



UNC SON **ECHO** for MOUD

Addiction and Behavioral Clinic for Medication for Opioid Use Disorder Treatment

WHAT YOU SHOULD KNOW ABOUT XYLAZINE
ANDREA HOWELL, BSN, RN
UNC PMHNP STUDENT

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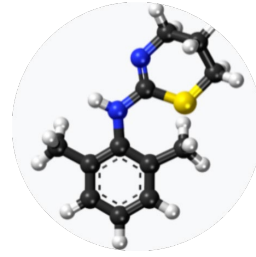


University of North Carolina
at Chapel Hill
School of Nursing

Disclosures

None to disclose

Objectives



- INTRODUCTION
- LICIT USES
- DEA UPDATE
- PHARMAKOKINETICS
- LAB TESTING
- EXPOSURE & TOXICITY
- WITHDRAWAL
- REDUCING HARM
- RURAL UPDATE



Introduction: Pharmaceutical to Adulterant



- 1962 – synthesized by Bayer (clinical trials cancelled)
- FDA approved for veterinary uses only
 - sedative
 - muscle relaxant
 - analgesic
- 2000s emerged illicitly in Puerto Rico
 - "anesthesia de caballo" (horse anesthetic)
 - Within 10 years was mono substance detectable in lab tests
- 2006 emerged in the continental US in white powder heroin in Puerto Rican communities in N.E. big cities
- An adulterant of illicit fentanyl with increasing prevalence
 - "Tranq", "tranq dope" "zombie drug"
 - As a speed ball to potentiate the effects
 - Leads to adverse effects





DEA UPDATE:

(U) Figure 2. Number of Xylazine-Positive Overdose Deaths by Region

Region	2020	2021	Percent Increase
Northeast	631	1,281	103%
South	116	1,423	1,127%
Midwest	57	351	516%
West	4	34	750%

Source: DEA

(U) Figure 1. DEA Forensic Laboratory Identifications of Xylazine by Region

Region	2020	2021	Percent Increase
Northeast	346	556	61%
South	198	580	193%
Midwest	110	118	7%
West	77	163	112%

Source: DEA

Regulation and cost

- Currently not a controlled substance by the DEA
- Not detectable upon seizure by law enforcement
- Veterinary xylazine (liq. or powder) can be bought online without proof of legitimate veterinary license
- Powdered form can be bought from China (\$6-20/Kilo)

Regional availability

- significant jump in all for census regions '20-'21
- Direct reports of signs and symptoms
- Initiate targeted & coordinated effort to inform the community
 - New initiates to substances and those at risk to be
 - People who use chronically
 - Members of the greater



Pharmacokinetics



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- Alpha-2 adrenergic agonist (activator)
 - Decreases release of norepinephrine & dopamine in CNS
 - Inhibiting CNS neural transmissions
- Variable affinity for cholinergic, serotonergic, dopaminergic, alpha-1 adrenergic, histaminergic or opiate receptor mechanisms
- Onset: 1-2 m, peak: 30 m, variable duration (4-72 hrs.)
- Synergistic w/opiates, and sedative hypnotics
- Pharmacokinetics vary between animal species and humans
- Metabolized by CYP450 w/ 70% excretion in urine
- Cleared from urine within hours
- Reduces cellular sensitivity to insulin and glucose (hyperglycemia and hypoglycemia)
- Highly Lipophilic and crosses BBB

