

# Information to help reduce the risk of occupational exposure to illicit drugs, including Fentanyl

Increased use of illicit drugs, including synthetic opioids such as fentanyl and its analogue carfentanil, is a source of potential risk to law enforcement, first responders, and healthcare professionals.<sup>1</sup> This document provides information to help with personal protective equipment (PPE) selection for various situations.

#### What is Fentanyl?<sup>1-3</sup>

Fentanyl is a powerful synthetic drug that is similar to morphine and heroin but is 50 to 100 times more potent. Pharmaceutical fentanyl is a rapid-acting synthetic opioid used in healthcare settings to help reduce pain. Illicitly manufactured fentanyl and its analogs, such as carfentanil and others, are increasingly being sold illegally in the community and are very dangerous when used without medical supervision. Fentanyl acts quickly to depress central nervous system and respiratory function. Exposure to fentanyl may be fatal.

#### Responders and healthcare professionals are potentially at risk for exposure to fentanyl and other illicit drugs during routine job duties.

#### Occupational Exposure Levels for Fentanyl

Fentanyl and other illicit drugs do not have established occupational exposure limits (OELs).<sup>2</sup>



Figure 1: Photo Courtesy of the DEA: Illustration of 2 milligrams of fentanyl, a lethal dose in most people.<sup>4</sup>

#### Exposure Routes<sup>3</sup>





Mucous membrane contact



Ingestion



Injection



Skin contact

Potential exposure routes include inhalation, mucous membrane contact (eyes/nose), ingestion and percutaneous (needlestick).

Any of these exposure routes can potentially result in a variety of symptoms, including the rapid onset of life-threatening respiratory depression.

Skin contact is also a potential exposure route, but is not likely to lead to overdose unless large volumes of concentrated powder are encountered over an extended period of time. If visible contamination is promptly removed, brief skin contact is not expected to lead to toxic effects.

#### Who is at Risk?<sup>2,3</sup>

Employers are required to identify hazards to which their personnel might be exposed and provide appropriate PPE.

NIOSH has identified the following job categories that might encounter illicit drugs, including fentanyl or its analogues:

- **Pre-Hospital Patient Care:** Emergency medical services (EMS) providers, including first responders, fire department and private companies who attend to individuals with suspected fentanyl overdose. Responders may encounter drugs or drug paraphernalia on or near the patient.
- Healthcare Personnel: Clinical staff that provide direct patient care, and support staff not directly involved with patients in hospitals and clinics may be exposed when patients or their personal items are contaminated with illicit drugs.
- Law Enforcement: Law enforcement officers may encounter illicit drugs during their daily activities such as traffic stops, apprehending and searching subjects, and responding to overdose calls.
- Investigation and Evidence Handling: Law enforcement personnel who conduct investigations and handle evidence may execute search warrants and collect, transport, and store evidence related to illicit drugs. Evidence collection activities in the field have the potential to aerosolize powders, and personnel who handle evidence in the chain of custody have the potential to encounter illicit drugs unless controls are in place to help reduce exposure risk.
- **Special Operations and Decontamination:** Workers who conduct special operations where exposure to large amounts of illicit drugs are expected and may be aerosolized. Examples include hazardous material incident response teams responding to a release or spill, and law enforcement officers executing search warrants at illicit drug processing or distribution sites, or participating in other tactical operations.

## General Recommendations to Help Reduce Potential Exposures Where Illicit Drugs, Including Fentanyl, are Known or Anticipated to be Present<sup>2,3</sup>

