



COUNTY OF SAN LUIS OBISPO HEALTH AGENCY  
PUBLIC HEALTH DEPARTMENT  
**PROVIDER HEALTH ADVISORY**

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## **Xylazine in Illicit Fentanyl in the United States**

*Update from California Department of Public Health*

The California Department of Public Health has issued an update on xylazine, a veterinary sedative that has been increasingly present in overdose deaths in the United States.

On April 12, the White House officially designated fentanyl adulterated or associated with xylazine as an emerging threat to the U.S. Although xylazine has been detected in California, it does not appear to be widespread. However, given the unpredictable nature of the drug supply, experts are concerned that xylazine may eventually penetrate the California drug supply in greater quantities or higher concentrations and increase the instances of fatal overdose and severe skin wounds.

The following health advisory shares updated guidance for health care professionals.

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**Xylazine in Illicit Fentanyl in the United States**

**6/15/2023**

**Key Messages**

- The White House officially designated fentanyl adulterated or associated with xylazine as an emerging threat to the United States (U.S.) on April 12, 2023.
- Although xylazine has been detected in California, it does not appear to be widespread. However, given the unpredictable nature of the drug supply, experts are concerned that xylazine may eventually penetrate the California drug supply in greater quantities or higher concentrations and increase the instances of fatal overdose and severe skin wounds.
- Healthcare providers should maintain a level of suspicion of xylazine exposure when:
  - naloxone appears to be ineffective in reversing a suspected drug overdose;
  - individuals present with concomitant hypotension and bradycardia or cardiac conduction disturbances in the setting of drug use; or
  - necrotic skin ulcerations are present in a person with substance use disorder, especially opioid use disorder;
- Management is mainly supportive care related to bradycardia, hypotension, respiratory depression, and wound care as needed.

**Background**

Xylazine, also known as “tranq” or “tranq dope” is a veterinary sedative with no approval for human use. Xylazine is increasingly present in overdose deaths in the United States, compounding the overdose crisis. Philadelphia and other areas in the Northeast have been heavily impacted. From 2015 to 2021, the percentage of all drug overdose deaths involving xylazine increased from 2% to 34% in Pennsylvania. Xylazine was involved in 10% of all overdose deaths in Connecticut in 2020 and in 19% of all overdose deaths in Maryland in 2021. Nationwide, in 2019, xylazine was listed as the cause of death in 64% of deaths in which it was detected.

On April 12, the White House officially designated fentanyl adulterated or associated with xylazine as an emerging threat to the U.S. Although xylazine has been detected in California, it does not appear to have penetrated California's illicit drug supply to the extent it has in the Northeast.

## Mortality data

- **Regional:** From 2020 to 2021, the Drug Enforcement Agency (DEA) reported (PDF) an increase from 4 to 34 cases in which xylazine was detected in postmortem toxicology in the DEA's West Region, which includes California.
- **Statewide:** The California Department of Public Health (CDPH) analyzed death certificate and post-mortem information from over 5,000 decedents representing overdose deaths in 2021. Of 5059 toxicology reports, 23 (0.5%) indicated xylazine was present and of 5235 overdoses, 14 (0.3%) indicated xylazine as involved in cause of death.
- **San Francisco:** The medical examiner retroactively tested fatal overdose cases for xylazine. Four out of 145 cases (2.8%) tested positive between mid-December 2022 and mid-January 2023. All cases also tested positive for fentanyl.
- **Santa Clara:** has reported one death attributed to multiple substances, including xylazine.

## Drug checking reports

- **Sacramento:** In 2022, 10 samples were identified where fentanyl was contaminated with xylazine.
- **San Diego:** In 2022, less than one percent of drugs seized and tested by the DEA contained xylazine. A separate analysis of 600 drug samples found zero that contained xylazine.
- **Los Angeles:** The County Sheriff's Office detected the presence of xylazine in drug samples four years ago.

While xylazine appears to be at low levels in California, the illicit drug supply is unpredictable and experts are concerned that xylazine may eventually penetrate the California drug supply in greater quantities or higher concentrations. Healthcare providers and community-based organizations serving people who use drugs should be vigilant for the presence of xylazine.

## Information to communicate

### Xylazine Use

Xylazine can be swallowed, inhaled, smoked, snorted, or injected into the muscle or vein. Some people who use drugs might use xylazine intentionally to prolong the shorter high that results when using fentanyl. Other people might not be aware the drug they purchased contains xylazine. Warning people who use drugs to stay away from xylazine as the only means of prevention will have limited effectiveness given the nature of addiction.

### Health Effects of Xylazine

#### *Clinical presentation*

- Reported effects of xylazine in humans include central nervous system depression, respiratory depression, hypotension, bradycardia, cardiac conduction disturbances, and drowsiness and lethargy.