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Lab Testing

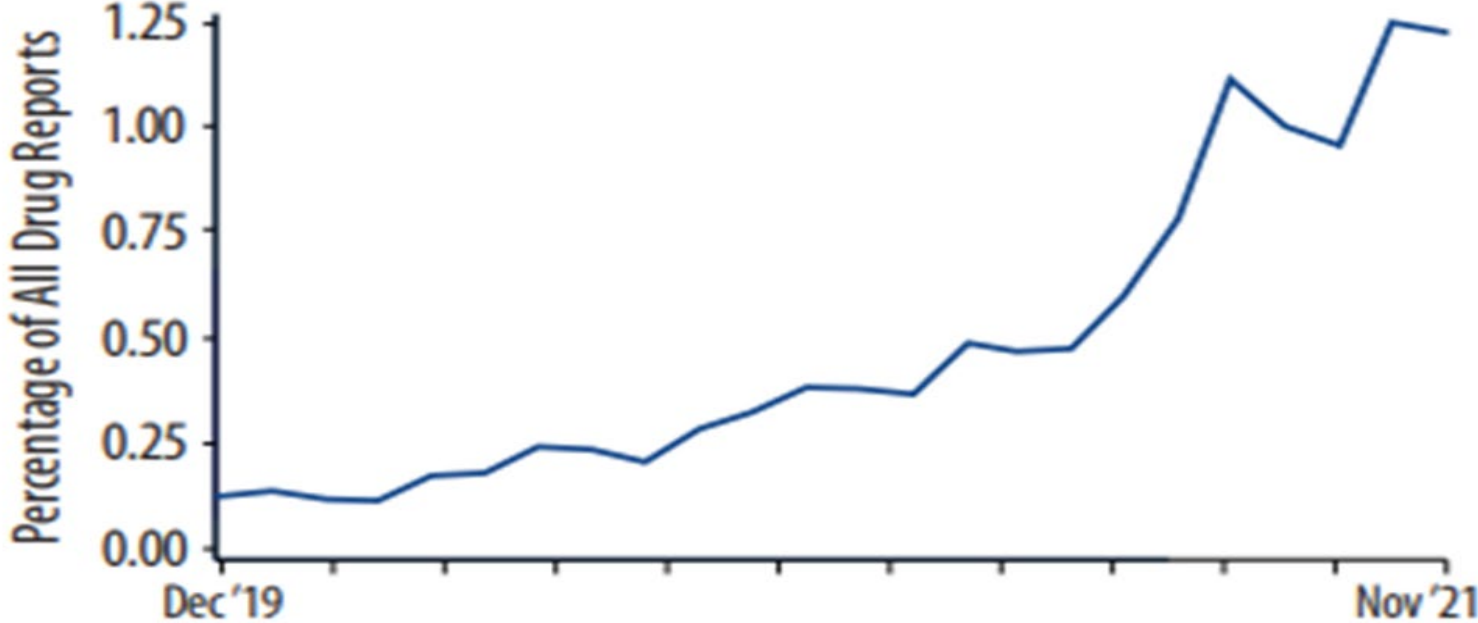
- Send out testing
 - Gas chromatography mass spectrometry
 - Liquid chromatography mass spectrometry
 - Thin layer chromatography
- No POC test available
- Lab Corp TEST: 703025 CPT: 80307
- Sample: Urine
- Cost: \$150 (\$125 on sliding scale)



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Upward Trend by Date Submitted to Lab



Xylazine

Source: DEA NFLIS

Toxidrome

Acute:

- Blurry vision
- Dry mouth
- Hypotension
- Bradycardia
- Weak reflexes
- Profound sedation (not resolved w/Narcan)
- Slurred speech
- **RISK OF OVERDOSE**
- Subclinical anemia

Toxicity

CNS:

- Areflexia
- asthenia,
- Ataxia
- blurred vision
- **Coma**
- **Disorientation**
- Dizziness
- inability to speak loud
- Faintness
- Pin-point pupils
- **Seizure**
- slow/slurred speech
- Inability to move tongue
- **Somnolence**
- staggering

Cardiac:

- Severe Bradycardia
- hypotension
- PVCs
- non-specific ST changes
- tachycardia

Respiratory:

- Apnea
- shallow breathing

Skin:

- Ulceration/necrosis

Endocrine

- Hyperglycemia

Chronic

- Severe skin wounds
- dysglycemia
- Chronic Anemia
- Kidney injury (rhabdomyolysis)
- Tranquilizer dependence
- Difficult wound



Withdrawal

- Flu-like symptoms (body aches, fatigue, lethargy)
- Anxiety
- Irritability
- Dysglycemia
- Allodynia (neuropathic pain to light touch, temp, etc)
- Restlessness
- Rebound Hypertension
- May require inpatient physiologic monitoring with chronic exposure
- Lit Review: acute care support similar to sedative hypnotic withdrawal tx.

Complications

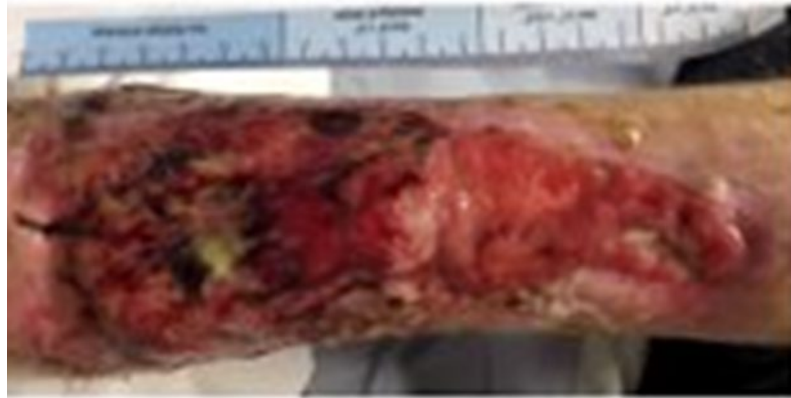
- Increased overdose risk
- Injuries d/t falls, unconsciousness while driving/walking into traffic
- Decubitus ulcers on bony prominences
- Blood clots
- Muscle and nerve damage
- Rhabdomyolysis, AKI, CKD
- Severe wounds w/ secondary infections
- Start as redness/blisters/dicolored areas in patches
- Not necessarily where injected (patho unclear: hypoexmia?)
- Very poor healing (hypoxemia d/t vascular constriction)
- Amputations



Warning!