- Individuals responding to incidents or working in healthcare facilities should be trained on how to conduct a risk assessment, including potential exposure routes, symptoms of exposure, signs of contamination, PPE selection, use and the limitations of PPE.
- Do not touch the eyes, nose, face or mouth after touching any surface that may be contaminated, even if wearing gloves.
- Do not eat, drink, smoke, or use the bathroom while working in an area where illicit drugs are visible or suspected.
- Wash hands (or other unprotected skin) with soap and water immediately after a potential exposure, after leaving an area where illicit drugs are visible or suspected to be present, and after removing gloves. **Do not use alcohol-based hand rubs** to clean contaminated skin in situations where exposure to illicit fentanyl is suspected. Use of such hand rubs could increase absorption through the skin.
- Avoid performing tasks or operations that may cause illicit fentanyl to become airborne, for example:
  - Removal of a patient's clothes might be necessary to provide care. This should be done in a manner that minimizes contact with the materials, dispersion of any illicit fentanyl which may be present, and production of any aerosols from the materials.
  - Activities that aerosolize illicit fentanyl may require the use of higher levels of PPE, and should be conducted by
    appropriately trained personnel in accordance with facility policies and procedures.

#### PPE for Healthcare Personnel at Risk of Exposure to Illicit Fentanyl<sup>3</sup>

Employers are required to identify hazards to which their personnel might be exposed and provide appropriate PPE. Risk of exposure to illicit fentanyl may be increased if small amounts of fentanyl products are visible on the patient, clothing, or possessions\*. According to the The National Institute for Occupational Safety and Health (NIOSH) Preventing Occupational Exposure to Fentanyl guidance, healthcare personnel should consider the use of the following PPE, in addition to standard precautions.

- Respiratory Protection: Select at minimum a 100-Class disposable filtering facepiece respirator\*\* or a respirator that provides an equivalent or higher level of protection. Occupational use of respirators must be in compliance with applicable health and safety standards. By law, US employers must establish a written respiratory protection program meeting the requirements of the OSHA Respiratory Protection Standard 29 CFR 1910.134 and any applicable OSHA substance specific standards. In Canada, CSA standard Z94.4 requirements must be met and/or requirements of the applicable jurisdiction, as appropriate.
- Eye and Face Protection: Goggles and faceshields are recommended when additional protection is needed for possible splashes or sprays of blood or body fluids if wearing respiratory protection that does not protect the eyes and face.
- Powder-free nitrile gloves
- Wrist/arm protection, such as gowns, coveralls, or sleeve covers

\*Risk of exposure may also be increased if illicit fentanyl is suspected but not necessarily visible, and healthcare personnel are performing tasks that may increase the likelihood of exposure, such as removing patient clothing or handling patient belongings.

\*\* N100, R100 or P100 filtering facepiece respirators<sup>5</sup>

#### Exposure Levels Defined by NIOSH for Responders<sup>2</sup>:

Minimal: Response to a situation where it is suspected that fentanyl may be present but no fentanyl products are visible

• Example: An EMS response to a suspected fentanyl overdose or law enforcement operation where intelligence indicates fentanyl products are suspected but are not visible on scene

Moderate: Response to a situation where small amounts of fentanyl products are visible

• Example: An EMS response to a suspected fentanyl overdose or law enforcement operation where fentanyl products are suspected and small amounts are visible on scene

High: Response to a situation where liquid fentanyl or large amounts of fentanyl products are visible

• Example: A fentanyl storage or distribution facility, fentanyl milling operation, or fentanyl production laboratory

### NIOSH Personal Protective Equipment Recommendations for Protection Against Illicit Drugs Including Fentanyl<sup>2</sup>

### The following table is from Centers for Disease Control and Prevention. The National Institute for Occupational Safety and Health (NIOSH). Fentanyl: Emergency Responders at Risk

Personal Protective Equipment	Pre-Hospital Patient Care			Law Enforcement Routine Duties			Investigations and Evidence Collection		Special Operations and Decontamination			
Exposure Level	Minimal	Moderate	High	Minimal	Moderate	High	Minimal	Moderate	High	Minimal	Moderate	High
Respiratory Protection												
Disposable N100, R100, or P100 FFR1		~			~			~			~	
Elastomeric APR <sup>2</sup>								•	1		•	1
PAPR <sup>3</sup>									•		•	•
SCBA <sup>4</sup>												
Face and Eye Protection			ped			ae						
Safety goggles/glasses <sup>6</sup>		1	pg		1	<u> </u>		~	~		~	~
Hand Protection			ann			ŭ						
Nitrile gloves <sup>6</sup>	1	~	Ē	1	1	E	~	~		~	~	
Nitrile gloves, double or use of thicker gloves		•	20		•	S S		•	•		•	1
Dermal Protection						2 e						
Wrist/arm protection <sup>7</sup>		1	2		1	ot		1			~	
Particulate hazards protective ensemble (i.e., NFPA 1999 Single or Multi-Use or NFPA 1994 Class 4 Ensemble)						2			~			~
Chemical hazards protective ensemble (i.e., NFPA 1994 Class 3 Ensemble or Higher)									•			•

