

Addressing an Emerging Threat: Understanding the Basics of Xylazine

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Richard Jones is an experienced therapist, clinician, and health care entrepreneur operating primarily in the behavioral health space. Richard has wide-ranging professional experience across nearly all behavioral health domains, including mental health, substance use disorders, co-occurring disorders, and intellectual disabilities.

He has over 20 years of management experience and has been instrumental in the launch and rebuild of multiple programs nationwide. Richard is passionate about providing quality care and supporting people in need. He has been the founding CEO of two non-profit organizations and two for-profit businesses dedicated to disrupting the behavioral health space for the betterment of people in need.



- Masters Arts (MA) Sociology with Concentration in Addiction Studies
- MBA with Concentration in Healthcare Management
- Licensed Clinical Addiction Specialist (LCAS, # 4752)
- Certified Co-Occurring Disorder Professional (CCDP, # 5492)
- Certified Clinical Supervisor (CCS, # 4752)
- Internationally Certified Advanced Alcohol and Drug Counselor (ICADC, #114793)
- Internationally Certified Clinical Supervisor (ICADC, # 600033)
- Internationally Certified Co-Occurring Disorders Professional (ICADC, #300087)
- Department of Transportation Substance Abuse Professional (SAP, #13546)
- Certified ARISE Interventionist
- Certified Employee Assistance Professional (CEAP, #48034)
- Certified EMDR Trauma Therapist

Sources

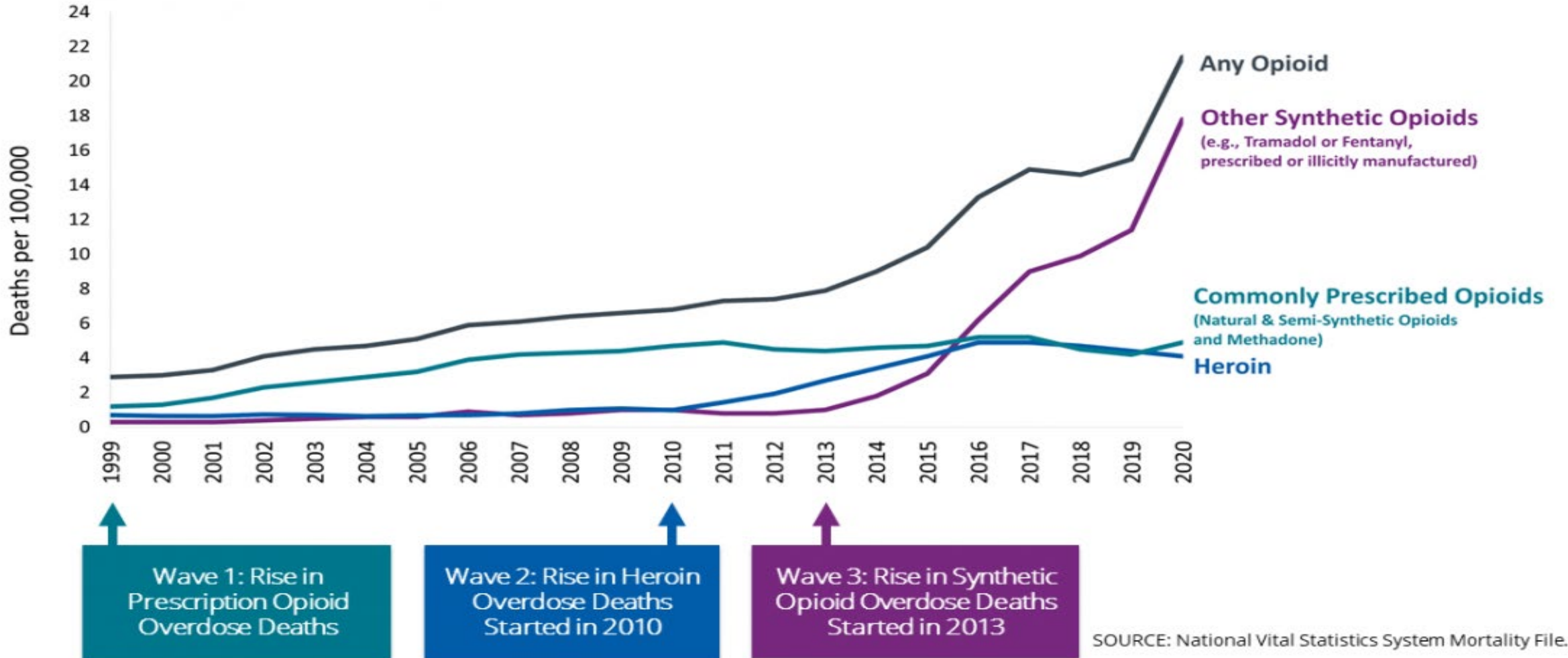
- National Institute of Health
- NIDA and the CTN network
- CIRCL (NIDA, NIAAA, Research team)
- Opioid Resource Network