Skin Assessment and Treatment



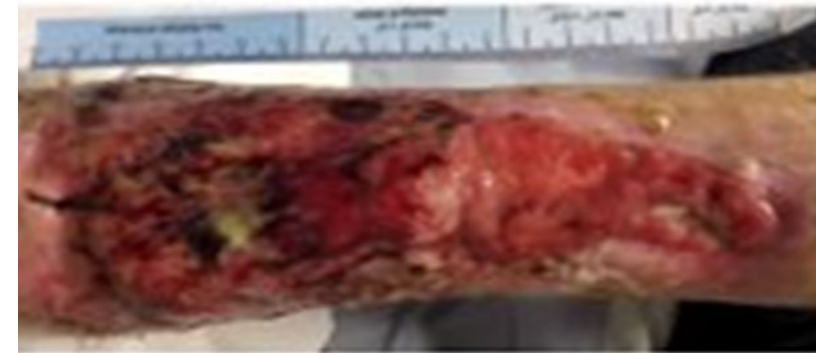
Shorrath, J. et al. Abstract published at 2010 Emergency 2010. Journal of Hospital Medicine



Shorrath, J. et al. Abstract published at 2010 Emergency 2010. Journal of Hospital Medicine



Shorrath, J. et al. Abstract published at 2010 Emergency 2010. Journal of Hospital Medicine



Shorrath, J. et al. Abstract published at 2010 Emergency 2010. Journal of Hospital Medicine

[Wound Care Guide](#)

Listen to Patient: Signs & Symptoms Xylazine is in supply

- Lost time of chunks of time
- Can't be woken up from sleep
- Pain in skin after use
- Flu-like symptoms:
 - like withdrawal but **NOT** relieved by MOUD
- "Meth makes me sleepy."
- BP ↓ after use. ↑ in withdrawal

Lethal Toxicity: Awareness into Action

20-fold increase since its presence in the N.E. supply, moved south, now west

About 1.8% of fatal toxicities in 2020

Reporting unconscious longer than usual?

NARCAN not effective against (not opioid), but still give it (fentanyl)

Call 911 (Good Samaritan Law § 90-96.2.) & give rescue breaths (1:5)

Harm Reduction for PWUD



- Make sure people who use, are aware of presence of xylazine
- **Never** use alone Give out hotline # 1 (800) 484-3731
- Lay down in safe place with padding after using
- Look for people that are more sedated or unconscious than usual
- Check breathing
- Put them in recovery position
- Roll them to one side then the other ever 2 hours
- Put padding under boney areas
 - elbows, shoulder, buttock, ankles, hips, head, etc.
- Seek medical care for wounds early, specifically using language of xylazine

Never Use Alone
English hotline: 800-484-3731
Spanish hotline: 800-928-5330
The Brave App
download in the app store



Harm Reduction

XYLAZINE IN THE DRUG SUPPLY

XYLAZINE (ZIE-LUH-ZEEN)

NAMES

Tranq
AnaSed
Rompún
Horse tranquilizer
Anestesia de caballo

- It's found in powder heroin/fentanyl mostly, and sometimes coke and meth
- It's not an opioid. It's a deep sedative, like clonidine or ketamine. It starts quickly and makes you fall out hard for about the first hour if you're not used to it
- Xylazine can give fentanyl legs so you're not sick again in two hours, but can be very dangerous when it shows up in dope unexpectedly
- If you have skin wounds that are not healing, it may be because of xylazine

THE BAD STUFF

- Xylazine causes really bad skin ulcers when injected, even beyond the site of injection, like anywhere with a bite or cut. Missed shots can make skin ulcers worse
- Xylazine may cause a life-threatening drop in your blood's ability to carry oxygen to tissues (low blood iron, but we don't know a lot about this yet)
- Other symptoms may include: High blood sugar; less bladder control; tired all the time; slower reflexes; trouble swallowing; really dry mouth

HARM REDUCTION TIPS

- It is best to avoid dope with xylazine in it if you can
- Get your drugs tested at a harm reduction program if you can
- Don't use alone. Because of the heavy sedation, be aware of your surroundings and your possessions, especially if you're somewhere that's not secure
- Some harm reductionists think it may be safer to sniff/smoke/booty-bump dope with xylazine, but we don't know what other harms this can cause
- Try to be in a comfortable seated position, it's important to be in a position that doesn't cut off circulation to arms or legs
- Eat foods high in iron if xylazine is in your drug supply. Harm reduction programs can consider testing participants for hemoglobin using handheld devices

OVERDOSE

- If someone is unresponsive, it's very very important to see if they are breathing! If they are taking 10 breaths each minute, keep an eye on them for the next hour. You don't need to use naloxone unless their breathing gets slower
- Naloxone doesn't work on xylazine BUT it will help if the opioid/fentanyl is making it hard for them to breathe
- Only if their breathing is slow or shallow, use naloxone the way you normally would (or titrate a lower dose of injectable)



