



Using Xylazine Test Strips for Drug Checking In the New England Region (2024)

From The Massachusetts Drug Supply Data Stream (MADDS)

- Xylazine is increasingly present in the New England drug supply, as an enhancing agent, mixed with fentanyl and in street drug samples sold as cocaine or methamphetamine.
- Xylazine exposure has been linked to ulcerating skin wounds, oversedation, overdose, and withdrawal symptoms.
- Given that safe dosing in humans has not been studied, minimizing xylazine exposure is the safest approach to avoiding these health problems.
- Xylazine test strips (XTS) are newly available and marketed to test for xylazine, yet they have not been tested thoroughly.
- StreetCheck has examined the use of XTS on about 500 New England community drug checking samples. Findings:
 - WiseBatch/BTNX XTS are SPECIFIC, but not SENSITIVE, which means that when XTS are positive, xylazine is present (low false positive likelihood=good). However, when XTS are negative, xylazine may still be present (high false negative likelihood=bad).
 - [Note that this is the opposite finding from fentanyl test strips, which are highly SENSITIVE, but only moderately SPECIFIC (low false negative, but moderate false positive).]
 - The SENSITIVITY can be improved by increasing the concentration by dissolving more drug in less water - see below.
 - We recommend coupling BTNX XTS with DTM xylazine cassettes and/or FTIR to help improve xylazine detection.
 - Because of the high false negative rate, we caution against the widescale community distribution of XTS beyond the use in community drug checking programs that can provide training and additional forms of testing like DTM and FTIR.



Recommended Toolkit for Xylazine Test Strips

The following tools may be useful when using BTNX XTS, Wisebatch XTS and/or DTM XTS cassettes to test for xylazine:

1. 5 mg black microscop
2. 1 mL disposable syringe
3. Dental tool
4. Squeezable wash bottle
5. Plastic medicine cup
6. Permanent marker
7. PPE / Gloves



5 mg sample



1 mL water



5 mL water



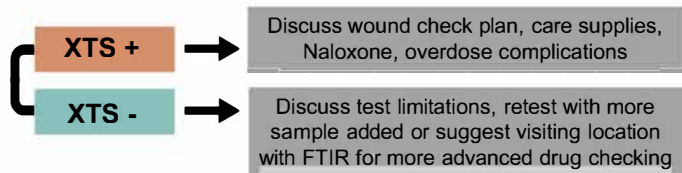
DTM XTS Cassette



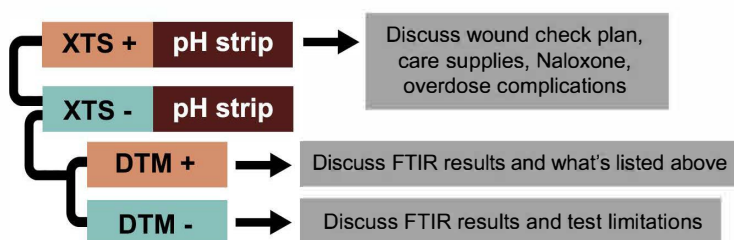
BTNX and WiseBatch XTS

Possible Testing Pathways:

If no FTIR testing on-site, use XTS:



If FTIR testing is available on-site, start with FTIR and use all available tools:



We recognize WiseBatch XTS and BTNX XTS are produced by the same manufacturer

Instruction Guide: Using Xylazine Test Strips for Drug Checking

Among the 500 samples we tested in New England, the XTS false positive rate was very low, so a positive XTS result is reliable. However, the XTS false negative rate was approximately 40% and therefore a negative XTS result is not reliable. We recommend the following procedures to reduce the false negative rate for xylazine and facilitate other drug checking:

Procedure for testing suspected opioids for xylazine:

1. Crush and mix the entire sample into a fine powder
2. Add 5 mg or 1 black microscop of sample to a plastic medicine cup
3. Add 1 mL of water to the cup
4. Swirl the solution until dissolved
5. Test with BTNX XTS (at 5 mg in 1 mL of water) and interpret results (like FTS)
6. Test for pH level if able by dipping a pH strip into the solution
- * If negative on BTNX XTS, continue with steps below
7. Add 4 mL of water, so total volume of 5 mL
8. Test with DTM cassette (at 5 mg in 5 mL of water) and interpret results (like FTS)
9. Test with FTS (at 5 mg in 5 mL of water) and interpret results

If sample is suspected to be cocaine/crack/meth/MDMA, test 10-15 mg of sample per 1 mL of water for XTS. Do not use this solution to test with FTS.

Understanding pH levels can be helpful because:

- Acidic substances can irritate the skin, mucosa, and is associated with abscess and skin infection
- Cocaine, crack, ketamine are also slightly acidic
- Adding vitamin C/ascorbic acid also makes a solution more acidic
- Xylazine has a pH of 5.5 (slightly acidic)
- May be part of why xylazine wounds appear
- Finding a pH below 7 is not an indicator for xylazine but can help inform decisions for harm reduction, wound care, etc.
- Can inform the participant of pH level and ways to be safer

We do not recommend XTS for testing residue or remnant drug at this time. Instead, JUST SCAN IT! Unsure if you see xylazine on the scan? We're glad to help, contact us at madds@brandeis.edu or post to SLACK.

Xylazine Test Strip Messaging and Result Delivery Suggestions

- Describe results as indicated by XTS, DTM cassette, pH strip, and interpreted results from FTIR analysis
- Discuss limitations of drug checking technology: 5% limit of detection on FTIR, false - and false + rates, (~40% false negative and ~5% false positive in New England opioid samples), etc.
- Consider common test strip discrepancies and use what information you know about drug checking tests and the drug supply: lot variation, solution preparation technique, the prevalence of xylazine in regional drug supply, etc.
- Set expectations on the lab: time frame, results given are active components only
- For xylazine positive result: counsel with xylazine harm reduction tips and tools, checking body for wounds, wound care supplies, naloxone, overdose complications
- For xylazine negative result: discuss testing tools are not 100% accurate and how xylazine could be present under the limit of detection
- We are only able to identify if something is there, we can't rule anything out; focus on what is detectable
- Invite questions
- Encourage them and their supplier to check drugs

A special thank you to those that participated in or helped to fund the Massachusetts Drug Supply Data Stream's xylazine test strip pilot:



*All samples were provided by harm reduction programs or donated by police departments for MADDS testing. MADDS is a state funded collaboration between Brandeis University, the Massachusetts Department of Public Health, various town police departments, and local harm reduction agencies. Funding for the drug checking network was provided by RIZE MA Foundation. For more information or to connect with us about drug checking collaborations, please visit streetcheck.org, or contact us at madds@brandeis.edu.