- Direct experience with PWUD

- Recovery center/outreach worker report(s)

- What is xylazine?
- How is it used?
 - Adulterant (unknown—unintentional)
 - Facilitator or “enhancement”
 - Understanding / validating the “compulsive pathway”
 - Withdrawal
- Harm reduction techniques and awareness
- Future considerations

Three Waves of Opioid Overdose Deaths



Xylazine is an alpha-2 adrenergic receptor agonist, similar to clonidine, and is a **non-narcotic sedative used for analgesia and muscle relaxation exclusively in veterinary medicine**. Illicit use of xylazine among persons who inject drugs (PWID) **has been reported in Puerto Rico since the early 2000s** and more recently in Philadelphia, Pennsylvania. As of now, there is no precise categorization or confirmatory evidence regarding the trends, geographical distribution, and health risks.

Source: Malayala SV, Papudesi BN, Bobb R, Wimbush A. Xylazine-Induced Skin Ulcers in a Person Who Injects Drugs in Philadelphia, Pennsylvania, USA. *Cureus*. 2022 Aug 19;14(8):e28160. doi: 10.7759/cureus.28160. PMID: 36148197; PMCID: PMC9482722.

- Xylazine is a veterinary tranquilizer and long-acting sedative with analgesic and muscle relaxant properties.
- Xylazine is not approved by the Food and Drug Administration for human consumption.
- In humans, xylazine can cause slowed heart rate, reduced breathing, lowered blood pressure, and unresponsiveness.

**TRANQ can extend &
enhance opioid “high”.**

- Xylazine is emerging as an **adulterant** in illicit drug mixtures, exacerbating the opioid overdose crisis and resulting in opioid overdose deaths in numerous states and cities across the United States, including Vermont, Maine, Massachusetts, Connecticut, Maryland, Pennsylvania (specifically Philadelphia), and New York (specifically New York City)
- In a recent study by Friedman and colleagues (2022), they discovered that xylazine was present in ten jurisdictions across all four U.S. census regions. Among these locations, Philadelphia had the highest prevalence of xylazine-related deaths (25.8%), followed by Maryland (19.3%) and Connecticut (10.2%).

Ayub S, Parnia S, Poddar K, Bachu AK, Sullivan A, Khan AM, Ahmed S, Jain L. Xylazine in the Opioid Epidemic: A Systematic Review of Case Reports and Clinical Implications. *Cureus*. 2023 Mar 29;15(3):e36864. doi: 10.7759/cureus.36864. PMID: 37009344; PMCID: PMC10063250.

- Vermont: first quarter of 2022, xylazine was found in 30% of fatal opioid overdoses, and the percentages were even higher in specific months: 50% in February 2020, 41% in June 2022, and 32% in November 2022.
- Similarly, within New England, three other states have been heavily impacted as well. In Connecticut, for example, xylazine-related drug overdose deaths are on the rise.
 - There were 71 deaths in 2019,
 - 141 in 2020, 295 in 2021, and
 - 347 in 2022