- 1 FFR: filtering facepiece respirator, N: not resistant to oil, P: oil=proof, R: resistant to oil.
- 2 APR: air-purifying respirator; configurations recommended: half facepiece APR with N-,P-, or R100 cartridges; full facepiece APR with N-, P-, or R100 cartridges or a chemical, biological, radiological, and nuclear (CBRN) canister.
- 3 PAPR: powered air-purifying respirator, configuration recommended: PAPR with high efficiency particulate air (HEPA) filter.
- <sup>4</sup> SCBA: self-contained breathing apparatus; certified to NFPA 1981: Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services.
- s Face and eye protection is recommended when the respirator does not provide this type of protection, e.g., when wearing a disposable N-, P-, or R100 respirator or an elastomeric half facepiece APR with N-, P-, or R100 cartridges.
- Powder-free nitrile gloves should be worn with a minimum thickness of 5+- 2 mil (i.e. 0.127
   +- 0.051 millimeters; 1 mil=0.0254 millimeters), unless manufacturer data provides performance breakthrough data for thinner gloves.
- v Wrist/arm protection may include one or more of the following: on-duty uniform with sleeves, sleevecovers, gowns, or coveralls.

	Table Source: NIOSH
Key	
~	Minimum protection recommended.
•	When an on-scene health risk assessment is conducted and higher protection is warranted.
	If particulate + gas/vapor hazard is expected above the immediately dangerous to life or health (IDLH) values or concentration is unknown, SCBA is recommended.
NR	Not recommended, refer scene to special operations response workers (such as local bazmat team)

#### Potential 3M Product Options

Employers are required to identify hazards to which their personnel might be exposed and provide appropriate PPE.

NIOSH Definted PPE Chart Activity	Respiratory Protection <sup>6</sup>	Filters	Hoods/Eye Protection	Body Protection	
High Exposure Level	3M <sup>™</sup> Powered Air Purifying Respirator (PAPR), TR-300 and TR-600 Versaflo Series	3M <sup>™</sup> HE Filter TR-3712N, TR-6710N	3M <sup>™</sup> S-Series (400, 500, 600, 800) Hoods 3M <sup>™</sup> M-Series 400 Hood	3M <sup>™</sup> Protective Coverall 4565 <sup>7</sup> 3M <sup>™</sup> Protective Coverall 4570 <sup>8</sup> 3M <sup>™</sup> Disposable Protective Overboot Cover 450	
Response to a situation where liquid fentanyl or large amounts of fentanyl products are visible	3M <sup>™</sup> Powered Air Purifying Respirator (PAPR), RBE Breathe Easy Series	3M <sup>™</sup> Cartridge RBE-57	3M <sup>™</sup> Hood BE-10BR		
	Self-Contained Breathing Apparatus				
Moderate Exposure Level Response to a situation where small amounts of fentanyl products or drug paraphernalia are visible	3M <sup>™</sup> Disposable Particulate Respirat	or, 8233 or 8293			
	3M <sup>™</sup> Rugged Comfort Quick Latch Half Facepiece Reusable Respirator, 6500QL				
	3M <sup>™</sup> Full Facepiece Reusable Respirator, 6000 Series	3M <sup>™</sup> Particulate Filter P100: 2091, 2291, or 7093	3M™ Goggle Gear 500 Series	3M <sup>™</sup> Protective Coverall 4510 <sup>9</sup>	
	3M <sup>™</sup> Ultimate FX Full Facepiece Reusable Respirator, FF-400 Series		note: not for use with full facepiece reusable respirators	3M <sup>™</sup> Disposable Protective Overboot Cover 450	
	3M <sup>™</sup> Full Facepiece 6000DIN Series	CP3N, FR-64			
	AV-3000 w/ 40mm first responder Canister Adapter	P100/HE 052683			
Minimal Exposure Level Response to a situation where it is suspected that fentanyl may be present but no fentanyl products are visible	Follow Standard/Universal Precaution	ons			

