

Be Careful with Fentanyl but Don't Be Afraid to Treat

Fentanyl gets a lot of media coverage, on all aspects of the drug, including the overdoses that it causes, how it's mixed (or cut) with all kinds of other drugs such as opiates like heroin, or completely unrelated drugs like cocaine, methamphetamine, and even marijuana, often without the end users aware of what they are using or what can happen. TV shows & movies have also represented fentanyl as this monster drug that puts not only the users at risk, but also the good guys (the First Responders), who find and/or rescue people, as well as the public at large.

Fentanyl, a synthetic opiate that is 50 to 100 times more potent than heroin, is ultimately cheaper to produce since it is made using chemicals, while heroin is produced starting with opium poppy plants. Fentanyl started as an anesthetic because it has a fast onset but less long acting, then became a pain treatment for those with severe chronic pain, no longer responding to other pain medications, primarily in cancer patients. This medical grade form is made in pharmaceutical labs, using standardized methods, resulting in standard forms of the drug as injectables, transdermal patches or drops. But what can be made in a regulated lab can also be made in a clandestine lab without the standardization or protections. These illicit labs, here in the U.S. but primarily in other parts of the world (China & Mexico, with India as a newer addition), make it easier to change fentanyl chemically, to avoid detection with toxicological testing or drug sampling equipment. Many analogs (versions) have been made, some with even higher strength than the original, such as carfentanil, which can be 10,000 more potent than morphine (heroin is 2-3 times more potent than morphine). Here are two links to more information on fentanyl facts: <https://www.cdc.gov/stopoverdose/fentanyl/index.html> and illicit use of opioids: <https://www.cdc.gov/drugoverdose/resources/graphics/illicit-opioid.html>.

However, that's not what this article is primarily about. The same outlets that are appropriately supplying the news of a rapid rise in opiate ODs, largely on fentanyl and fentanyl-laced products, are also feeding the myth that fentanyl is a life-threatening risk to those that even come into close proximity of the drug, get powder on their skin or clothes, or render aid to someone who is overdosing on it or something mixed with it. **That said, we should always use precautions & barriers to prevent contact with any substance, much like we treat body fluids.** Anyone arriving on the scene should be wearing the appropriate PPE for the situation; see the following link for recommended PPE for different situational risk:

<https://www.cdc.gov/niosh/topics/fentanyl/risk.html>. **There is reason to be extremely cautious when dealing with clandestine labs or mill centers which are making or processing the drug(s), or other places like illicit storage & distribution facilities, which may have booby traps, increasing the risk for being aerosolized. There are also other hazards that may be present, including typically being guarded well.**

See this article, written by Paul Harnett, a public safety expert, for an excellent overview on the subject: <https://www.lexipol.com/resources/blog/first-responder-fentanyl-exposure-what-you-need-to-know/>.

Responding to a person down or a suspected overdose, like any unknown substance (after all, illicit drugs are rarely marked with its contents), we approach with caution & with barriers, as indicated by the information at dispatch, our situational awareness, scene assessment, and patient(s) presentation. Here are some general principles on possible fentanyl exposures:

1. One way fentanyl (or products mixed with fentanyl) may cause poisoning to a First Responder or Good Samaritan is if the powder were to become aerosolized, with particles suspended in the air.
2. Another way is if you had product on your hands/arms, then touched/rubbed your mucous membranes (eyes, nose, mouth), or ingested it (ate/drank). As with any unknown substance, goggles and/or a face shield are appropriate PPE and will help prevent exposure of the mucous membranes.

Fentanyl powder is not absorbed through intact skin (there are fentanyl patches for through the skin absorption but it requires a special medium). If contact, skin should be washed using normal temperature water with soap, without irritating the skin. **Hand sanitizer or anything containing alcohol or any skin-irritating cleaning products like bleach or disinfecting wipes should be avoided as they increase the risk of absorption through the skin.** Be careful not to recontaminate your skin with contact with powder that may be on your clothes or equipment.

3. If you get it on your clothes, do what you would do if you got any body fluid or chemical on your clothes. Remove contaminated clothes ASAP (using a Tyvek or other jumpsuit/gown if needed), wash your hands, as above, once again. Bag the clothes so they can be washed separately from other items, as you would for any contaminated work clothing at an employer-supplied washing facility. Shower ASAP. Bunker gear should be washed using manufacturer & agency guidance.
4. For K-9 (Canine) Responders: the rules are a little different for the dogs since they are typically using their noses to do their jobs and not wearing a mask. So, they are more likely to be exposed via their mucous membranes (nose, mouth, eyes), and even possibly through their paws, especially if they lick them or their skin or fur, and it has residual powder or liquid on it. This applies to any toxin. Exposure can also be via inhalation or ingestion. Signs may be delayed if it's absorbed during self-grooming.