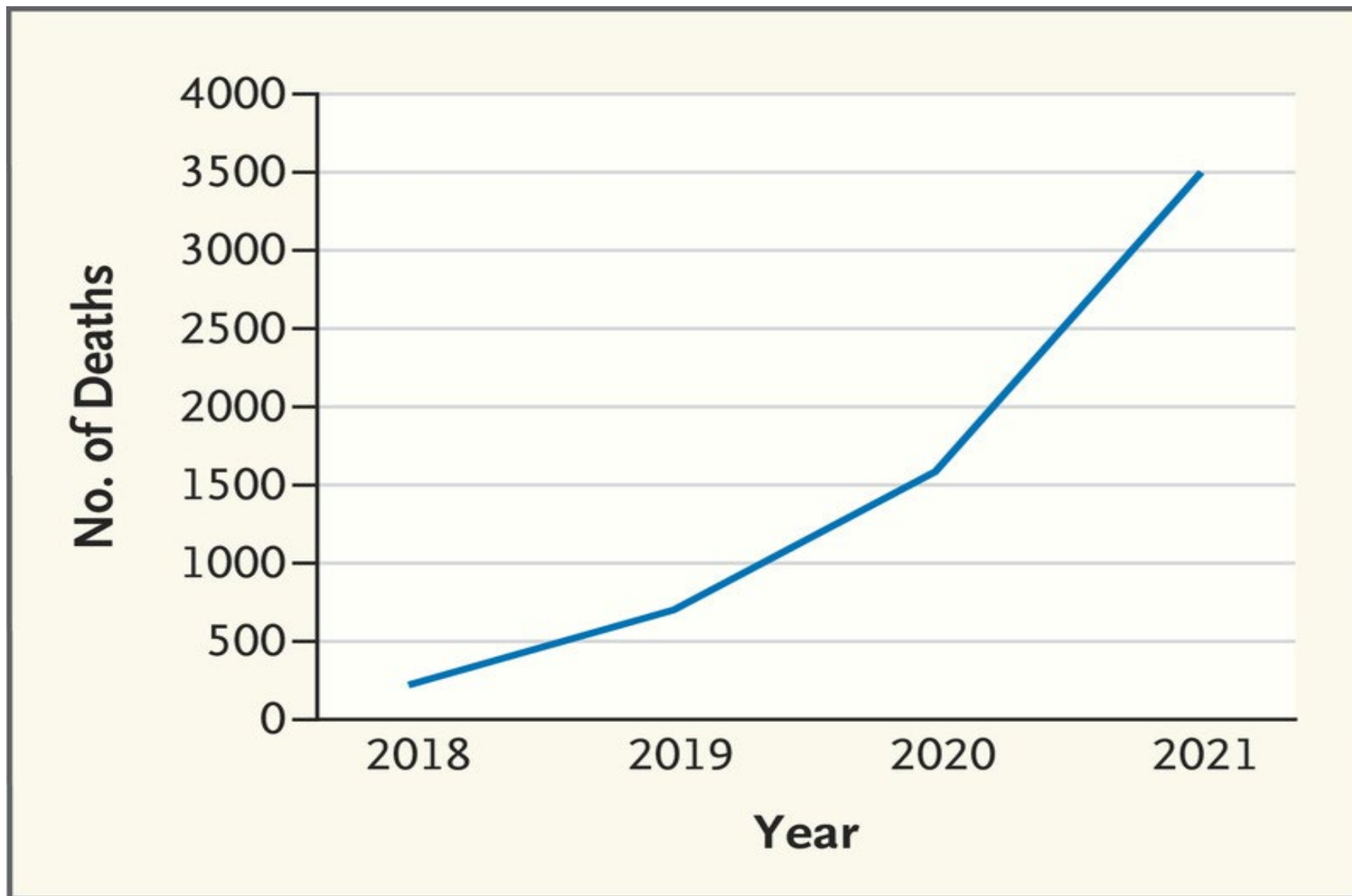
Ayub S, Parnia S, Poddar K, Bachu AK, Sullivan A, Khan AM, Ahmed S, Jain L. Xylazine in the Opioid Epidemic: A Systematic Review of Case Reports and Clinical Implications. *Cureus*. 2023 Mar 29;15(3):e36864. doi: 10.7759/cureus.36864. PMID: 37009344; PMCID: PMC10063250.

