



# Opioid Prevention Program – Data to Action Xylazine Awareness in New York State, 2021

August 2023

## OVERVIEW

Xylazine (“zai-luh-zeen,” also known as “tranq”) is a non-opioid central nervous system depressant approved for use in animals as a tranquilizer, sedative, and pain reliever.<sup>1,2</sup> It is not approved for use in humans. However, xylazine has been increasingly detected in the illicit drug market and opioid overdose deaths across several regions of the United States (US) including New York State (NYS).<sup>3-7</sup> While some people might intentionally combine xylazine with heroin and fentanyl (“tranq dope”) to prolong the euphoric effects of the opioids, many are unaware of xylazine’s presence as an adulterant.<sup>2,4</sup> Acute effects of xylazine include heavy sedation, slowed heart rate, respiratory and central nervous system depression, low blood pressure, and irregular heartbeat. Therefore, when xylazine is used with heroin or fentanyl, the risk of a fatal overdose may increase due to an intensification of the respiratory depressant effects from any present opioids.<sup>8</sup> Rapid test strips to detect xylazine in a drug sample have recently become available.

This Data to Action brief provides a summary of recent data on overdose deaths involving opioids and xylazine, from New York City (NYC) and NYS outside of NYC, as well as recommended actions and resources.

- Starting in 2021, xylazine was tested for in all overdose deaths involving opioids in NYC. Data showed that during 2021, approximately **1 in 5** overdose deaths involving opioids also involved xylazine (Table 1). All xylazine-involved overdose deaths in NYC also involved fentanyl (Table 1).
- In NYS outside of NYC, data for 2021 showed that **1 in 20** opioid-involved overdose deaths also involved xylazine (Table 2). Consistent with NYC, fentanyl was found in all xylazine-involved overdose deaths (Table 2). Due to variations in toxicology testing practices in the areas outside NYC, the number of xylazine-involved overdose deaths is likely underreported.

**Table 1. Opioid overdose deaths involving xylazine\*, New York City, 2021\*\***

Substances	Counts	Opioid Overdose Deaths %
Overdose deaths involving any opioid	2,252	100.0%
Opioid overdose deaths involving fentanyl	2,127	94.5%
Opioid overdose deaths involving xylazine	429	19.1%
Opioid overdose deaths involving xylazine with fentanyl	429	19.1%

**Data source:** NYC Office of the Chief Medical Examiner toxicology results and NYC DOHMH Bureau of Vital Statistics death certificate records data as of July, 2022.

\*Combinations are not mutually exclusive; 2021 data are provisional and subject to change.

\*\*NYC overdose death surveillance differs from NYS overdose death surveillance and data should not be combined and/or compared.

**Table 2. Opioid overdose deaths involving xylazine\*, New York State outside New York City, 2021\*\***

Substances	Counts	Opioid Overdose Deaths %
Overdose deaths involving any opioid	2,580	100.0%
Opioid overdose deaths involving fentanyl	2,358	91.4%
Opioid overdose deaths involving xylazine	135	5.2%
Opioid overdose deaths involving xylazine with fentanyl	135	5.2%

**Data source:** NYS Department of Health Bureau of Vital Records death certificate records data as of October, 2022.

\*Combinations are not mutually exclusive; 2021 data are provisional and subject to change.

\*\*NYC overdose death surveillance differs from NYS overdose death surveillance and data should not be combined and/or compared.

# IMPLICATIONS

Monitoring substances involved in overdose deaths can help identify trends in drug use, provide insight into emerging substances in the illicit supply, and guide strategies to mitigate risk of overdose and other harms. There are serious risks associated with xylazine use in humans, especially complications for overdose presentation and response, and an increased risk of fatal opioid overdose.<sup>8</sup> As such, it is important to raise awareness about clinical signs and risks of xylazine, and incorporate harm reduction practices and principles into overdose prevention and response activities.

- Signs that xylazine might be involved in an opioid overdose include prolonged heavy sedation even after naloxone has revived a person's breathing. In these cases, give [rescue breaths](#) if needed, place the person in the [recovery position](#), and call 9-1-1. Heavy sedation due to xylazine can increase risk of fall or other injuries.
- Xylazine is not an opioid and naloxone will not reverse its effects. However, since xylazine is nearly always found with fentanyl, naloxone should be administered if a xylazine-involved overdose is suspected, to reverse the effects of opioids.<sup>6,9</sup> There is no reversal agent for xylazine safe for human use.
- Repeated xylazine use can cause wounds and severe necrotic skin ulcers that may appear on the body, possibly even in the absence of injection drug use.<sup>6</sup> These wounds can often spread and worsen very quickly. Withdrawal symptoms from xylazine may also occur after prolonged use.<sup>6</sup>
- As xylazine test strips are becoming increasingly available, increased access to community-based drug checking services will enable people who use drugs to know what is in the substance(s) they are using and make more informed decisions about their use.