Here are links to a website Working Dogs HQ, started by Maureen McMichael, DVM, M.Ed., DACVECC, after seeing a need in dogs working with Police, EMS and other First Responders. They have developed a wide range of education & protocols for the management of K-9 emergencies & health issues (legal use of the protocols varies by locality & state-specific laws), including opioid exposure. The first link is to the Home Page for this group; the second is a link to their *eBook for K-9 emergencies*. There is guidance for K-9 Handlers, EMS and Veterinarians: <https://workingdoghq.com/> and <https://workingdoghq.com/ebook/>.

5. Report contact with a known or unknown substance to your supervisor and as Agency policy dictates. Consult EMS or a medical provider, as needed for symptoms.

So, if fentanyl or any of its derivatives are not absorbed through intact skin without means, like a transdermal patch or alcohol, then what caused all the reports of First Responders being very sick after being in close proximity or having skin/clothing contact with fentanyl?

Toxicologists & physicians think that most of these reports are not an actual response to the fentanyl, but a sympathetic response (aka the body's Fight or Flight response) to the fear of fentanyl exposure. This doesn't mean that the symptoms aren't real – they are real and scary. They are frequently reported as any or all of the following: anxiousness, hyperventilation, elevated heart rate, chest pain, shaking, headache, dizziness difficulty breathing, panicky/feeling of impending doom, etc. Yet, opiate ODs usually present quite differently with decreasing levels of consciousness until unresponsive, slowing and/or increasingly shallower breathing, slowing pulse to its extreme until, first, a cessation of breathing and then loss of a pulse (or cardiac arrest). When toxicology testing has been performed, it has not shown any, or at least not enough, of a blood level of opiates to cause the reaction. And, in cases where naloxone has been administered, it has not helped with any of the atypical symptoms.

The Fight or Flight response is the body's way of protecting itself and increasing the likelihood of being able to survive a stressful event. It increases blood flow to the brain for keener vision & decision making, often by a rise in heart rate & blood pressure, an increase in breathing rate so that more oxygen is delivered to the heart, lungs and muscles to be ready to fight or flee, and there are some other 'helpful' effects as well. All this is accomplished with an internal squirt of adrenaline (epinephrine), which is the same as the drug given if someone's heart stops. To get it going again, and to increase oxygen and blood flow to vital organs like the brain, heart and lungs. It's also sometimes given, though usually in smaller doses, to people who still have a pulse and are often breathing. This is done for someone who in shock or has a closing airway from an allergic reaction, has a medically or traumatically caused spinal cord injury, or just a persistent low BP, and is not responding to other therapies. And, in those patients, sometimes we see the very signs & symptoms that First Responders have displayed during fentanyl, or other drug (opiates) exposures. One last point. Epinephrine is a stimulant with symptoms that can be seen with cocaine, methamphetamines or other -amines, including Ritalin and its siblings, bath salts, and other drugs, legal or illicit. So, perhaps it wasn't a fentanyl/opioid exposure at all, perhaps it was a stimulant. See this JEMS Article for more specifics on this topic:

[https://www.acmt.net/cgi/page.cgi/zine.html/The ACMT Connection/ACMT State ment on Fentanyl Exposure](https://www.acmt.net/cgi/page.cgi/zine.html/The_ACMT_Connection/ACMT_State_ment_on_Fentanyl_Exposure)

It is essential that First Responders use every tool in their tool kit to remain safe & healthy. It requires diligence when responding, situational awareness (which can change as the scene/story unfolds), the proper donning & doffing of appropriate PPE, and rapid consult with Poison Control 1 (800) 222-1222, your Agency's EMS Medical Director or Team (which can often be borrowed by Law Enforcement), Occupational Health Provider or receiving Emergency Dept Team.

It's also essential that we try to save everyone to whom we are responding or is in our care, even if it means taking the time to don a respirator (which includes a well-fitting, fit tested N100 mask or higher), nitrile gloves, and goggles or face shield. If it's in the High-Risk category (see CDC/NIOSH <https://www.cdc.gov/niosh/topics/fentanyl/risk.html>), then entry is not recommended unless Special Operations or Decontamination Teams are on hand and render it safe.

There is a list of Resources & Links that will be a sub document of this article. Some are the same as those contained here. Others are important supplements that may be helpful, sometimes from different experts or points of view.