- The Drug Enforcement Administration (DEA) reports that:
 - Between 2020 and 2021, forensic laboratory identifications of xylazine rose in all four U.S. census regions, most notably in the south (193%) and the west (112%).
 - Xylazine-positive overdose deaths increased by 1,127% in the south, 750% in the west, more than 500% in the Midwest, and more than 100% in the northeast.

Source: U.S. Department of Justice Drug Enforcement Administration. *The Growing Threat of Xylazine and its Mixture with Illicit Drugs*, October 2022.

- DEA has seized xylazine and fentanyl mixtures in **48 of 50 states**, and the DEA laboratory system reported that approximately 23% of fentanyl powder and 7% of fentanyl pills seized by the DEA in 2022 contained xylazine. Xylazine is usually injected, although it can be swallowed or sniffed.

Source: <https://www.cdc.gov/drugoverdose/deaths/other-drugs/xylazine/faq.html>



- The South Carolina Opioid Emergency Response Team, to include DHEC, has been monitoring deaths involving the drug xylazine.
- “According to provisional estimates from the DHEC Division of Biostatistics, deaths involving xylazine have been on the rise, with an anticipated 379 percent increase between years 2020 and 2021.”

We tend to gravitate toward bizarre, sensationalized “drug trends”. (bath salts, K-2, spice etc.)

We are learning about Tranq and other adulterants.

We have a permanently contaminated drug supply.

The screenshot shows a web browser with multiple tabs open. The active tab is wyff4.com, displaying a news article. The article title is "'Zombie drug' animal tranquilizer killing more people in South Carolina than ever before, officials say". The author is Peyton Furtado, a reporter. A video player is embedded at the bottom of the article, showing a scene with a large wheel and a person in a hallway. The browser's address bar shows the URL wyff4.com/article/zombie-drug-animal-tranquilizer-tranq-sc/44377901#. The page also features a 'RECOMMENDED' sidebar with several other news items, such as 'WATCH: 2 years after he was stolen, a dog named Gauge is reunited with his owner' and 'Dump truck hits moped from behind, killing driver in South Carolina, troopers say'. The browser's address bar shows the URL wyff4.com/article/zombie-drug-animal-tranquilizer-tranq-sc/44377901#.

- Since xylazine is not an opioid and unfortunately its sedative effects are not reversed by naloxone, an opioid overdose involving xylazine is much more challenging to reverse and, consequently, more lethal to the user.

- In the areas with a high prevalence of the use of xylazine mixed with fentanyl or heroin, abscesses, and painful skin ulcers are very often reported.
- The mechanism is thought to be due to its direct vasoconstricting effect on local blood vessels and the resultant decreased skin perfusion.
- Prolonged use can lead to decreased perfusion and impaired wound healing, leading to higher chances of infection of these ulcers. In addition to the topical effect of vasoconstriction, xylazine also leads to hypotension, bradycardia, and respiratory depression.

WARNING: Graphic picture of a skin ulcer on the next slide.



Injecting or otherwise ingesting substances containing xylazine can cause serious, recalcitrant skin ulcers and necrotizing wounds.

At this time, the etiology of these wounds has not been fully elucidated.

It is essential that the wounds be appropriately treated to prevent serious infections and amputations.



