

# Fentanyl and Other Synthetic Opioids: What Law Enforcement Needs to Know

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Fentanyl is one of many chemical compounds invented by Belgian chemist Dr. Paul Janssen in 1959. Janssen was trying to find a replacement for morphine, which is derived from the poppy plant (opium). Although a good pain reliever, morphine has multiple side effects including respiratory depression, nausea and constipation.

Fentanyl became an immediate commercial success due to its low cost and fewer side effects. Since its approval by the U.S. Food and Drug Administration in 1968, it has been used safely and effectively as an adjunct to general anesthesia and as a potent analgesic for chronic pain management (fentanyl patches) and end of life cancer pain.

## SCOPE OF THE PROBLEM

For decades, illicit use of fentanyl was limited to the diversion of pharmaceutically manufactured products by physicians, pharmacists and patients. Starting in the 1980s, illicit fentanyl production began to contribute to the use and misuse of the drug, resulting in a steady increase in overdose injuries and deaths. It is 80 to 100 times as potent as morphine and has been used as an additive to marijuana, cocaine and heroin (which dramatically increases its potency). Overdose deaths from fentanyl began skyrocketing in 2014, which appears to correlate with the illegal importation of fentanyl from China and India. There were 67,637 drug overdose deaths in 2018, according to the Centers for Disease Control and Prevention. Unfortunately, if fentanyl and its analogues weren't bad enough, a new drug, isotonitazene, is emerging in the illicit drug market with ominous consequences. Originally manufactured as a large animal tranquilizer, this drug can be as potent as fentanyl, and has been available without restriction from both domestic and Chinese manufacturers at a fraction of the cost. Increasing numbers of overdose victims are being found with isotonita-

zene in their system. Although isotonitazene (and its parent drug etonitazene) exposure can be treated with Narcan (naloxone HCL), larger and repeated doses may be required. As with fentanyl and its analogues, rescue breathing or intubation can be lifesaving.

## PHARMACOLOGY OF OPIOIDS

Understanding the dangers of fentanyl and other synthetic opioids requires basic knowledge of human physiology. Breathing is an autonomic function regulated by the brain (the respiratory center is located in the brainstem). Brain cells in that area send signals through the phrenic nerves to the diaphragms, causing them to contract and suck air into the lungs.

All opiates affect those brain cells, causing them to reduce the number of times per minute the diaphragms contract. Normal breathing is approximately 15 breaths per minute. When opiates act on the brain cells of the respiratory center, the breathing rate can diminish or even stop completely. Although unusual with morphine or heroin overdoses, complete respiratory failure is common with fentanyl and other synthetic opioid overdoses due to their potency.

## RELEVANCE TO THE TACTICAL COMMUNITY

While tactical teams rarely encountered fentanyl and other synthetic opioids (carfentanyl, acrylfentanil, acetylfentanil, butyrylfentanil, etc.) in years past, their increase in illicit narcotics trafficking has made them much more widely encountered. Teams that are not prepared to deal with them do so at their own peril. Whether it's a warrant service at a known drug lab or it's encountered in unrelated building entries or in the search of personal property of arrestees, today's teams need to be vigilant about coming in contact

with these substances. Even a miniscule amount (the size of a grain of salt) can be lethal if it is inhaled or comes in contact with a mucous membrane (nose, eyes, mouth). Fentanyl and its analogues have been seen as a powder, liquid or made into pills (where it may be distributed as counterfeit Oxycontin at a fraction of the price).

Any substances encountered on or around arrestees should be deemed to potentially contain fentanyl or its analogues and treated appropriately by isolating it from contact with any members of the team or public and preventing aerosolization from the wind or a fan. Only trained personnel with personal protective equipment certified for use around these compounds should handle, transport or analyze these substances. The National Institute for Occupational Safety and Health (NIOSH) recently published six guidelines for first responders to avoid exposure to illicit drugs including fentanyl:

- Always wear nitrile gloves and change them when they become contaminated.
- Wear respiratory protection if powdered drugs are visible or suspected.
- Avoid performing tasks that may cause powdered substances to become airborne.
- Do not touch the eyes, nose or mouth after touching any surface that may be contaminated, even if wearing gloves.
- Wash hands with soap and water after working in an area that may be contaminated, even if wearing gloves.
- Do not use hand sanitizer or bleach.

NIOSH offers Standard Safe Operation Procedures at [cdc.gov](http://cdc.gov); operators and team leaders would be prudent to review the videos, which show an officer exposed to fentanyl as well as proper donning and doffing of PPE. Specialized equipment such as the Tru-Narc device from Thermo Fisher Scientific can analyze unknown substances without removing them from their containers.

## MITIGATION STRATEGIES

There are several mitigation strategies in dealing with fentanyl and other synthetic opioids. Developing drug-related intelligence should be an element of every op plan for non-exigent entries. Avoid contact with unknown substances and include the use of PPE when feasible. Finally, every team member should have training with and possession of Narcan (naloxone HCL), a potent antidote for anyone exposed to any opiate including fentanyl and other synthetic opioids.

In situations where team members are not equipped with Narcan for personal use, coordination with local paramedics or EMTs with Narcan is essential. Although instances of synthetic opioid overdoses not responsive to Narcan have been reported, they are quite rare.

Since fentanyl and other synthetic opioids are respiratory depressants and not poisons, maintaining respiration through artificial means (mouth-to-mouth, Ambu bag, intubation etc.) will save a life. Fortunately, the half-life (time to metabolize 50% of the substance) of these synthetic opioids is very short (minutes to an hour or so) as opposed to heroin and morphine (1.5 hours to 7 hours), so manually supporting the respiration of a fentanyl overdose victim will usually be necessary for only 10 to 20 minutes. Having paramedics or EMTs familiar with and having equipment for respiratory support would be an optimal part of any op plan.

## CONCLUSION

Today's tactical teams face enormous risks that must be considered above and beyond those posed by armed assailants. Understanding the risks of exposure to fentanyl and other synthetic opioids and preparing for that eventuality will save lives and avoid panic during team operations. If your team isn't equipped with Narcan and had training in its use, now is the time to remedy that deficiency. The same is true for rescue breathing devices and training. The life you save may be your own or your partner's.

## ABOUT THE AUTHORS

Todd D. Moldawer MD is an orthopedic spinal surgeon practicing in Southern California. He has been a consultant for multiple law enforcement agencies at the municipal, state, and federal levels. Currently he assists in training of EMTs who are special agents of the Drug Enforcement Administration and assists in their mission of training allied agencies regarding the threat of synthetic opioids. He is also a specialist volunteer with the Los Angeles Police Department (Gun Unit).

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