National Harm Reduction Coalition. 2022

Wound Prevention & Care

Assess:

- Strange wounds
- Patches of wounds
- Local hypoxemia

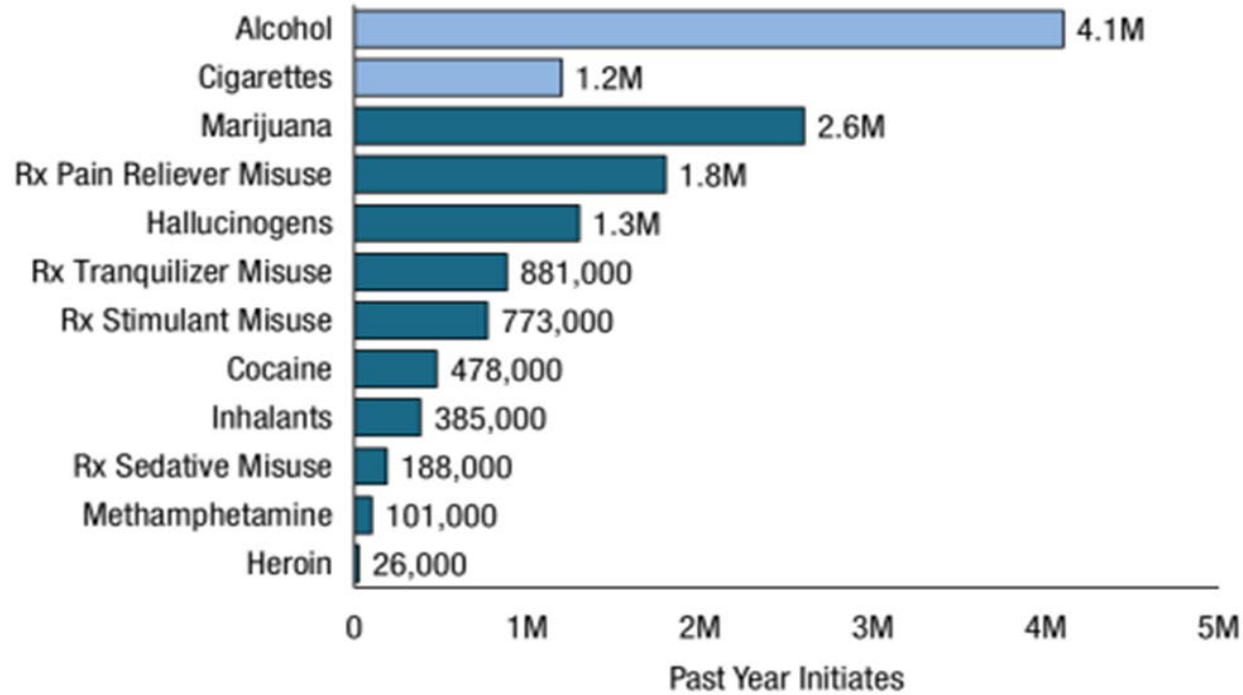
Teach:

- pts it is in the supply
- Vein & hand hygiene, clean supplies, no sharing
- Site rotation consider a diff. route
- Seek care for wounds

Self-monitoring:

- Painful spot w/fluctuance
- New numbness
- Mottled skin in/or around infected area
- Can see underlying structures
- Close to a joint
- Increased pain
- Decreased mobility