Please see the following list of recommended actions and resources below to learn about harm reduction and ways to reduce risk of overdose.

## RECOMMENDED ACTIONS AND RESOURCES

The following list of recommendations and resources is not exhaustive and may not apply to all audiences.

For more information about opioids and related resources in New York State, please visit <https://www.health.ny.gov/opioids>, or contact [opioidprevention@health.ny.gov](mailto:opioidprevention@health.ny.gov).

### Actions:

#### State and Local Health Departments

- Be aware that xylazine may be present in the illicit drug supply. Educate your agencies about symptoms and response.
- Inform the community about the potential presence of xylazine in the unregulated drug supply and signs of xylazine-involved overdose.
- As all xylazine-involved overdose deaths in NYS also involved opioids, particularly fentanyl, educate community members about the serious health risks associated with illicit opioids, including overdose, coma, and/or death.
- Learn how to become a registered [Opioid Overdose Prevention Program](#) in NYS to distribute naloxone and teach others to recognize, respond and administer naloxone.
- Educate community members on how to access naloxone at pharmacies and the importance of administering naloxone in any overdose involving suspected opioid use regardless of xylazine use. There is a [statewide standing order for naloxone](#), that allows pharmacists to dispense naloxone to individuals without a prescription.
- Educate community members about the potential complications of xylazine use, such as heavy sedation. If a person has been using an opioid mixed with xylazine, naloxone will still work to stimulate their breathing, even if they do not appear to wake up. Alert the community about the importance of placing individuals who are breathing, but remain unresponsive, in the rescue position and ensure they are monitored until EMS arrive. If a pulse oximeter is available, use this to check oxygen levels if trained to do so.
- Learn about the [Naloxone Co-payment Assistance Program \(N-CAP\)](#), which allows individuals with prescription coverage as part of their health insurance plan to get naloxone at pharmacies with no or lower out-of-pocket expenses. The cost of the medication is billed to the insurance company; N-CAP covers co-payments up to \$40.
- Share these [Facts about the 911 Good Samaritan Law](#) with your community to encourage individuals to call 911 for help in the event of a suspected overdose.
- Advocate for and expand the implementation of drug checking programs that utilize innovative technologies such as xylazine test strips and spectrometers to provide real-time drug data to community members, public health, and public safety.

## Health Care Providers

- Be aware that xylazine may be present in the illicit drug supply. Educate yourself about symptoms and response.
- Provide stigma-free care by withholding judgment about patients' substance use and getting [cultural competency training](#). The New York State Department of Health (NYSDOH) AIDS Institute provides clinical guidelines on [best practices](#) for patient care.
- Become familiar with the signs and symptoms associated with xylazine use, as well as the potential complications xylazine might have on overdose (e.g., heavy sedation). See the [FDA alert on risk of xylazine exposure in humans](#) and [Xylazine: What Clinicians Need to Know](#) for more information.
- Monitor patients who use opioids for withdrawal symptoms not managed by traditional opioid use disorder (OUD) treatments (i.e., buprenorphine, methadone, naltrexone), as this may indicate xylazine withdrawal. See [Management of Xylazine Withdrawal in a Hospitalized Patient](#) and [Xylazine Dependence and Detoxification: A Case Report](#) for guidance.
- Become familiar with guidance for xylazine wound care. See [Xylazine: What Clinicians Need to Know](#) for guidance.
- Refer patients who use opioids to comprehensive harm reduction programs and services provided by [Drug User Health Hubs](#) and [NYS Authorized Syringe Service Programs](#).

## County Coroners/Medical Examiners

- Determine whether your laboratory is capable of detecting xylazine and work to implement that testing as part of routine overdose investigations, wherever possible. See [Xylazine](#) for more information.
- Review the Association of State and Territorial Health Officials report, [Improving Drug Specificity and Completeness on Death Certificates for Overdose Deaths: Opportunities and Challenges for States](#), for guidance about entering information on the death certificate for drug overdose deaths.
- Establish regular and open communication with county public health and public safety officials. This is important for keeping local partners informed of emerging drug trends and needed response, specifically trends in xylazine-involved overdose deaths that are being increasingly identified throughout the US and NYS.

## Forensic and Clinical Laboratories

- Include xylazine in the basic testing panel scope and develop sensitive confirmatory procedures for detection of xylazine.
- Consider conducting laboratory analysis of seized drug samples to enhance routine surveillance.
- Share data on drug seizures in your jurisdiction with local health departments, medical examiners, and coroners. See [Xylazine](#) for more information.
- Establish regular and open communication among laboratory and coroner/medical examiner personnel with county public health and public safety officials to keep local partners informed of emerging drug trends and needed response.

