



FENTANYL EXPOSURE TO FIRST RESPONDERS BEST PRACTICES

Fentanyl and carfentanil are opioids and, like many other pharmaceuticals, are tools that can have both therapeutic or toxic effects, depending on the circumstances of their use. Let's discuss best practices when handling materials known or suspected of containing fentanyl and the dangers of incidental contact with the materials by first responders.

In 2016, the DEA put information on its website containing the statements,

- “fentanyl can be absorbed through the skin, or accidental inhalation of airborne powder can also occur.”
- “just touching fentanyl or accidentally inhaling the substance during enforcement activity or field testing the substance can result in absorption through the skin.”
- “the onset of adverse health effects, such as disorientation, coughing, sedation, respiratory distress or cardiac arrest, is very rapid and profound, usually occurring within minutes of exposure.”

The next year saw a spike in media reports of first responder occupational exposures (Hu, 2023).

The [American College of Medical Toxicology \(ACMT\)](#) and the American Academy of Clinical Toxicology (AACT) say, “Fentanyl and its analogs are potent opioid receptor agonists, but the risk of clinically significant exposure to emergency responders is extremely low (ACMT, 2017).” Yet responders remained concerned about occupational exposure to fentanyl, and misinformation regarding the risks of dermal exposure is still circulating. Research found nearly all leaders and officers wrongly believed that dermal exposure to fentanyl was deadly and expressed that fear on the scene (Attaway & Smiley-McDonald, 2021).

Leaders of first response agencies should conduct an objective, research-based risk analysis for their agency's activities, such as patient care of individuals suspected of a drug overdose, and take reasonable precautions to prevent exposures.

Best Practices

For routine handling of opioid drugs and any known or suspected controlled dangerous substances, nitrile gloves provide sufficient dermal protection. While fentanyl can be absorbed through the skin because of its low molecular weight and lipophilicity (lipid solubility promotes faster uptake into the brain), incidental dermal absorption is unlikely to cause opioid toxicity. Research shows that even a high dose of fentanyl prepared for transdermal administration (fentanyl patch) can take 4 hours for fentanyl to even be detected in blood once a patch is applied, and the time to reach peak levels averages 24 hours (Weaver, 2014). Washing the site of incidental skin contact with fentanyl is an effective safeguard.

Alcohol-based hand sanitizers should not be used for decontamination as they do not wash opioids off the skin and may increase dermal drug absorption.

Although facial contact with liquid or powder opioids is unlikely, a splash face shield would be sufficient to prevent mucous membrane (mouth, nose, and eyes) exposure.

It would be unlikely for a dangerous level of fentanyl to become airborne from pills during patient care or traffic stops. In the unusual circumstance of significant airborne suspension of powdered opioids, a properly fitted N95 respirator or P100 mask will likely provide reasonable respiratory protection.

Workers who may encounter fentanyl, its analogs, and carfentanil should be trained to recognize the signs and symptoms of opioid intoxication, have naloxone readily available, and be trained to administer naloxone and provide active medical assistance. In the unlikely event of poisoning, naloxone should be administered to those with objective signs of depressed levels of breathing or decreased consciousness/alertness/orientation, and not for vague symptoms such as dizziness or anxiety.

In the absence of prolonged oxygen deprivation, no persistent effects are expected following fentanyl or fentanyl analog exposures. Those with small subclinical exposures and those who normally awaken following naloxone administration will not experience long-term effects.

Fentanyl test strips have minimal clinical use in the pre-hospital emergency setting. Basic life support providers who encounter the signs of opioid overdose (depressed respiratory response, pinpoint pupils, and altered mental status) should intervene with naloxone. Taking time to test can delay treatment, and the treatment is the same whether the test result is positive or negative (Wade, 2023). It should be noted that :

- No test is 100%, so a negative test result for the presence of fentanyl is not a guarantee.
- Carfentanil, an even more potent opioid, is not detected with fentanyl test strips.
- Tranq is not detected with fentanyl test strips.

Tranq

Tranq, or xylazine, is a non-opioid analgesic and sedative which is only approved for veterinary use. It is commonly encountered in combination with fentanyl but has also been detected in mixtures containing cocaine, heroin, and a variety of other drugs.

Effects associated with xylazine use include drowsiness, hypertension, and tachycardia, followed by hypotension and bradycardia, coma, and respiratory depression. Since xylazine is not an opioid, naloxone does not reverse its effects. Withdrawal symptoms from xylazine include sharp chest pains and seizures. Users who inject xylazine or drug mixtures with xylazine often develop soft tissue injuries that can lead to necrotic tissue (DEA, 2022).

Cross-contamination with first responders should be minimal since the drug must be injected. Standard universal precautions, including needle-stick prevention protocols, are needed.

Sources

American College of Medical Toxicology ACMT (2017). [Preventing Occupational Fentanyl and Fentanyl Analog Exposure to Emergency Responders](#).

Attaway, P.R. & Smiley-McDonald (2021). [Perceived Occupational Risk of Fentanyl Exposure Among Law Enforcement](#). The International Journal on Drug Policy.

DEA (2022). [The Growing Threat of Xylazine and Its Mixture with Illicit Drugs](#). US Department of Justice

Hu, Dan (2023). [Fentanyl: What is the Occupational Exposure Risk for First Responders?](#) EMS World.

Wade, Kristen (2023). [Proactivity: Fentanyl Test Strips](#). Firehouse.

Weaver, Joel (2014). [Multiple Risks for Patients Using the Transdermal Fentanyl Patch](#). Anesthesia Progress.