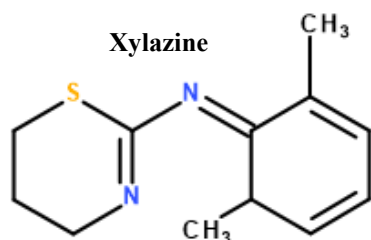




PUBLIC HEALTH ALERT

Substance abuse treatment providers, clinicians, outreach workers, public health clinics, etc. need to be aware of the following information. Xylazine is commonly used as an adulterant in heroin. Xylazine is also frequently found in a combination with heroin and cocaine called a “speedball”. Adulteration of illicit drugs with xylazine has become a serious health concern for public health officials and drug users. The drug has been implicated as a cause, or contributing cause, of death in several cases both alone and in combination with other drugs. The most common side effects in humans associated with xylazine poisoning include bradycardia, respiratory and CNS depression, hypotension, and other changes in cardiac output. **CONCOMITANT use of xylazine with heroin, cocaine and/or both can result in synergistic effects that may increase the risk of an overdose and/or of death.**

Background: Xylazine was discovered as an antihypertensive agent in 1962 by Farbenfabriken Bayer in Germany. Due to its hazardous side effects, including sedation, hypotension and bradycardia, it was not approved by the Food and Drug Administration (FDA) for human use. The FDA did however approve it for veterinary use, and it is now used as an animal tranquilizer and a sedative, analgesic and muscle relaxant. It may be sold under the trade names Rompun®, Anased®, Sedazine®, and Chanazine®. Xylazine is not a controlled substance in the United States and only requires a veterinary prescription to obtain. It has emerged as an adulterating agent in many illicit drug products, including cocaine, heroin, fentanyl and combinations of these substances. Xylazine can be used as a drug of abuse alone and as a drug for attempted sexual assault or poisoning. Xylazine is referred to as “Tranq Dope” on the street in the United States or “Anestecia de Caballo” in Puerto Rico. The drug has been implicated as a cause, or contributing cause, of death in several cases both alone and in combination with other drugs.



Frequent Indicators of Xylazine Toxicity

- CNS Depression
- Sedation
- Respiratory depression
- Initial hypertension followed by hypotension
- Bradycardia (Slow heart rate)
- Skin lesions
- Slowed wound healing
- Frequent, persistent or worsening skin infections
- Miosis
- Hyperglycemia

Recommendations for MEs & Coroners

- Test for common adulterating agents in suspected stimulant- or opioid-related death cases where xylazine may be present.

Recommendations for Forensic and Clinical Laboratories

- Include xylazine in the scope of testing.
- Develop sensitive confirmatory procedures for common adulterating agents, including xylazine.
- Consider laboratory analysis of seized drug samples taken from suspected drug overdose investigations.
- Share data on drug seizures in your jurisdiction with local health departments, medical examiners and coroners.

Recommendations for Clinicians

- Be aware that illicit drugs may contain toxic adulterating substances that may complicate the clinical presentation.
- Become familiar with the signs and symptoms associated with xylazine toxicity.
- Be aware that routine hospital drug tests will not disclose the presence of xylazine, which requires a special test.

Xylazine Positivity Reported in Seized Drug Testing in the United States

- An ongoing project at the FRFF (2017-present), supported by the Colombo Plan and JMJ Technologies, is the analysis of seized drug extracts for the presence of toxic adulterants. A summary of the xylazine findings by state can be found below. Xylazine was commonly identified in cases containing fentanyl, heroin, or a combination of the two.

State	Xylazine Positives	% Positivity
Pennsylvania (n=269)	32	10.8%
Maryland (n=32)	3	9.3%
Ohio (n=190)	26	8.8%
Vermont (n=315)	7	2.2%
Kentucky (n=200)	1	0.5%

Xylazine Positivity Reported in Syringe Testing in the United States and Puerto Rico

- In a study by [Fiorentin et. al. \(2020\)](#), xylazine was identified in 2.2% of drug positive syringes tested. Syringes were obtained from the New York City Department of Health and Mental Hygiene in 2017. Xylazine was identified in combination with heroin only or heroin/fentanyl, heroin/cocaine combinations.
- In a study by [Rodriguez et. al. \(2008\)](#), xylazine was found in 37.6% of used-syringe collections. Syringes were collected at 29 sites located throughout Puerto Rico in 2005 and 2007. Xylazine was most commonly found in “speedball” preparations (90.6%). The study noted xylazine use was associated with the presence of a skin ulcer.



Health Impacts: Ingesting xylazine alone or in combination with illicit drugs can cause severe hypotension and severe central nervous system depression.

In a study reviewing 76 xylazine reports to Texas Poison Centers between 2000-2014, the most common clinical effects were drowsiness or lethargy (47%), bradycardia (20%), hypotension (11%), hypertension (9%), puncture wound (8%) and slurred speech (8%). In 2019, Michigan, Ohio and Maryland poison centers reported opioid overdose deaths where xylazine may have contributed or was confirmed. The reports note naloxone may not reverse xylazine toxicity, but reverse respiratory depression associated with other opioids likely to be present.

Coadministration of xylazine and heroin produces a stronger high than administration of heroin alone. Research shows similar pharmacological effects of xylazine and heroin, may create synergistic toxic effects in humans. **Xylazine** alone has proven harmful to humans and even more so when combined with illicit drugs. **Concomitant use of xylazine with cocaine, opioids or a combination may potentiate or prolong the effects of these drugs, which can lead to adverse consequences. The risk of a fatality may increase with use of drugs adulterated with xylazine, especially when found in combination to opioid-related drugs due to the increased respiratory depression effects of opioids.**

The adverse symptoms of xylazine exposure should be treated with supportive respiratory care and management of blood pressure. There are mixed reports about whether xylazine responds to Naloxone (Narcan®). More severe cases of intoxication can lead to further complications and/or death.

Health providers should consider the possibility of exposure to xylazine in patients with the following symptoms: central nervous system symptoms, respiratory depression, cardiovascular effects, hyperglycemia and miosis. Additional effects that are rare but can occur include: hypotonia, dry mouth, urine incontinence, and changes in cardiac output.

COVID-19 Risks: Compromises the cardiovascular and respiratory systems.

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Xylazine Toxicity – Diagnosis and Treatment

Signs & Symptoms of Intoxication	
Physical	Behavioral
Hypotension Bradycardia Miosis Hyperglycemia Sedation	CNS Depression Similar to opioid intoxication Appears high

Signs & Symptoms of Overdose	
Physical	Behavioral
Hypotension or hypertension Bradycardia Hyperglycemia Sedation, respiratory depression or respiratory arrest Cardiac arrhythmias Muscle relaxation	CNS Depression Similar to opioid overdose Obtundation

Provider Response	
Physical	Behavioral
IV Fluids IV insulin if glucose >11.1 mmol/L function If bradycardia severe, consider atropine ECG monitoring Supportive care	Avoid CNS Depressants

Provider Response	
Physical	Behavioral
Naloxone (multiple doses may be necessary) IV insulin if glucose >11.1 mmol/L function Oxygen Intubation if indication If bradycardia severe, consider atropine ECG monitoring Monitor K and Mg; replace as needed Supportive care	Avoid CNS Depressants

FURTHER TREATMENT NEEDED:
Naloxone has a short half life and multiple doses over 4-8 hours may be necessary.