Past Year Initiates of Substances: Among People Aged 12 or Older; 2021



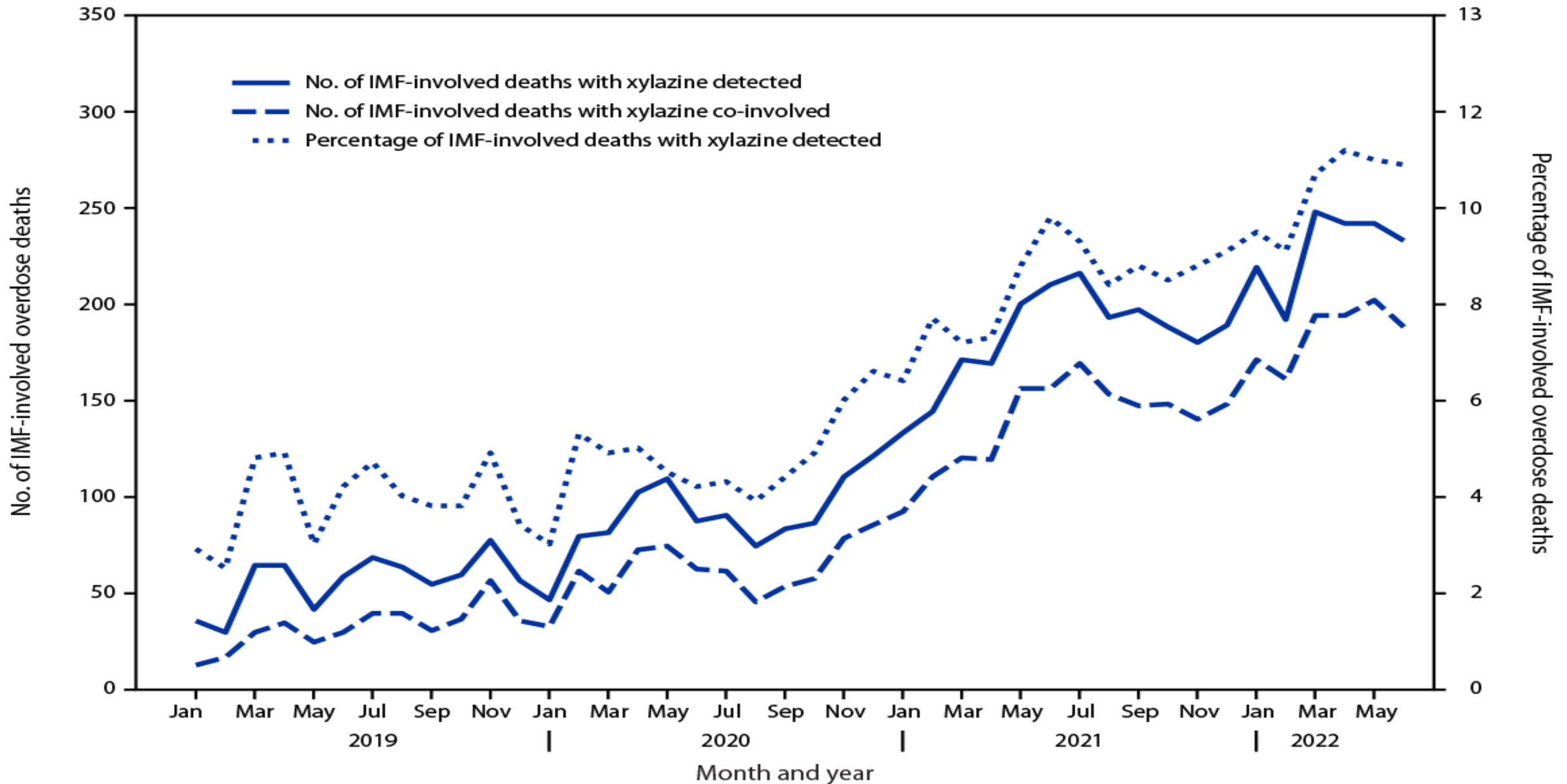
Rx = prescription.

Note: Estimates for prescription pain relievers, prescription tranquilizers, prescription stimulants, and prescription sedatives are for the initiation of misuse.





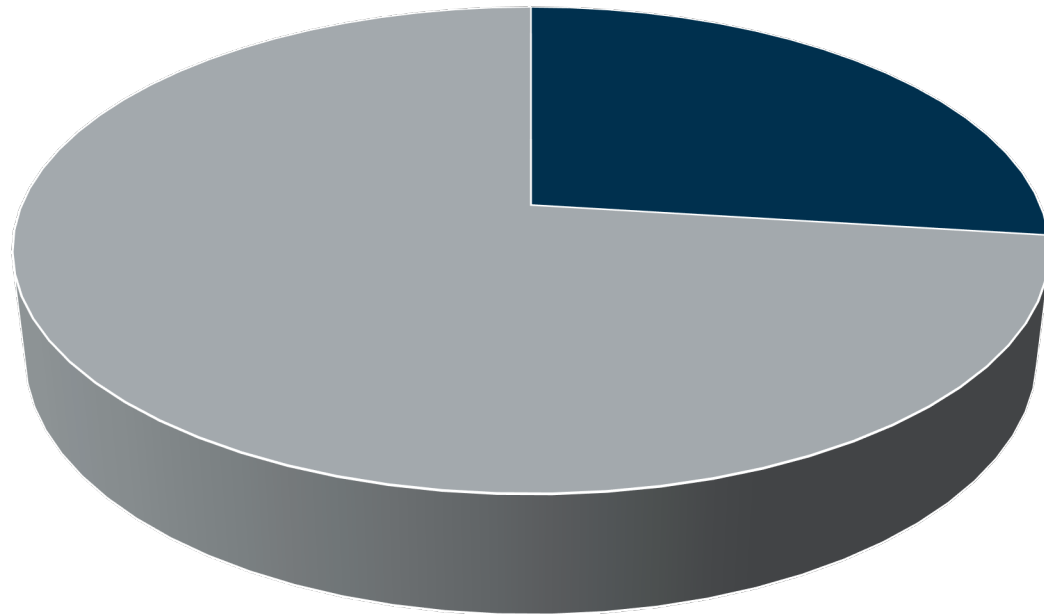
Number and percentage of drug overdose deaths involving* illicitly manufactured fentanyls, by month and xylazine detection or co-involvement — State Unintentional Drug Overdose Reporting System, 21 jurisdictions,[§] January 2019–June 2022





