

'TRANQ BURN': EXPLORING THE ETIOLOGY OF TRANQ-RELATED SOFT TISSUE INJURIES

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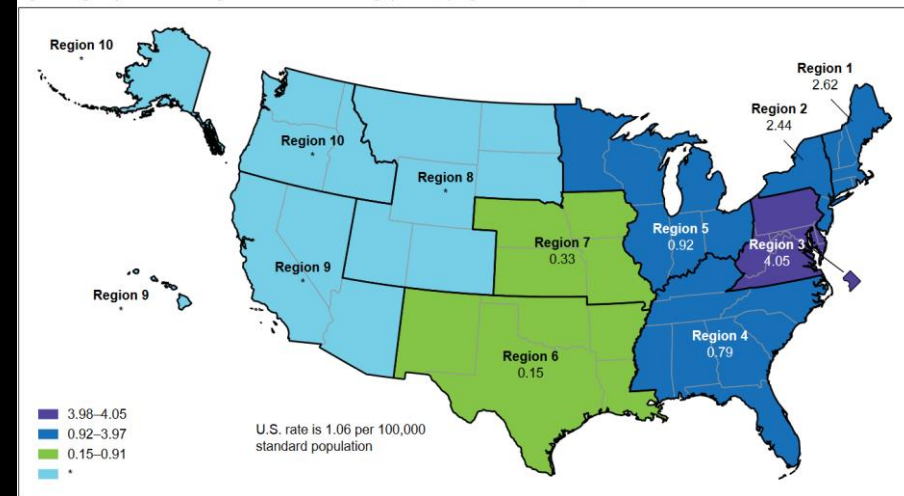
DISCLOSURE

- Voluntary medical director of Remedy Alliance
- Paid consultant for Celero Systems

BACKGROUND: XYLAZINE

- **‘Tranq dope’** is a combination of xylazine and fentanyl that is becoming increasingly common throughout the US.
- By 2019, xylazine was detected in over 90% of street opioid samples and over 30% of fatal overdoses in Philadelphia, PA.
- Regional problem (thus far)¹

Figure 4. Age-adjusted rate of drug overdose deaths involving xylazine, by region: United States, 2021



1. Spencer MR, Cisewski JA, Warner M, Garnett MF. Drug overdose deaths involving xylazine: United States, 2018–2021. Vital Statistics Rapid Release; no 30. Hyattsville, MD: National Center for Health Statistics. 2023. DOI: <https://dx.doi.org/10.15620/cdc:129519>

XYLAZINE: CLINICAL FEATURES

- Alpha-2-agonist
 - Potentiates opioids
 - Reduces withdrawal sxs
 - CNS depression, bradycardia,

Warning: The following slides contain graphic images of xylazine-related wounds

- Typically injected, its use appears related to severe skin and soft tissue injury (SSTI) through an unknown mechanism.
 - Peripheral vasoconstriction and reduced oxygen perfusion (photo)¹



1. 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.

QUALITATIVE METHODOLOGY

- One week of 'rapid ethnographic assessment' in Philadelphia, Pennsylvania, in October 2023
 - Semi-structured interviews with 32 participants
 - Predominantly street-based recruitment in the Kensington area with some snowball sampling
 - Video and photographic observations of consumption techniques and presence of wounds
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PARTICIPANTS (N=32)

*Self-report and ability to select multiple, numbers add to greater than 32

Gender		
	Male	18
	Female	14
Age (years)		
	20-29	8
	30-39	13
	40-49	8
	50-59	1
Race/Ethnicity		
	White	21
	Black/African American	5
	Hispanic/Latino	2
	Asian American or Pacific Islander	1
	Multiracial	3
Substances used (past month)*		
	'Tranq'	31
	Cocaine	12
	Crack	11
	Methamphetamine	13
	Benzodiazepine (e.g. xanax)	5
	PCP	2
	K2	2
'Tranq' mode(s) of use*		
	Inject	23
	Smoke	8
	Snort	5
Presence of wounds		22
Consumes 'speedballs'		11

QUALITATIVE RESULTS

- Observed SSTI were extraordinarily severe
 - Several themes emerged related to wound etiology
 - 1) Tranq dope injection caused burning sensations
 - 2) Vein loss occurred following chronic use of tranq dope
 - 3) Vein loss resulted in increased injection attempts, the use of large central veins (e.g., jugular and brachial), as well as more frequent 'skin-popping'
 - 4) Wounds, called 'tranq burns', rapidly followed vein loss
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1) TRANQ DOPE INJECTION CAUSED BURNING SENSATIONS

Interviewer: How does tranq feel when you miss your vein?