- Xylazine is an alpha-2 adrenergic receptor agonist with a chemical structure similar to phenothiazines and clonidine.
- *Clinical management:* Supportive care, including fluids and rescue breathing. Respiratory depression may require oxygenation and ventilatory support; hypotension may require vasopressor support.

#### *Withdrawal*

- Withdrawal symptoms may appear when xylazine use is abruptly stopped. No FDA medication is currently approved for withdrawal from xylazine.
- *Clinical management:* In addition to supportive care, other alpha-2 agonists such as dexmedetomidine, tizanidine, and clonidine may help to control symptoms. In Philadelphia, which is considered the epicenter of illicit xylazine use in the US mainland, the Philadelphia Department of Public Health [1] (PDF) and Penn Medicine's Center for Addiction Medicine and Policy[2] (PDF) have posted withdrawal management approaches which are being used with some success. Withdrawal for opioid use disorder should also be addressed, including use of opioid agonists.

#### *Skin wounds*

- Frequent xylazine use is associated with a higher prevalence of skin problems, including abscesses, ulcers, and infections, when compared with the incidence of skin infections among people who use drugs without xylazine. Severe infections and necrotic skin ulcerations among people who repeatedly inject xylazine can appear beyond the site of injection.
- *Clinical management:* Wounds should be treated as early as possible to avoid further complications. Antibiotics may not be needed if no concurrent bacterial infection is present. Wounds should be cleaned with soap and clean water, and the wound bed should be kept moist. Alcohol, hydrogen peroxide, and other drying agents should be avoided. Awareness of the appearance of xylazine-related wounds[3],[4],[5],[6] and effective treatment can prevent unnecessary amputations.

## **Testing and monitoring for xylazine**

*Clinical samples:* Testing for xylazine may be available for retrospective confirmation of suspected xylazine poisoning, depending on your local hospital and laboratory, and can be considered in the following situations:

- in cases where naloxone appears to be ineffective in reversing a suspected drug overdose
- when individuals present with concomitant hypotension and bradycardia or cardiac conduction disturbances in the setting of drug use
- when necrotic skin ulcerations are present in a person with substance use disorder, especially opiate use disorder

As of this notice, there is no Food and Drug Administration-approved laboratory test for xylazine; xylazine can be identified via laboratory-developed tests at commercial and research laboratories. CDPH is aware of two commercial laboratories that accept clinical samples and can detect exposure to xylazine, Labcorp and NMS.

The University of California, San Francisco Clinical Laboratory at Zuckerberg San Francisco General Hospital will accept clinical samples; contact Dr. Kara Lynch (kara.lynych@ucsf.edu) for additional information.

Additional laboratories may also provide testing. CDPH is exploring ways to support xylazine testing infrastructure in California.

*Post-mortem toxicology:* Testing for xylazine may be appropriate for post-mortem toxicology if xylazine use is suspected or when potential “anomaly” or “unknown” substances are identified. Routine screening for xylazine in post-mortem toxicology may provide useful data to determine cause-of-death and may be an effective way to study and monitor population trends locally and across the state. CDPH is exploring ways to support xylazine testing infrastructure in California.

## Support for people with opioid use disorder

As xylazine use is often intentionally or unintentionally paired with opioid use, particularly fentanyl use, healthcare providers should continue to support harm reduction and cessation support, including:

- **Educating patients who use drugs about this emerging threat, the effects of xylazine, and the lack of reversal agent.** Core harm reduction messages to communicate are:
  - While naloxone will not reverse the effects of xylazine, it remains an effective harm reduction tool for preventing overdose deaths and restoring breathing, even if consciousness is not fully restored. Naloxone should still be given even if the cause of a suspected overdose is unknown.
  - Xylazine cannot be detected with fentanyl test strips and people using them should be aware that their drugs could contain xylazine, increasing overdose risk even when the test for fentanyl is negative.
- **Support community-based naloxone distribution to people who use drugs.** Overdose education and naloxone training should be updated to include training to recognize situations where xylazine is contributing to respiratory depression in which case rescue breathing and ventilatory support may be needed.
- **Expand access to medication for opiate use disorder (MOUD)** and reduce entry-point barriers to MOUD in mobile clinic, emergency department, and criminal justice settings.

### Footnotes

[1] Xylazine (tranq) exposure among people who use substances in Philadelphia (PDF)

[2] Best Practices for Management of Xylazine Withdrawal and Xylazine-related Overdose (PDF)

[3] Xylazine-Induced Skin Ulcers in a Person Who Injects Drugs in Philadelphia, Pennsylvania, USA - PMC (nih.gov)

[4] Cutaneous Skin Infection Associated with IV Xylazine and Cocaine Use (PDF)

[5] Xylazine – Medical and Public Health Imperatives

[6] Xylazine (“Tranq”): The Potential for Loss of Life and Limb

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