

## Fentanyl - Pervasive and Deadly

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Most have now heard of the “Opiate Epidemic” the United States is facing. Reliance on opioids for analgesia can produce an opioid-seeking behavior that can be satisfied by heroin or other illicitly-produced substances if access to the prescribed substances are withdrawn or reduced. Initially, a rise in heroin use was detected beginning in 2010. A concurrent rise in fentanyl and other synthetic opioids was noted, as suppliers discovered that fentanyl was much more powerful than heroin (50 times), simple and cheap to manufacture and therefore easier to distribute with a higher profit margin. In fact, traditional smuggling methods have given way to postal mail from overseas, particularly China. These powerful substances are a drug dealer’s dream and a health care nightmare.

Fentanyl was first synthesized by Janssen Pharmaceuticals in 1960 and approved for use in the United States in 1968. Fentanyl interacts predominately with the opioid mu-receptor but also binds to kappa and delta-type opioid receptors. These mu-binding sites are discretely distributed in the human brain, spinal cord, and other tissues. In clinical settings, fentanyl’s effects are primarily on the central nervous system. In addition to analgesia, mood, euphoria, dysphoria, and drowsiness may be

affected. Fentanyl causes respiratory depression (the cause of death in overdose), depresses the cough reflex, and constricts the pupils.

Prescribed fentanyl comes in several forms that include a sublingual film or pill, a dermal patch, and a lollipop, all of which can cause overdose. In addition, there is street or illicitly manufactured fentanyl that chemically cannot be differentiated from the pharmaceutical product. Fentanyl is rarely sold unadulterated because of its potency. It can be sold in different vehicles on the street which include laced cocaine, laced heroin, and even pressed into pills passed off as Norco. Many designer versions of fentanyl have been developed that are a result of slight changes made to the molecule to enhance its potency and/or to evade drug detection. Many of these compounds are labeled as “research substances” to skirt legal issues.

The bulk of illicit fentanyl derivatives arrive in the US through the mail, express shipping systems or through Mexico. Between 2013 and 2014 there were over 700 deaths attributed to fentanyl and between 2014 and 2016 there was a 600% increase in fentanyl-related deaths. In 2015 there were 6.5 million fentanyl prescriptions dispensed in the US, which can be directly correlated to the increase in deaths.

When one looks at what opioid is causing the most deaths, it is invariably fentanyl and fentanyl-laced drugs. The strength of fentanyl laced

heroin makes it very difficult for the user to titrate the dose. Also, the user may not have any idea that they are using is fentanyl or spiked with fentanyl. Dependent people don’t know the potency of the illicit drugs they buy from the street, and most are accustomed to visually estimating the amount they would use if it were heroin. Misjudging the dose, or not knowing the substance they are using has been spiked with a fentanyl compound, greatly increases the risk of overdose and death from respiratory depression.

Fentanyl is so powerful that first responders, laboratory technicians, and medical personnel must take extreme precautions to avoid skin contact or accidental inhalation. A puff of fentanyl from closing a plastic bag is enough to overdose a naïve responder. There is another analogue now being seen, carfentanil, that is approximately 100 times more potent than fentanyl or 10,000 times more potent than morphine.

The identification of illicit opioids that people are using via laboratory analysis is an extremely important activity. This problem is simple for well-known and natural substances, but the designer compounds are often overlooked or not requested for testing at the laboratory. This can confuse clinic staff as signs or symptoms of drug abuse could go undetected due to not requesting additional testing for designer compounds.

### ??? Did You Know ???

While many Americans still go without needed behavioral health treatment, recent changes to the United States health system are removing barriers to accessing behavioral health services. As a result of the Affordable Care Act, a range of health plans are being required to cover essential benefits including mental health and substance abuse treatments. The Affordable Care Act extends the impact of the Mental Health Parity and Addiction Equity Act (MHPAEA) so that many health plans must offer coverage for mental health or substance use disorders with at least an equal level of benefits as the plans offer for the treatment of physical health problems.

Source: SAMHSA

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### Question of the Month

**Question:** *What is the difference between Amphetamine and Methamphetamine? How can I tell which drug was consumed?*

**Answer:** Amphetamine and Methamphetamine are both stimulants of the central nervous system and are similar in many ways, although chemically they are different compounds. Amphetamine, while potent and potentially addictive, is prescribed to treat specific conditions such as ADHD and can be safe if used as directed. Methamphetamine, highly addictive itself, is widely considered too dangerous to be prescribed. Methamphetamine is the parent drug and after consumption a portion metabolizes into Amphetamine. A person consuming Methamphetamine would excrete both Methamphetamine and Amphetamine in their urine. A positive Amphetamine result due to Methamphetamine would only be possible if the Methamphetamine result was also positive. A positive Amphetamine result alone would only be possible if the person consumed an Amphetamine.