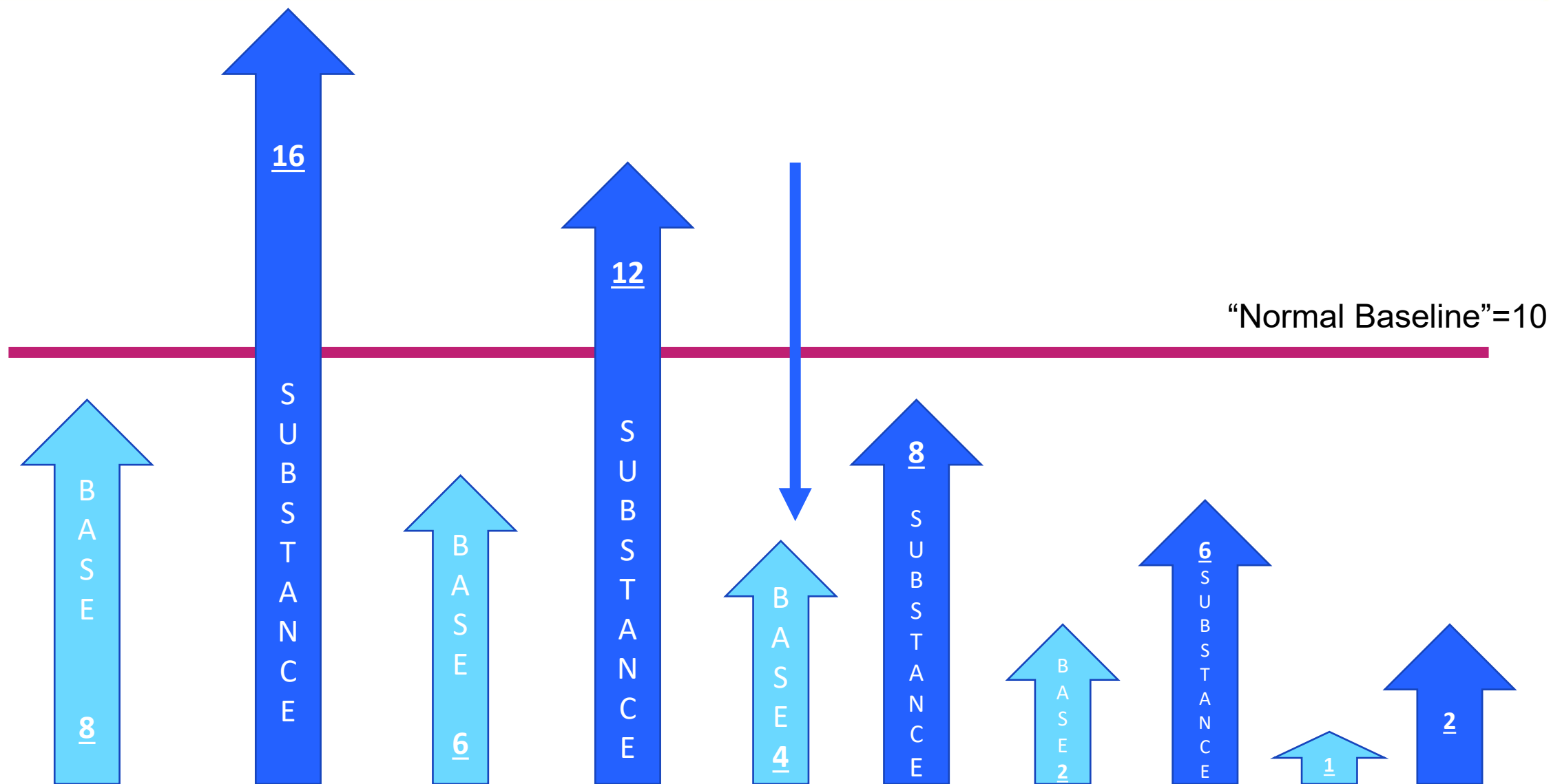
Xylazine can cause:

- Sedation
- Difficulty breathing
- Dangerously low blood pressure
- Slowed heart rate
- Wounds that can become infected
- Severe withdrawal symptoms
- Death