Refer to the NIOSH approval label for approved configurations. These recommendations can be exceeded if the hazard identification and risk assessment process indicates that a higher level of protection may be needed.

#### Low Level Risk Handling<sup>10</sup>

Low level risk involves situations where the drugs are in tablet form and less than 1 gram.

- Be cautious when handling any suspected drug.
- Wear properly fitting personal protective equipment. Be trained on how to wear, use and remove the PPE. FentanylSafety.com recommends:
  - Wrist and arm protection, including nitrile gloves (wear thick or two sets of gloves if possible) and long sleeves or a water resistant jacket or disposable coveralls
  - a fit tested N95 or air purifying respirator with equivalent or higher level of protection

#### References

- <sup>1</sup> Centers for Disease Control and Prevention. The National Institute for Occupational Safety and Health (NIOSH). Fentanyl and Work. Reviewed February 27, 2023. Accessed January 12, 2024. https://www.cdc.gov/niosh/topics/fentanyl/default.html
- <sup>2</sup> Centers for Disease Control and Prevention. The National Institute for Occupational Safety and Health (NIOSH). Fentanyl: Emergency Responders at Risk. Reviewed February 11, 2020. Accessed January 12, 2024. https://www.cdc.gov/niosh/topics/fentanyl/risk.html
- <sup>3</sup> Centers for Disease Control and Prevention. The National Institute for Occupational Safety and Health (NIOSH). Preventing Occupational Exposure to Fentanyl. Reviewed April 23, 2018. Accessed January 12, 2024. https://www.cdc.gov/niosh/topics/fentanyl/healthcareprevention.html
- <sup>4</sup> United States Drug Enforcement Administration. Fentanyl. Accessed January 12, 2024. https://www.dea.gov/factsheets/fentanyl
- <sup>5</sup> NIOSH respirator filter classes: https://www.cdc.gov/niosh/npptl/pdfs/N95RespirClassesInfographic-508.pdf
- <sup>6</sup> NIOSH types of respiratory protection: https://www.cdc.gov/niosh/npptl/pdfs/RespProtectionTypes-508.pdf
- <sup>7</sup> 3M<sup>™</sup> Protective Coverall 4565 Technical Datasheet: https://multimedia.3m.com/mws/media/706532O/3m-4565-protective-coverall-technical-datasheet.pdf
- <sup>8</sup> 3M<sup>™</sup> Protective Coverall 4570 Technical Datasheet: https://multimedia.3m.com/mws/media/1100346O/3m-protective-coveralls-4570-technical-data-sheet.pdf
- <sup>9</sup> 3M<sup>™</sup> Protective Coverall 4510 Technical Datasheet: https://multimedia.3m.com/mws/media/7019200/ 3m-protective-coverall-4510-technical-specifications.pdf?&fn=3M%20PC\_TDS\_4510\_Final\_LR\_R1.pdf
- <sup>10</sup> Canadian Centre for Occupational Health and Safety. Health and Safety Programs. Opioids (including Fentanyl) - Precautions for first responders. Modified February 10, 2024. Accessed January 12, 2024. https://www.ccohs.ca/oshanswers/hsprograms/fentanyl.html

Suggestions contained in this document are intended for law enforcement and healthcare personnel that may come into contact with illicit fentanyl in its manufactured form, such as a powder, pill, and/or liquid form.

This document DOES NOT provide suggestions for law enforcement officials that may enter a fentanyl manufacturing environment, such as a clandestine lab.



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