



DrugFree@WorkPlace

## Brain Injury Epidemic in America

There is a very deadly opioid epidemic in America, but there is an even more serious brain injury epidemic that impacts more people and ruins thousands of lives annually.

According to the CDC, synthetic opioids (like fentanyl) are the primary driver of overdose deaths in the United States. Approximately 100,000 Americans lose their lives to fentanyl overdoses every year.

Fentanyl acts on the central nervous system—medically, it's used to relieve severe pain—but street versions of the drug are unpredictable and can be contaminated with toxic chemical compounds, which means overdoses are common. But while a lot of attention is paid to overdose *deaths*, few people are aware of the brain injuries that occur in individuals who survive those overdoses.

### Hypoxic Brain Damage

Research conducted by the National Center for Injury Prevention and Control at the Centers for Disease Control and

Prevention in Atlanta, has shown that there are about 15 non-fatal drug overdoses for every one that kills a drug user. And every non-lethal overdose can inflict brain damage on the victim.

Fentanyl, and other synthetic opioids target the part of the brain that controls breathing, and an overdose can suppress breathing to the point that brain cells are starved of oxygen. Because of this lack of oxygen to the brain, overdose victims begin to suffer brain damage within minutes. This is known as hypoxic brain damage.

As the number of drug overdoses in the U.S. continues to rise, doctors are struggling to cope with the increasing number of patients facing irreversible brain damage and other long-term health issues.

### A Vicious Cycle

Overdose survivors often suffer from hypoxic brain injuries that create problems with attention, memory, motor coordination, emotional regulation, decision-making, and problem-solving. This results in a worsening of stress levels, mental health conditions, and addiction problems which produces a vicious cycle that is extremely difficult to break out of.

Drug users who have survived an overdose and suffer from hypoxic brain injury also no longer seem to have an appropriate sense of right and wrong, or of time and place (they can be seen openly injecting drugs in public places and even in front of children).

Hypoxic brain injury also makes it difficult for a person to live independently. Victims often need supportive housing and long-term care. Unfortunately, there are very few programs available that offer the support and assistance that drug users with acquired brain injuries need. Even free 12-step programs rarely work, because the brain injury makes information processing and memory functions difficult. In the same way, methadone programs don't work because they require participants to return to a clinic every day for increasing doses, and the brain injury makes following through almost impossible.

The only glimmer of hope for those with overdose-induced brain injuries is that while some parts of the brain will never fully recover, the human brain is capable of a lot of compensation, and it may be possible to retrain the brain and recover at least some of the cognitive functions that have been lost.

## Recommended Actions

While there are no easy solutions to the brain injury epidemic, the following recommendations could help to reduce the negative impact.

*Prevention:* Overdose prevention and education initiatives must target individuals living with brain injury, caregivers, and providers. State behavioral health and brain injury programs should collaborate to ensure that efforts for prevention target this population. Federal prevention resources/tools should highlight the importance of this issue and recommend strategies for states.

*Substance Use Disorders (SUD) Treatment:* Services designed to address SUD must be accessible to individuals with brain injury. Providers should routinely screen for a history of brain injury among consumers served and ensure treatment services are accessible for individuals with cognitive, behavioral, and physical disabilities resulting from a brain injury.

*Brain Injury Services Programs:* Individuals who have sustained a brain injury resulting from an overdose require specialized services. State programs need to develop capacity and expertise to support a growing number of individuals living with an acquired brain injury from overdose. Understanding best practices in SUD screening, recovery, and treatment are critical.



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# Supervisor Newsletter

## Fentanyl Overdose in the Workplace

Is a fentanyl overdose possible in your workplace? Many supervisors believe a tragedy like this could never happen where they work. But because fentanyl is often mixed into other drugs—including counterfeit prescription pills—an employee who might not ever consider using fentanyl directly, might inadvertently ingest the drug leading to an overdose.

Additionally, workers who come into contact with the public or work in public spaces could potentially be at risk of a fentanyl overdose under certain circumstances (sustained contact with the skin for long periods, contact through an open wound, or contact with the eyes). Workers who have an increased risk of exposure include:

- Healthcare workers, including emergency medical personnel and those providing hospital care
- Law enforcement and supporting personnel such as crime lab workers
- Fire service workers, including firefighters and hazmat team members

- Workers who clean up or move garbage—especially from crime scenes, drug labs, homeless camps, and public areas (including parks, roadways, parking lots, and restrooms)
- Workers who perform maintenance or repair (including skilled tradespeople)

The workplace is obviously not immune to a fentanyl overdose by an employee or customer, so supervisors need to receive training on how to deal with this potential problem.

## Symptoms and Response

Fentanyl produces characteristic opioid overdose signs and symptoms including a decreased level of consciousness, slowed breathing, lack of response to stimulation, drowsiness, and constricted pupils. Typically, the body will be very limp and the face pale or clammy. There will sometimes be blue lips, fingernails, and skin. For lighter skinned people, the skin tone eventually turns bluish purple; for darker skinned people, the skin tone turns grayish or ashen.

Peak respiratory depression can occur in five minutes or less making a rapid response imperative. If available, Naloxone

administration and assisted ventilation are the most critical interventions. This is why having naloxone available in the workplace and training supervisors on its use is so important. Fentanyl overdoses are responsive to naloxone like other opioids. Standard naloxone dosing should be implemented with repeated administration every 2-3 minutes until respiratory function is restored.

### Personal Safety Concerns

Some supervisors have expressed concerns about the possibility of experiencing fentanyl toxicity by just entering a room where someone has overdosed. But the truth is, mass media reports of fentanyl toxicity by individuals like first responders through *passive* contact in their job duties are more myth than fact. According to the American College of Medical Toxicology (ACMT) and the American Academy of Clinical Toxicology (AACT), in order to create clinically significant toxicity, an adequate dose of fentanyl must be absorbed into the bloodstream and enter the central nervous system. Simply being in a room where fentanyl is present will not result in toxicity or overdose.

What about getting fentanyl on your skin? It would be highly unlikely to experience opioid toxicity from momentary incidental dermal exposure. Absorption of fentanyl from

transdermal patches designed to deliver the drug systemically requires hours to produce a therapeutic serum level. To prevent the possibility of absorption, however, immediate cleansing with soap and water should follow any inadvertent contact.

What if you see white powder on or near an overdose victim? Should you wear a mask? An undisturbed white powder is unlikely to be an inhalation risk. Even in industrial settings at the highest airborne concentration, it would take 200 minutes of exposure to achieve a dose of 100mcg of fentanyl. But to be safe, if drug particles are suspended in the air, a fit-tested N95 respirator is suggested.

While it is important to take steps necessary for personal safety, remember that when someone ODs it results in oxygen starvation. This eventually stops other vital organs like the heart, then the brain. This leads to unconsciousness, coma, and then death. Within 3-5 minutes without oxygen, brain damage starts to occur, soon followed by death. With opioid overdoses, surviving or dying wholly depends on receiving life-saving assistance immediately. Too often, waiting for emergency personnel to arrive is not an option. Often, in the workplace, a supervisor or manager is put into the position of being the immediate first responder. Be ready, be prepared!



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