

Xylazine: Animal tranquilizer in the drug supply

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As mentioned in a previous [post](#), the nature of the opioid epidemic is changing to include stronger and more potent substances. But fentanyl, and fentanyl analogues, are not the only substances that localities are finding in their community's illicit drug supply.

JHU Post-Doctoral Fellow, Olivia Sugarman, tells us more about one of these emerging substances.

What is xylazine?

[Xylazine](#), also called “tranq”, is a non-opioid animal anesthetic for large animals like cows and horses that is showing up more frequently in the drug supply with other opioids, most often fentanyl. It first appeared in the Puerto Rican street opioid supply around 2005 known then as “[anastesia de caballo](#)” and showed up in the US illicit drug supply in [2015](#).

Xylazine is added to fentanyl and other opioids to “give legs to” or extend an opioid’s high. On its own, a fentanyl high may start and end relatively quickly – about [thirty minutes to an hour](#) – depending on the concentration, user’s tolerance, and intake method. On the other hand, xylazine’s effects can last between [8 and 72 hours](#). People selling drugs may also add xylazine to extend their drug supply because xylazine is

and prescription opioids.

Why is xylazine a problem?

Xylazine is a public health problem because it increases the risk of drug overdose as it is a [respiratory depressant with no reversal agent](#), leads to intense [withdrawal symptoms](#), and causes severe [skin wounds](#).

Because xylazine is not an opioid, naloxone [doesn't work](#) to reverse overdoses that involve xylazine. Importantly, using naloxone in overdoses is still recommended because xylazine is usually used with an opioid, so naloxone will reverse the effect of the opioid. So far, there is not a reversal agent like naloxone available to reverse xylazine overdoses.

Xylazine is also associated with abscesses and severe skin infections, some of which [may require amputation](#). There are some reports that infections can occur [regardless of intake method](#) – if it's injected, smoked, or snorted. If injected, infections can occur away from the injection site. While the exact cause of xylazine-related wounds is unknown, some researchers suggest that wounds might be caused by [low tissue oxygenation](#), which may lead to less wound healing and higher chances of wound infection. Others suggest that painful xylazine-related ulcers may [promote injecting xylazine](#) directly into the wound to anesthetize the area and alleviate the pain.

Where is xylazine showing up?

Xylazine is increasingly present in overdose deaths, and its presence in the drug supply and in overdose deaths is spreading [westward from the Northeast](#). In 2021, xylazine was found in [19% of Maryland overdose deaths and in 26% of overdose deaths in Pennsylvania](#). Recent estimates show that about [91% of Philadelphia's drug supply](#) contains xylazine. A

people who were not self-described xylazine users. There are presently not good data on the prevalence of intentional xylazine use among people who use drugs. What we do know is from [early case reports](#) about xylazine ingestion (intentional and accidental), studies of [xylazine exposure and health outcomes from Puerto Rico](#) between 2005-2012, and [public health surveillance reports](#) from Northeastern states.

How is xylazine detected?

Xylazine-testing methods and infrastructure are spotty across cities and states. Drug detection and surveillance requires personnel with specific expertise, and complex, expensive mass spectrometers. Some cities or state health departments have inadequate access to such personnel or testing equipment. Even among private drug testing companies, xylazine is only recently being added as a substance to test for.

There are currently no national or standardized xylazine surveillance measures. Xylazine has, however, been reported as part of some public health surveillance practices, either by state coroners, the [National Forensic Laboratory Information System](#), and broader Drug Enforcement Administration surveillance because it is increasingly detected in autopsies and drug seizures. But there is no broadly available source of raw data that researchers could use to find trends in xylazine use among people who use drugs (with or without their knowledge), distribution patterns, overdoses, and overdose mortalities.

Because xylazine testing infrastructure and data are lacking, there isn't much current research about xylazine as an illicit opioid adulterant. Altogether, more research is needed to better understand the scope of xylazine and other drug adulterants as public health problems and identify innovative, scalable solutions. To do more research, more drug surveillance and data sharing infrastructure is needed to detect xylazine and other drug adulterants.

supply and its physical effects, c) additional patient and clinical education about xylazine, and d) establishing xylazine-specific harm reduction best practices.

As states and counties receive settlement funds, states can address these and additional needs by investing settlement funds in expanded surveillance, testing, research, and practice efforts specific to xylazine and for other drug adulterants. Below are some specific investment recommendations for states and counties to directly enhance xylazine detection and overdose and wound prevention efforts.

1) Invest in xylazine test strip research and development. Similar to fentanyl test strips, [xylazine test strips](#) could help people who use drugs identify when xylazine is present and then inform their decision to use that batch of drugs, or how to use it differently.

2) Invest in enhancing state, county, and city drug testing infrastructure. Funds could be used to hire personnel, invest in mass spectrometry machines, and otherwise support scant or non-existing drug surveillance infrastructure. Investments in testing infrastructure would not only inform how to address xylazine as a growing problem, but in identifying and addressing future drug supply adulterants.

3) Support harm reduction services offering sterile injection or snorting supplies and wound care kits. Making sterile supplies available may decrease the risk of developing wounds and kits may decrease wound severity.

4) Create provider learning networks to establish xylazine-specific harm reduction, wound treatment, and withdrawal abatement best-practices. Given that naloxone does not work on xylazine and that xylazine-specific wounds and withdrawal are especially brutal, existing harm reduction and treatment tools do not meet treatment needs. Establishing learning networks of all providers (harm reduction, social

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states have public-facing opioid surveillance dashboards both with or without downloadable data. Opioid settlement funds for states could be used to create new or amend existing dashboards to include xylazine distribution, detection, ingestion, or overdose. Making raw, de-identified dashboard data downloadable can also enhance research opportunities.

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