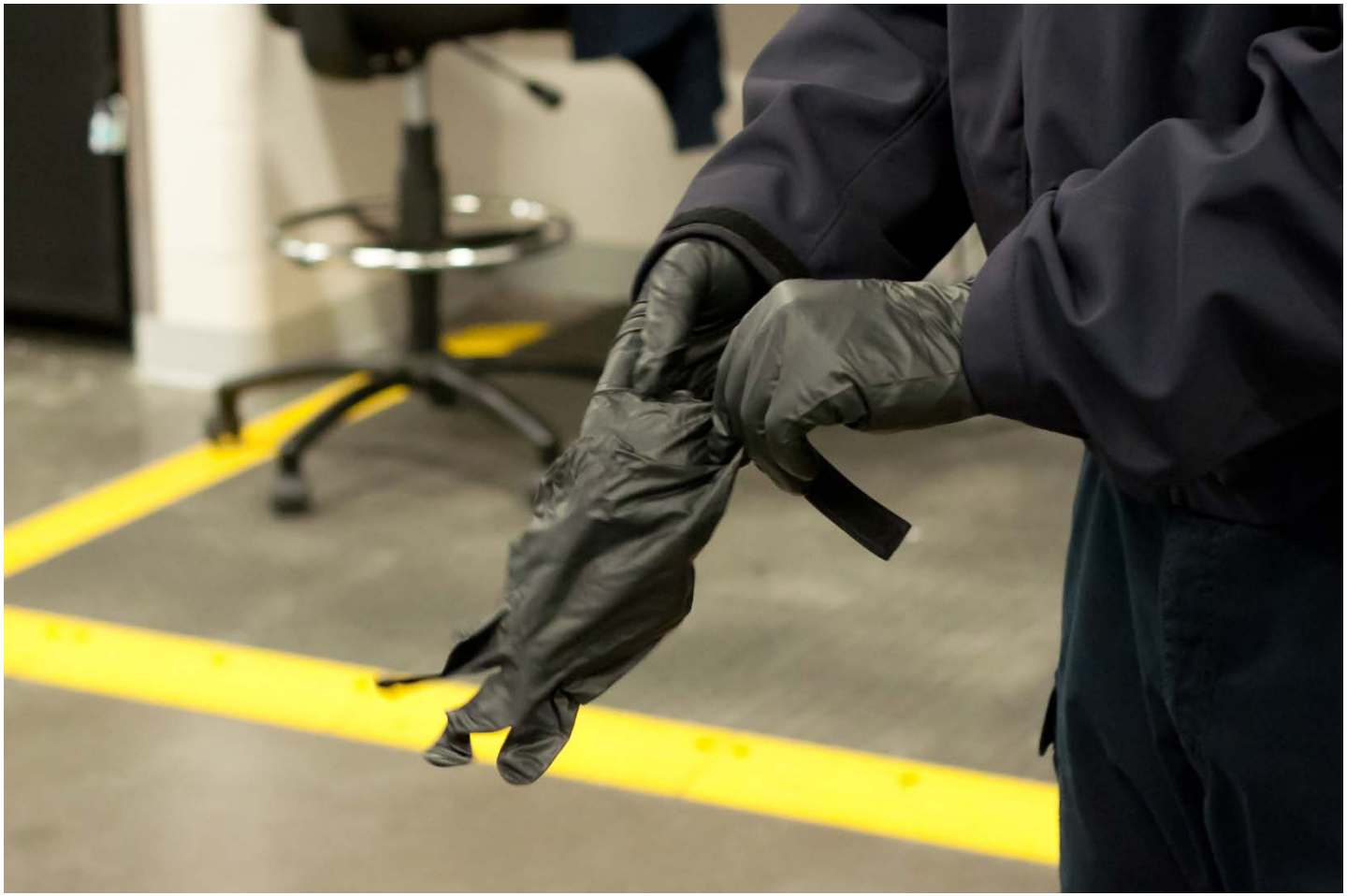
PPE Training

- Carry properly fitting personal protective equipment (PPE), (e.g. nitrile gloves, respiratory protection, etc.) and be trained how to use it, including how to take it off, as per your agency's policy.
- Maintain an awareness for possible opioid exposure in all situations where suspected drugs may be involved.

HANDLING GUIDELINES

- Do not ever taste, feel, or smell suspected drugs.
- Always wear nitrile gloves, never slash gloves alone.
- Treat any unknowns as if they contain, or are, Fentanyl.
- Do not rely on presumptive tests (Nik and NARK).

PPE: Gloves



DME: Respiratory Protection



DISPOSAL OF EQUIPMENT

- All disposable personal protective equipment must be placed and sealed into an exhibit bag and clearly marked “Fentanyl contaminated” OR “Possibly Fentanyl Contaminated” and sent for incineration.
- These items include:
- gloves,
- masks
- filters
- disposable items

Resources

- Fentanyl. National Institute on Drug Abuse. NIH.
- https://www.drugabuse.gov/publications/drugfacts/fentanyl
- https://www.fentanylsafety.com/naloxone/
- Fentanyl: Preventing Occupational Exposure to Emergency Responders. The National Institute for Occupational Safety and Health (NIOSH). CDC. https://www.cdc.gov/niosh/topics/fentanyl/risk.html

Questions