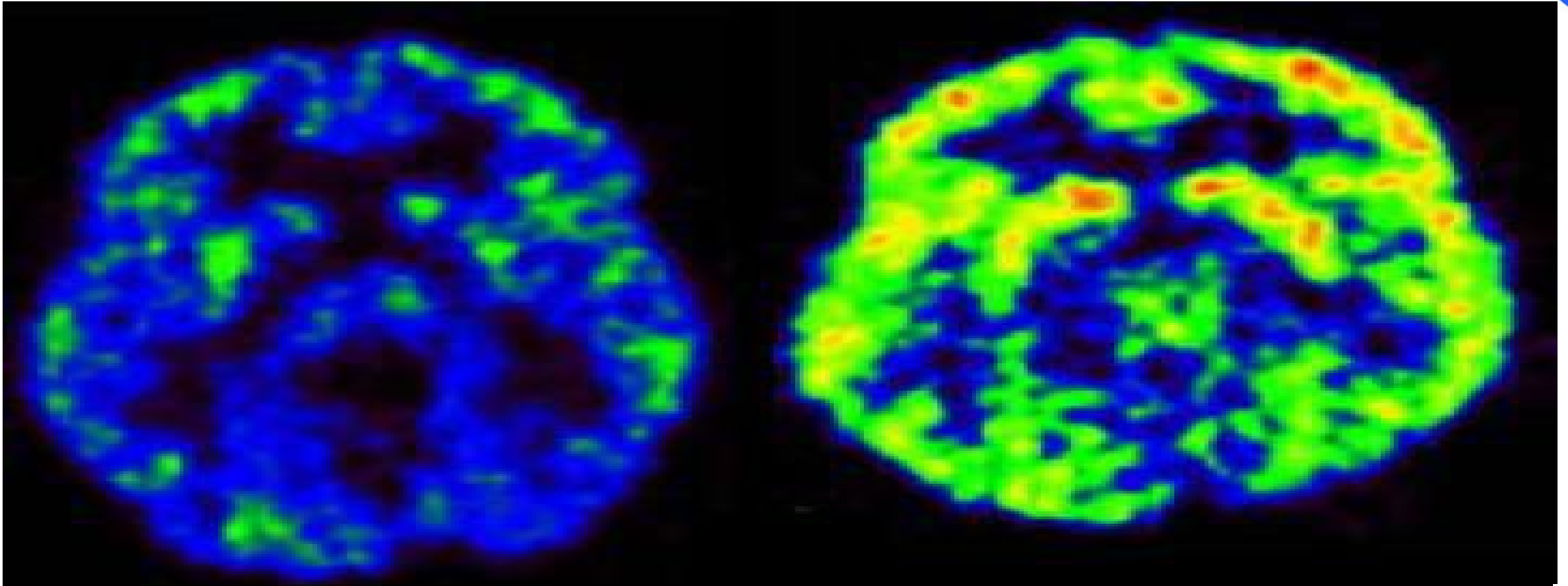
Source: <https://www.cdc.gov/drugoverdose/deaths/other-drugs/xylazine/faq.html>

Why would anyone use a substance with such an OBVIOUS high risk profile?

Conscious use of xylazine to enhance effect.

