The Current State of the Opioid Crisis & Other Emerging Threats

There may be good news on the horizon from the latest reports by the Centers for Disease Control and Prevention (CDC) and Drug Enforcement Administration (DEA). Data from both agencies indicate a change in trajectory for the opioid overdose crisis: the first reported decrease in overdose deaths since 2018 and fewer counterfeit pills containing a lethal dose of fentanyl. While the reductions are encouraging, it is crucial to note that synthetic opioids, along with emerging novel substances, remain a considerable threat. Over 150 people die daily from overdoses related to synthetic opioids. During 2023, there were more than 107,543 reported fatal overdoses, with 66% of those deaths involving synthetic opioids like fentanyl. Opioid deaths have surged dramatically since the pandemic, which is not just a statistical anomaly but a reflection of deeper, systemic issues fueling this crisis. Between the rise in the use of recreational drugs and the surge of synthetic opioids, substance use disorders impact communities nationwide. According to the World Health Organization, synthetic opioid death rates in the United States increased by 1,040% between 2013 and 2019. Most preventable drug overdose deaths (78%) involve opioids, totaling 78,012 in 2022.

Detection and Knowledge Gaps

Synthetic opioid manufacturers' ability to exploit legal loopholes and use chemicals that often evade detection and regulation helps fuel the synthetic overdose crisis and facilitate this illicit and lucrative trade. The combination of high profitability and relatively low risk attracts criminal enterprises and further exacerbates the crisis. Accessibility to materials and simplified production processes have created a profitable underground economy for these dangerous substances. Many illicitly used synthetic opioids are up to 100 times more potent than morphine or heroin, resulting in a higher likelihood of fatal overdoses.

Extreme drug potency means that even a trace amount can be deadly. For public health, this is particularly concerning as the ease of production and distribution facilitates their widespread presence in the drug market. Controlling these substances is further complicated by chemical formulations designed to circumvent existing laws and perpetuate the manufacture and distribution cycle that drives the synthetic overdose crisis. The immense profits generated from this illicit trade incentivize criminals to exploit legal and regulatory gaps, which creates an ongoing battle for law enforcement and public health officials.

As synthetic opioids remain pervasive, simultaneously, multifaceted and often difficult-to-detect emerging threats are on the horizon. As substances like xylazine, nitazenes, captagon, dipentylone, and "pink cocaine" become prevalent within the illicit drug market, the concern is recognizing their collective impact. The rapid introduction of these substances in various forms challenges law enforcement and public health officials to maintain both detection and mitigation efforts. Even building awareness can be challenging as critical knowledge gaps still exist across the U.S.

Understanding how a substance interacts with another substance and its effects when ingested is pertinent information for law enforcement and first responders to inform a proper response. Without this knowledge, the risks to both the public and those tasked with protecting them exponentially increase. For instance, xylazine (also known as *tranq*), a legal animal tranquilizer commonly used by veterinarians, has been increasingly mixed with

fentanyl to lengthen the euphoric effects. Because xylazine is not an opioid, life-saving medication like Narcan may not reverse overdose effects, which leaves first responders with fewer options in critical situations.

The Challenges New Threats Pose

Being able to detect and understand threats as they emerge is a pressing concern. The DEA has issued warnings about new and emerging drugs being as dangerous and deadly as fentanyl. These drugs, such as nitazenes, are sourced from China and other countries and mixed into other drugs, creating a dangerous cocktail that is difficult to identify, monitor, and control. These novel substances introduce a new risk to enforcement efforts representing potential blind spots in detection regimes. Early in the fentanyl crisis, some overdoses may have been misclassified as heroin overdoses due to their similarities and lack of widespread testing at the time. While fentanyl overdoses were not explicitly "masked" by heroin use, the data suggests a significant overlap and transition between these two substances that complicates an understanding of overdose trends.