## First Responders (emergency medical services, law enforcement, fire departments)

- Provide stigma-free care by withholding judgment about patients' substance use and become trained in [cultural competency](#). The NYSDOH AIDS Institute provides clinical guidelines on [best practices](#).
- Know how to promptly identify signs and symptoms of opioid overdose, including: slow or shallow breathing, erratic, or no breathing, blue or purplish-black lips or fingernails, unresponsiveness, and unconsciousness.
- Become familiar with the signs and symptoms associated with xylazine toxicity. See [Xylazine](#) and [Xylazine: What Clinicians Need to Know](#) for more information.
- Review the National Institute for Occupational Safety and Health's recommendations on [Preventing Emergency Responders' Exposures to Illicit Drugs](#).
- Be familiar with these [Facts about the 911 Good Samaritan Law](#) when responding to a 911 call for an overdose.
- If you are a participating Opioid Overdose Prevention program, please report all naloxone administrations to the NYSDOH using the [New York State Public Safety Naloxone Quality Improvement Usage Report](#) form

## Community and Family Members

- Be aware that xylazine may be present in the illicit drug supply. Educate yourself about symptoms and response.
- Find out how to obtain [xylazine test strips](#) and use them to check substances for the presence of xylazine.
- Find out how to obtain [fentanyl test strips](#) and use them to check substances for the presence of fentanyl, as all identified xylazine-involved overdose deaths in NYS have also involved fentanyl. There are currently no widely available tests for rapid xylazine detection.
- Check the [Community Calendar of Opioid Overdose Trainings](#) for an opioid prevention training near you. Learn how to identify and respond to an opioid overdose and be trained in how to administer naloxone.
- Learn about the New York State [Naloxone Co-payment Assistance Program \(N-CAP\)](#), which helps to make naloxone affordable for consumers with prescription insurance.
- Be aware that overdoses may involve multiple substances, and only opioids are affected by naloxone. If you suspect someone is experiencing an opioid overdose, administer naloxone if available and possible, call 911, and stay with the person until help arrives. Most 911 public safety dispatchers will assist you in constant assessment of the patient's respiratory status.
- Following naloxone administration, move individuals who are breathing, but remain unresponsive, to be placed in the [recovery position](#) and monitored until EMS arrive. If a pulse oximeter is available, this can be used to check oxygen levels during this time.
- Learn about and share these [Facts about the 911 Good Samaritan Law](#), which provide protections to individuals calling 911 for help in the event of a suspected overdose.

## RESOURCES:

### Comprehensive Programs and Services for People Who Use Drugs

- Practice safer use strategies to lower your risk of overdose. Start slow, don't use alone, keep naloxone on hand.
- No matter what drug or drugs you use, reduce your risk of overdose by building a [safety plan](#) and sharing it with someone you trust.
- To [request xylazine test strips](#) and learn about how to use them, visit [NY MATTERS](#).
- Where available, use [drug checking services](#) to be more informed about what is in your substance(s). Contact [Drug.Checking@health.ny.gov](mailto:Drug.Checking@health.ny.gov) for information on services that may be available in your area.
- Learn the “411” about fentanyl, why it may increase your risk of overdose, why it is important to be cautious of the presence of fentanyl in all drugs, and not just opioids, and how you can reduce that risk.
- To help locate Syringe Exchange Programs (SEPs), Expanded Syringe Access Programs (ESAPs), Safe Sharps Disposal, Naloxone, and Hepatitis C testing in New York State, visit [“The Point”](#).
- To access available programming and services offered by a Syringe Exchange Program, check [this list of NYS-Authorized Syringe Exchange Programs](#) for a program serving your area, including days and times of operation.

### Wound Care Resources

- People with wounds and ulcers are encouraged to clean their skin regularly and to seek medical attention if the wound becomes infected (pain and soreness, swelling, redness, draining, or fever) or if they have signs of sepsis (confusion, disorientation, extreme pain, and fever).
- People who inject drugs are also encouraged to practice safer injection including regular handwashing, cleaning skin area with alcohol pads prior to injecting, rotating the injection site, and avoiding injecting into wounds, to reduce the risk of infections. See this [wound and abscess](#) care guide for preventing injection-related wounds and this guide for [signs, symptoms and self-care](#).
- Do not delay seeking medical attention if you are worried. Visit the New York State Department of Health website to learn about [Drug User Health Hubs](#).
- Clinicians should refer to [Xylazine: What Clinicians Need to Know](#) for guidance on wound care and more.