North Carolina

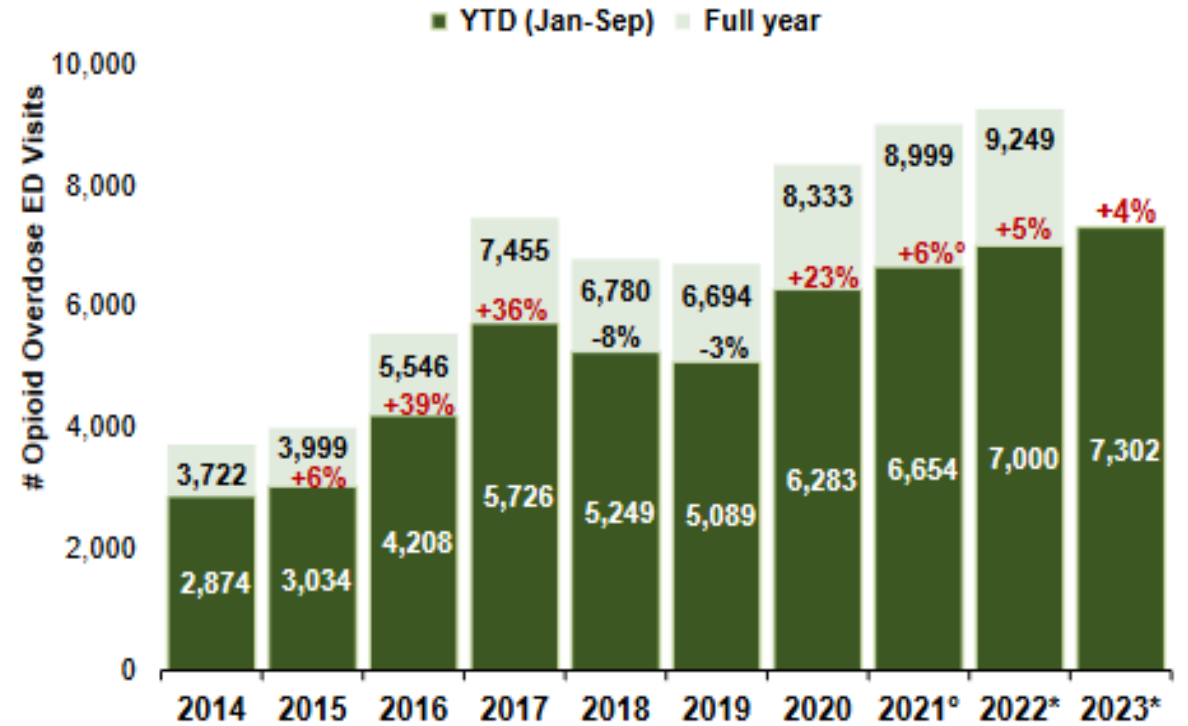
February 2023 (30 counties surveyed)