> "...the deadliest drug threat our country has ever faced."
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> Anne Milgram, DEA Administrator, discussing xylazine

Xylazine is an example of a novel substance introduced into the illicit opioid supply chain with dire consequences. Xylazine is increasingly found mixed with fentanyl in western states and New England, making the substance deadlier and more complicated. Between October 11, 2023, and April 11, 2024, 15.6% of fentanyl-positive urine samples in the United States also tested positive for xylazine. In 2023, the DEA warned about the increased risk of xylazine-fentanyl mixtures and reported that approximately 23% of fentanyl powder and 7% of fentanyl pills seized contained xylazine. DEA Administrator Anne Milgram called xylazine "the deadliest drug threat our country has ever faced." Xylazine and other growing threats present new challenges to public safety that demand innovative solutions and a proactive approach. According to a 2021 survey conducted by Dynata, over three-fourths (77%) of respondents said they did not know—because xylazine is a sedative, not an opioid—that it resists standard opioid overdose reversal treatments like Narcan or Naloxone.

With over 100,000 overdoses in 2023, law enforcement personnel tasked with monitoring and responding to emerging drug threats must stay abreast of trends and ensure their own safety in dealing with dangerous substances. The ever-evolving nature of these threats requires continuous education, training, and access to the latest detection technologies.

Modernized Solutions to Mitigate Today's Substances

Illicit drug threats are exacerbated through the Dark Web and mail-order fulfillment. To mitigate these threats, first responders need better tools to identify substances on the streets, and they need help driving public awareness about the risks that fentanyl, nitazine, xylazine, and other dangerous drugs pose. Technological advances can enable law enforcement officials to rapidly detect and identify even trace amounts of illicit substances. Portable devices like those similar to alcohol breathalyzers, but for illicit drugs, can accurately analyze samples in the field. For example, the South Bend Police Department utilizes technology that analyzes nearly invisible amounts of illicit drugs within seconds to better understand threats to the community and protect their officers.

Faster on-site detection and identification can also lead to a more efficient judicial process—swifter decision-making, stronger evidence to prosecute drug suppliers, and more effective tools for disrupting drug-trafficking networks. Law enforcement agencies in Ohio have benefited from fast drug detection technology, including being able to establish probable cause and detain suspects immediately, rather than having to reengage after lab results are available.

In-field technology reduces demand on central laboratories so forensic experts can prioritize and

expedite their analysis of more crucial samples. In-field testing may also reduce delays caused by drug-testing backlogs in the judicial process. A more efficient judicial process can assist public health and law enforcement agencies in implementing targeted interventions to mitigate illicit drug threats. In turn, quicker resolutions provide a measure of closure and justice for affected families and communities in the wake of tragedy. With the ability to detect low-concentration mixtures of powerful synthetics, such as xylazine, nitazenes, and fentanyl analogs, new technologies can meet today's counterfeit drug challenges and help law enforcement and public health stay ahead of the curve in this ongoing battle.

A Call to Action

Effective mitigation and prevention strategies require collaboration, and organizations—from the CDC to local law enforcement to emergency medical services—must collectively engage the public on the dangers of the opioid crisis. At the federal level, an opioid public health emergency was renewed in June 2024, declaring the opioid crisis a continued nationwide threat. Additionally, reports from the CDC raise awareness of emerging threats, such as the increased presence of carfentanil, a fentanyl analog, as well as the emerging nitazine compounds.

At the local level, San Francisco's newly sworn-in mayor, Daniel Lurie, has proposed ordinances to combat the use of fentanyl in the city. In Kentucky, emergency departments are bolstering their support for individuals with substance use disorder, including education and continued care. Additionally, the Addison Fire Department in New York offers free access to Narcan as well as fentanyl and xylazine test strips via vending machines to prevent or quickly stop an overdose from becoming deadly.

No single entity can tackle this massive crisis alone, but these examples show how approaches—from awareness to prevention to de-escalation—are working in harmony to deescalate the opioid crisis. Knowledge is power, and technologies combined with increased public awareness and proactive policy measures, are vital in turning the tide against the opioid overdose epidemic, saving thousands of people from untimely deaths.



About the Author

908 Devices' Vice President for North America and Strategic Marketing, John Johnson oversees the strategic direction and market adoption of the company's handheld mass spectrometer device, an industry-leading trace identification solution. Johnson has served many roles over the course of his 30 years in public safety, launching 17 products in more than 61 countries, working with more than 312 public safety organizations. Since 2001, he has focused his efforts on changing mindsets and driving acceptance of novel technological approaches to identifying explosives, chemical weapons, and narcotics. His work is bringing technology used in forensic laboratories to the field, including mass spectrometry, FTIR, Raman, and Rapid DNA. His influence in these areas has led to standard industry practices and broad technology adoption, all aimed at improving public safety outcomes.

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