Respondent: It burns. It burns. Burns, burns, burns.

Interviewer: Is there any other chemical that it reminds you of in terms of the level of burning? Like if you missed a shot with coke, would it burn as much?

Respondent: It burns a little less than coke.



2) VEIN LOSS OCCURRED FOLLOWING CHRONIC USE OF TRANQ DOPE

Interviewer 1: Have people always had this much trouble injecting, or is this newer?

Respondent: No, no. I don't think so. I don't think that the drugs have been so noxious to the veins, either. Powder [cocaine], yes. We all know powder kind of destroys your veins, but we really didn't know – or at least I wasn't aware that tranq would be just as bad, if not worse, than powder shots.



3) VEIN LOSS RESULTED IN INCREASED INJECTION ATTEMPTS, THE USE OF LARGE CENTRAL VEINS

Interviewer: Tell me about those [large arm wounds]. How did you get them? How long have they been there?

Respondent: Oh, man. I've had them for about three years now. I got them from... I used all my veins up from shooting the xylazine. It tears your veins apart. You shoot one time, and you lose your veins. So I've gone through every single vein you can dream of in your body from feet, from head to toe, neck, everything.



WARNING: THE FOLLOWING SLIDES
CONTAIN GRAPHIC IMAGES OF
XYLAZINE-RELATED WOUNDS

4) WOUNDS, CALLED 'TRANQ BURNS', RAPIDLY FOLLOWED VEIN LOSS





LABORATORY pH TESTING

- BACKGROUND: Previous research suggests that the high acidity of certain heroin source-forms contributes to vein damage and SSTI
 - What is the acidity of tranq-dope?
- METHODOLOGY: Dr Alex Krotulski @ The Center for Forensic Science
- Research and Education (CFSRE)
 - Drug samples obtained through drug checking and surveillance initiatives.
 - Samples selected: same location and time as the ethnographic research
 - Exploratory so small sample size



Photo: D. Ciccarone

pH Scale - Universal Indicator Colours

SAMPLE ID	TYPE	
"Dope" only (heroin, fentanyl, buprenorphine)		
PAG_0031	Dope (No X)	
PDPH_0363	Dope (H,F, No X)	
"Tranq dope" (heroin, fentanyl, buprenorphine, xylazine)		
PDPH_0762	Dope (F:X, 1:25+)	Fentanyl
PDPH_0739	Dope (F:X, 1:10)	Fentanyl, Atropine
PAG_0054	Dope (F:X, 1:1)	Fentanyl, Atropine
PAG_0007	Dope	Fentanyl, Atropine
Xylazine from lab sources		
PAG_0049	Xylazine (China)	
PAG_0050	Xylazine (Vet Med)	
Other drugs		
BRAN_0289	Coke	
PAG_0062	Meth	

Increasingly acidic



Neutral



Increasingly alkaline

pH	Example
0	Battery acid
1	Gastric acid
2	Lemon juice
3	Apple juice
4	Tomato juice
5	Black Coffee
6	Milk
7	Water
8	Egg
9	Baking Soda
10	Milk of Magnesia
11	Ammonia solution
12	Soap
13	Bleach

<https://www.science-sparks.com/what-is-the-ph-scale/>

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ADDITIONAL ME (UL)/PH	COMMENTS
2.2, 900/2.3, 200/2.4	Cloudy, white particulate, did not get better
700/3.6	Not fully soluble
6.1, 600/6.3	-
5.4, 600/5.5	-
3.4, 600/3.5, 1.6, 1200/3.7	Cloudy, white particulate, got better with H2O
500/4.0	-
5.6, 600/5.7	-
4.2, 600/4.3	-
N/A	-
N/A	-

DISCUSSION

- Combined use of xylazine and fentanyl leads to vein loss, which increases the risk of subsequent SSTI
 - Synergistic etiological hypothesis:
 - The acidity of tranq, particularly the fentanyl, causes vein damage
 - Xylazine, a strong vasoconstrictor, increases the likelihood of poor tissue oxygenation and necrosis
 - Possible harm reduction interventions include dilution, buffering, and smoking route of administration
 - Stigma reduction and enhanced wound care are required in harm reduction and clinical settings
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