- Xylazine
- No Xylazine

Source: UNC Opioid Lab Data

Opioid Overdose ED Visits by Year: 2014-2023*



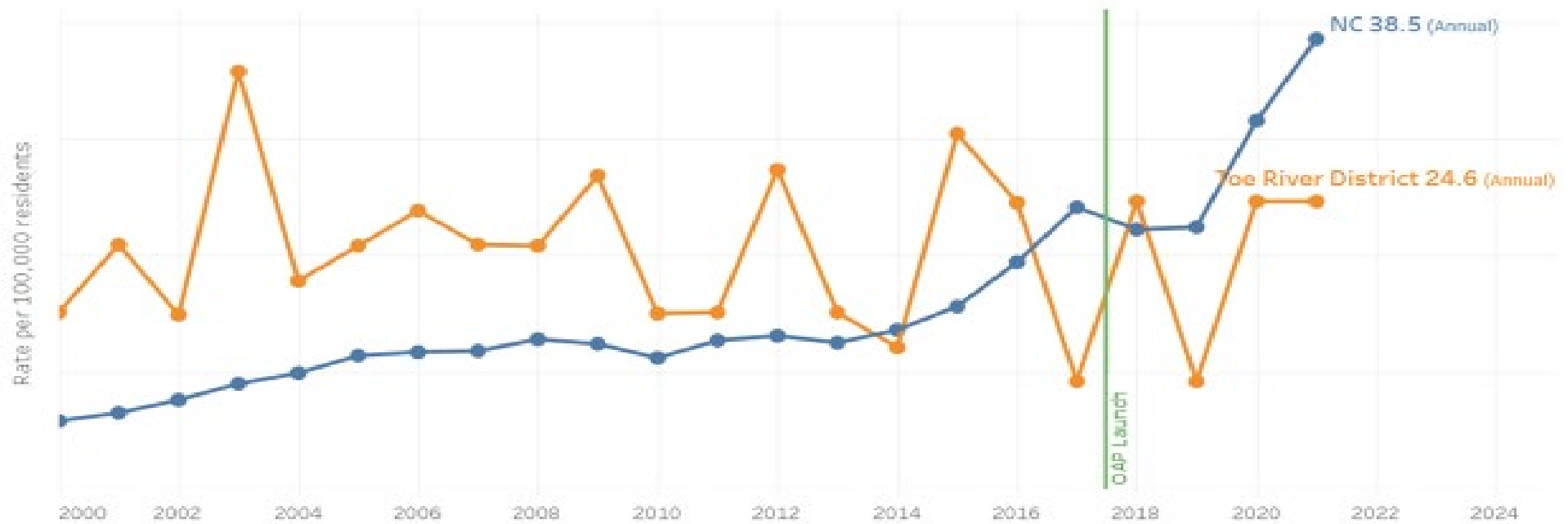
Source: NCDHHS

Deaths in Toe River District

The rate of overdose deaths among residents of Toe River District in 2021

(Annual) was **24.6**.

(Rate per 100,000 residents. Number of deaths: 8)



Data Source: NCDHHS

Data Source: NCDHHS

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MITCHELL COUNTY

North Carolina

The overdose death illicit drug involvement rate in NC was 76 out of 100 overdose deaths in 2020. This represents 2,255 people in NC who died from illicit drug overdose in that year.

Mitchell County

The overdose death illicit drug involvement rate in Mitchell County was 50 out of 100 overdose deaths in 2020. This represents 3 people in Mitchell who died from illicit drug overdose in that year.

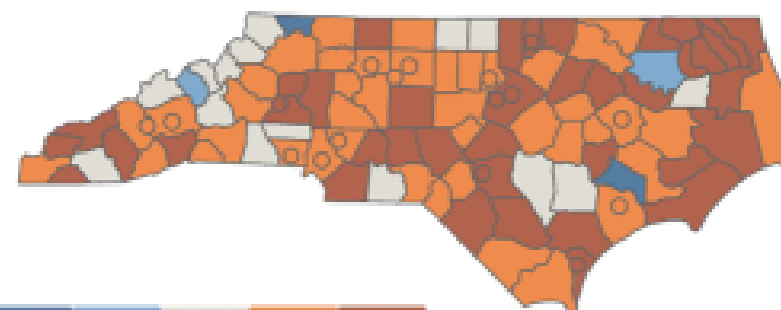
Relative to other counties, Mitchell falls in this group:

LOWEST

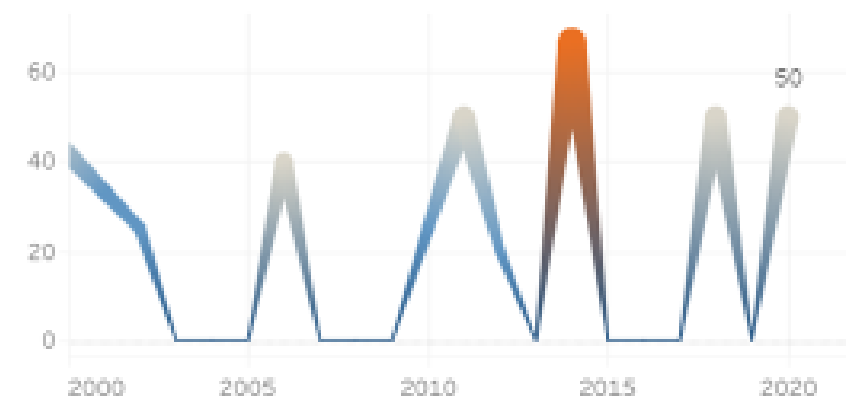


Illicit Drug Overdoses in 2020

Overdose Deaths with Illicit Drug Involvement (96)



Illicit Drug Overdoses Trend in Mitchell



Datasource: NC State Center for Health Statistics (SCHS) Vital Statistics Death Certificates. Available at: <https://schs.dph.ncdhhs.gov/>. Max year: 2020

Image Source: NC Opioid Settlement Dashboard

YANCEY COUNTY

North Carolina

The **overdose death illicit drug involvement rate** in NC was **76** out of 100 overdose deaths in 2020. This represents 2,255 people in NC who died from illicit drug overdose in that year.

Yancey County

The **overdose death illicit drug involvement rate** in Yancey County was **38** out of 100 overdose deaths in 2020. This represents 3 people in Yancey who died from illicit drug overdose in that year.