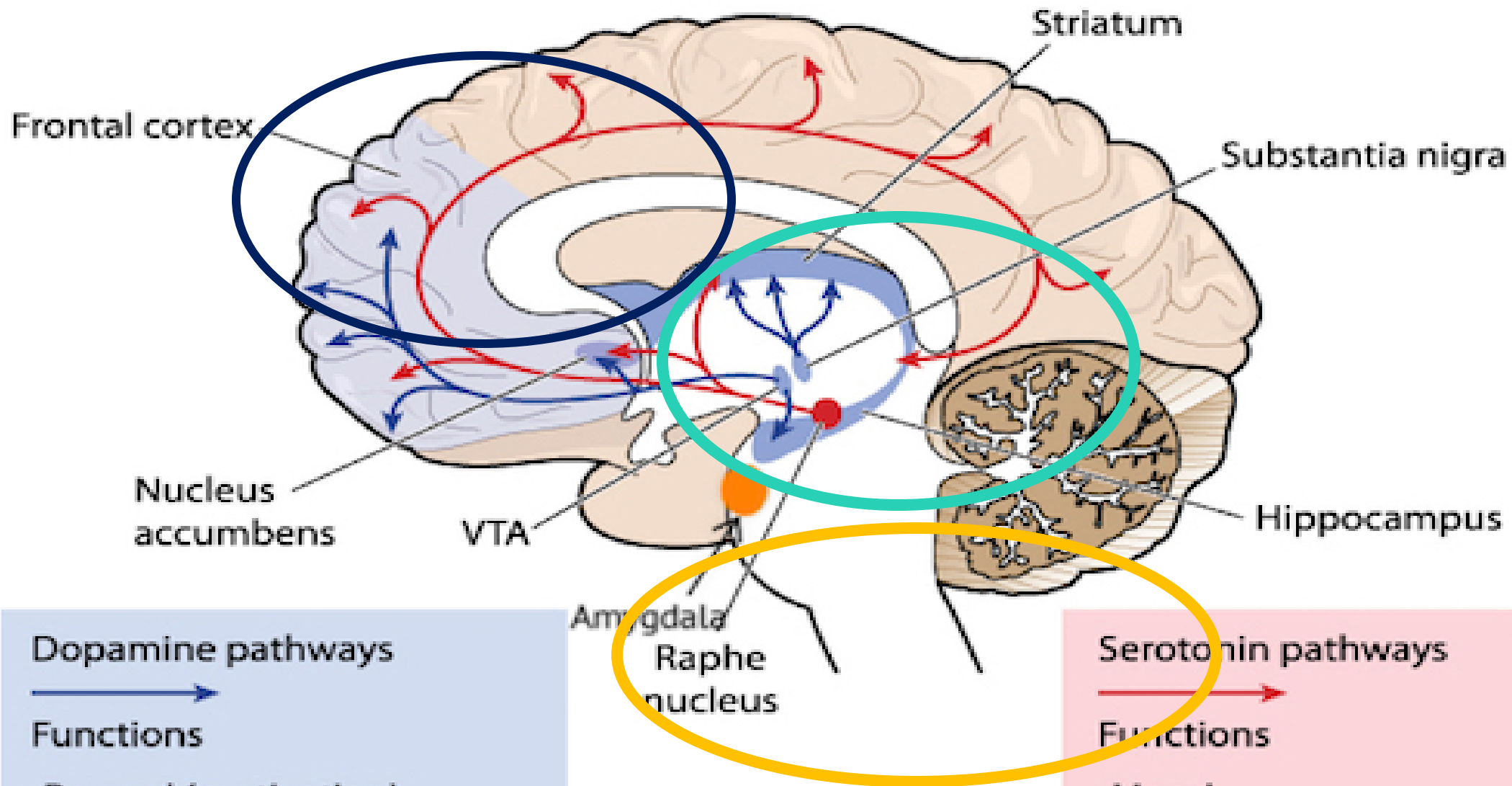


A Neurobiological “Change”



Chronic Substance Use—Substance Use Disorder Severe. Happens over time dependent on substance, hereditary issues, age of first use.

No chronic use of substances. Healthy brain.



Dopamine pathways



Functions

- Reward (motivation)
- Pleasure, euphoria
- Motor function (fine tuning)
- Compulsion
- Perseveration

Serotonin pathways



Functions

- Mood
- Memory processing
- Sleep
- Cognition

- There is no current method to reverse a xylazine overdose
- Xylazine overdoses can be difficult to identify because they appear similar to opioid overdose
- Naloxone (Narcan) has no effect on xylazine but will still reduce the effects of an opioid overdose if someone takes both xylazine and opioids

USE NALOXONE



- Co-occurring opioid withdrawal
- Little is currently known about the withdrawal characteristics of xylazine because it's used with other drugs and cause/condition is unclear with such polysubstance profiles.
- Irritability, anxiety, dysphoria, insomnia, tachycardia, hypertension.
- Overlap “opioid withdrawal”.
- Timing 6-12 hours.
- Treat the opioid withdrawal in the context of xylazine “complication”.

(Source: U Penn Medicine)

- Clonidine: alpha2-adrenergic agonist; antihypertensive; efficacy in opioid withdrawal attributed to binding to central alpha-2 adrenergic receptor that shares potassium channels with opioids and blunts symptoms of withdrawal.
- Gabapentin: anticonvulsant
- Pregabalin: anticonvulsant
- Ketamine: NMDA receptor antagonist
- Olanzapine: anti-psychotic
- Lorezapam (other benzo-low dose)
- The list of medications is incomplete and evolving. Very early yet.

For More Information

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Thank you for your time!


Questions?


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