### Treatment and Recovery Resources

- New Yorkers struggling with an addiction can find help and hope by calling the state's toll-free, 24-hour, 7-day-a-week HOPEline at **1-877-8-HOPENY (1-877-846-7369)**, or by texting **HOPENY (Short Code 467369)**.
- Visit the [New York State OASAS Treatment Availability Dashboard](#) to locate a substance use disorder treatment program.
- To locate a Buprenorphine Treatment Practitioner through the Substance Abuse and Mental Health Services Administration, visit the [SAMHSA Treatment Locator](#) or check the [MATTERS](#) referral network.
- Learn more about [buprenorphine](#), an option for medications for opioid use disorder (MOUD), from the Office of Drug User Health.

## SUGGESTED CITATION

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# METHODOLOGY

## Data Source

The *New York State Department of Health Bureau of Vital Records* provided death certificate records for 2021. These files include only residents of, and those whose death occurred in, New York State, outside of the five boroughs of New York City. New York State consists of two registration areas for vital statistics: New York City and New York State outside New York City. Counts of xylazine-related deaths are based on searches of literal text fields and are reported by county of residence – not necessarily where the death event occurred. All NYS data provided in this report are as of October 2022, and are preliminary and subject to change.

The *New York City Department of Health and Mental Hygiene* (NYC DOHMH) provided data for 2021 from the New York City Office of the Chief Medical Examiner toxicology results and NYC DOHMH Bureau of Vital Statistics death certificate records. Mortality data for 2021 were collected through an in-depth review of data from DOHMH Bureau of Vital Statistics and NYC Office of the Chief Medical Examiner. Data were limited to individuals ages 15 to 84 and people who died in NYC. Data for 2021 are provisional and subject to change and are preliminary as of July 2022.

## Definitions

### NYSDOH

Drug overdose deaths involving opioids: include all deaths where the underlying cause of death was due to drug poisoning, regardless of manner of death or intent (ICD-10 codes X40-X44, X60-X64, X85, Y10-Y14) AND where any opioid was indicated in the other contributing causes of death (ICD-10 codes T40.0, T40.1, T40.2, T40.3, T40.4, T40.6).

Fentanyl-related deaths: include drug overdose deaths involving opioids (as defined above) where fentanyl, fentanyl analogs, misspellings, chemical pre-cursors, or metabolites were mentioned in any of the literal text fields on the death certificate record (underlying cause, immediate cause, contributing cause, other significant conditions contributing to death, and description of injury) or where fentanyl was indicated in the other contributing causes of death (ICD-10 code T40.4). This may be an underrepresentation, as only cases where fentanyl was detected and recorded are identifiable using this method.

Xylazine-related deaths: include drug overdose deaths involving opioids (as defined above) where xylazine or metabolites, including misspellings, were mentioned in any of the literal text fields on the death certificate record (underlying cause, immediate cause, contributing cause, other significant conditions contributing to death, and description of injury). This is expected to be an underrepresentation, as only cases where xylazine was detected and recorded are identifiable using this method.

### NYC DOHMH

Drug overdose deaths: include deaths in which the medical examiner certified the cause of death as an unintentional drug poisoning, the manner of death was accidental, and the underlying or multiple cause code was assigned an ICD-10 code of X40–X44, F11–F16, or F18–F19. F codes with 0.2 or 0.6 third digit were excluded, indicating substance dependence and amnesic syndrome, respectively, and on their own, are not specific to drug overdose deaths.

NYC DOHMH links death certificates with more precise post-mortem medical examiner toxicology results to abstract data on the drugs involved in overdose deaths for every confirmed unintentional drug poisoning death. Toxicology results are used to categorize overdose deaths into those involving opioids, fentanyl, and xylazine. Opioids include substances derived from “natural” opium, such as morphine or heroin, and synthetic drugs, such as methadone or fentanyl. Fentanyl includes fentanyl and fentanyl analogs. Fentanyl analogs, such as acetylfentanyl and furanylfentanyl, are similar in chemical structure to fentanyl. Fentanyl can be one of two types: synthetic opioid analgesics pharmaceutically manufactured to manage severe pain or non-pharmaceutically manufactured.

During March 2021, in response to the increased number of heroin and fentanyl seizures containing xylazine, the Office of the Chief Medical Examiner introduced a new, more sensitive test for xylazine and began testing all opioid samples for xylazine.

## Cautions

Please note that, due to a significant data lag in identifying and reporting the official causes of death and variations in laboratory capacity to detect xylazine, xylazine-related death counts are subject to change or may vary from those compiled by other sources. Improvements in data collection and reporting, such as the development of new toxicology standards, may also impact these data in the future.