Relative to other counties, Yancey falls in this group:

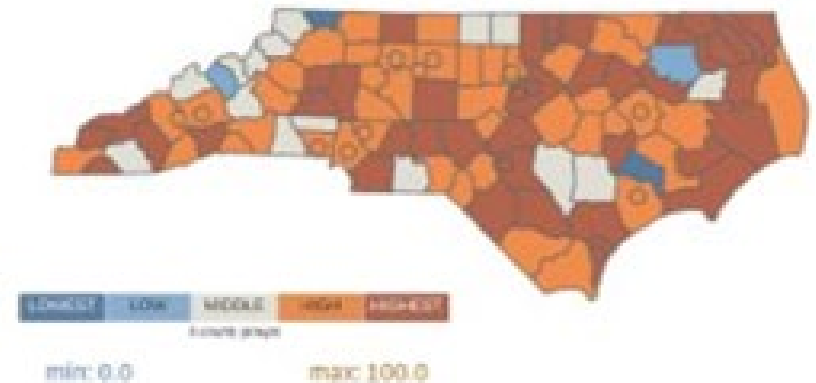
LOWEST



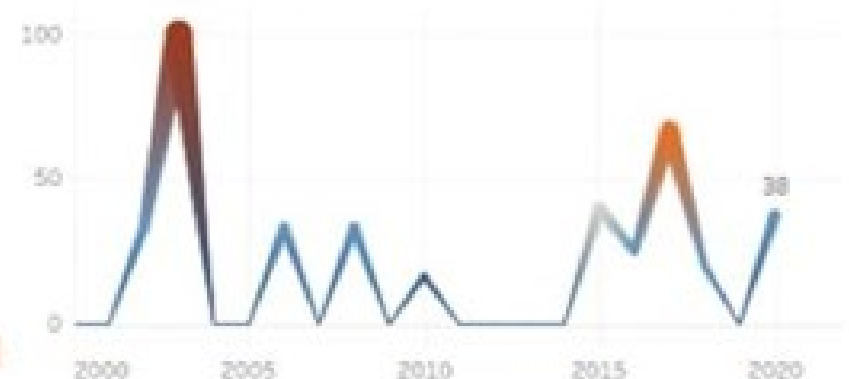
[Image Source: NC Opioid Settlement Dashboard](#)

Illicit Drug Overdoses in 2020

Overdose Deaths with Illicit Drug Involvement (%)



Illicit Drug Overdoses Trend in Yancey



Data source: NC State Center for Health Statistics (SCHS) Vital Statistics Death Certificates. Available at: <https://schs.dph.ncdohhs.gov/>. Max year: 2020

[Image Source: NC Opioid Settlement Dashboard](#)



Outlook

NIDA-supported research is underway

Local and State-level

Raising Awareness

Action Plans

[Governors' Institute](#)

Grayken Center for Addiction

Thank You!!

- University of Pittsburgh Medical Center
- Prevention Point Pittsburgh
- Grayken Center of Addiction
- Responding to Xylazine in the Drug Supply Part 1&2. National Harm Reduction Coalition Office Hours. 4.8.2022
- Sara Wallace-Keeshen, BSN, RN, Rachel McFadden, BSN, RN, CEN, & Rebecca Hosey, MPH, BSN, RN. Basics of Wound Care. Substance Use Response Guidance and Education. 9/2022.
- Claire Zagorski, MSc, LP. What we need to know about Xylazine. Be Well Texas ECHO. 10.6.22
- Dr. Joseph D’Orazio. Toxicity of Xylazine and How it impacts treatment for people who use drugs. COBRE on Opioids and Overdose. 6.16.22
- Mary Wheeler, Healthy Streets Outreach Program
- Jason Bienert. Experiences with Xylazine-related problems. From a Wound care nurse, Voices of Hope, Cecil & Hartford County, Maryland.

Please email us your experience and questions with xylazine so we can have shared learning!

jawar@upmc.edu
Stephen.murray@bmc.org

Boston Medical OBAT Trainings
Free w/CEs
Evidence-based

[ECHO: Xylazine and Tips on Wound care](#)
[Date: 3/14/23 and ongoing](#)

[Zeroing in on Xylazine Training](#)
[Date: 3/29/23](#)



R. Jawa & S. Murray



Resources



[Warnings about Xylazine](#)



Grayken Center for Addiction
Training & Technical Assistance
Boston Medical Center

<http://addictiontraining.org/>



[State and National Overdose
Web Workbook](#)



[Xylazine | National Institute on Drug
Abuse \(NIDA\) \(nih.gov\)](#)



[Xylazine \(usdoj.gov\)](#)



[US New & World Report](#)



[https://www.cdc.gov/mmwr/volumes/
72/wr/mm7226a4.htm#F1_down](https://www.cdc.gov/mmwr/volumes/72/wr/mm7226a4.htm#F1_down)

Full list in notes below

THANK YOU



Andrea Howell, BSN, RN



andrea.howell@unc.edu

Together, we CAN save lives!