



Recommended Best Practices to Minimize Emergency Responder Exposures to Synthetic Opioids, Including Fentanyl and Fentanyl Analogs

Increased illicit use of opioids, including synthetic opioids such as fentanyl and its analog carfentanil, is a source of increased risk to responders. Most routine encounters between patients or detainees and emergency medical services (EMS) or law enforcement personnel do not present a significant threat of toxic exposure. Synthetic opioids are highly toxic organic solids that have been found as powders, pills, liquids, and nasal sprays. While specific exposure standards do not exist, the pharmaceutical industry uses an estimated occupational inhalation exposure limit of 0.0001 mg/m³ for fentanyl. A secondary dermal hazard exists if there is direct skin contact with large, bulk amounts of concentrated threat materials.

Personal Protective Equipment (PPE): PPE recommendations for emergency response personnel are based on risk levels determined by two major factors: (1) the wearer's potential for exposure to synthetic opioids, and (2) the wearer's operational response function (see Table 1). The potential exposure risk levels are dynamic and may evolve throughout a response, requiring constant monitoring to ensure PPE remains commensurate with the risk.

Decontamination: Responders should immediately wash areas of their skin that directly contact any residue suspected of containing synthetic opioids with copious amounts of water. In addition, skin surfaces should be washed with soap and water as soon as feasible. **Responders should avoid using alcohol-based hand disinfectants** as they may enhance skin absorption of fentanyl analogs by 50% or more. There are many commercial products on the market for decontamination of PPE, sensitive equipment, and surfaces. Responders should avoid using any **high pH solutions** (pH greater than 7) when there is potential for skin contact, as this may transition the synthetic opioid to its free-base form, which has a higher skin absorption rate and is more difficult to oxidize/destroy.

Medical Countermeasures: Communities across the U.S. are providing nonmedical first responders with naloxone to reduce the number of opioid overdose-related deaths. Naloxone (brand name Narcan) is a safe, rapid, and easily administered antidote previously used only by medical personnel to reverse the effects of opioid overdoses. It can be administered intravenously, intramuscularly, and intranasally; autoinjectors are also commercially available. In opioid overdoses where patients have depressed respiratory rates (fewer than eight breaths per minute) or stop breathing, administration of naloxone can save patients' lives. Responders must follow rescue breathing protocols whether naloxone has been administered or not. Once the patient is breathing at a rate of eight or more breaths per minute, naloxone dosing should be discontinued. Patients may become combative and/or begin vomiting as the naloxone takes effect. Synthetic opioids generally require higher doses of naloxone to reverse respiratory depression than traditional drugs like heroin. Following administration of naloxone, responders should monitor patients for recurring signs of overdose, as opioids are often longer-acting than the antidote. The time to peak antidote effects depends on the route of delivery, with intravenous administration having an almost immediate effect, intranasal taking 1-3 minutes, and IM potentially taking more than 5 minutes for clinical effect.

Canines working in law enforcement or rescue organizations that develop signs of opioid overdose following incidental exposure can be treated with naloxone by adjusting the adult dose according to the proportional weight of the dog.

Table 1. IAB Recommended Best Practices to Minimize Emergency Responder Exposures to Synthetic Opioids

Exposure Risk	Operational Functions	Minimum Recommended PPE	Decon Recommendations
Minimal (no visible product or product contained within syringe or other package)	Response to a person with suspected overdose	Standard duty uniform and nitrile gloves (NFPA 1999)	<ul style="list-style-type: none"> • People: Wash with soap and water • Surfaces: Peracetic acid, hydrogen peroxide, or dichloroisocyanuric acid solutions
Moderate (small volume [grams] of material visible and not contained within a package)	Response to one or more persons with suspected overdose; response to a localized seizure (e.g., traffic stop)	Standard duty uniform; nitrile gloves (NFPA 1999); P100 filtering facepiece respirator; safety glasses	<ul style="list-style-type: none"> • People: Wash with soap and water • Surfaces: Peracetic acid, hydrogen peroxide, or dichloroisocyanuric acid solutions
Moderate (large volume [kilograms] of material)	Response to a bulk storage or distribution facility	Standard duty uniform with long sleeves or sleeve covers; nitrile gloves (NFPA 1999); P100 filtering facepiece respirator; non-vented or indirect vented goggles	<ul style="list-style-type: none"> • People: Wash with soap and water • PPE and Sensitive Equipment: Peracetic acid solutions (pH ≤ 7) • Surfaces: Peracetic acid, hydrogen peroxide, or dichloroisocyanuric acid solutions
High (milling lab with particulates present)	Response to a suspected opioid milling operation that mixes synthetic opioids with binders or other illicit materials to produce a street-level product	NFPA 1999 multi-use ensemble or NFPA 1994 Class 4 or 4R ensemble; full face air-purifying respirator (APR) with P100 filters	<ul style="list-style-type: none"> • People: Wash with soap and water • PPE and Sensitive Equipment: Peracetic acid solutions (pH ≤ 7) • Surfaces: Peracetic acid, hydrogen peroxide, or dichloroisocyanuric acid solutions
High (production lab with bulk chemicals present)	Response to a suspected opioid production laboratory, potentially including a milling operation, that produces illicit materials using any combination of chemical precursors	NFPA 1994 Class 3 or 3R ensemble or higher; full face CBRN APR or higher	<ul style="list-style-type: none"> • People: Wash with soap and water • PPE and Sensitive Equipment: Peracetic acid solutions (pH ≤ 7) • Surfaces: Peracetic acid, hydrogen peroxide, or dichloroisocyanuric acid solutions

For further details, see the full version of this document at: www.interagencyboard.org. The IAB's recommendations are based on current information and response technology available at the time of publication. They may be updated as the threat and response considerations evolve. Inclusion in this document does not imply IAB endorsement of any specific product.