

# UVM ScholarWorks

## In Utero Xylazine Exposure Associated with Feeding Difficulties in Infants with Neonatal Opioid Exposure

Item Type	manuscript;article
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Download date	2026-05-14 10:03:48
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Link to Item	<a href="https://hdl.handle.net/20.500.14849/5974">https://hdl.handle.net/20.500.14849/5974</a>

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## WHAT IS XYLAZINE?

- Xylazine, or "tranq," is a veterinary sedative, muscle relaxant, and analgesic. It is a common adulterant in many United States (US) illicit opiates.
- **Mechanism:** Alpha-2 receptor agonistic CNS depressant with secondary effects on dopaminergic, cholinergic, alpha-1 adrenergic, histaminergic, and possibly opioid receptors.
- **Acute poisoning symptoms:** Prolonged sedation and severe skin wounds at injection and non-injection sites.
- **Treatment:** Supportive care; not reversed by naloxone. Clonidine, an alpha-2 agonist is sometimes used in adults.
- **Prevalence:** In Vermont, up to 90% of illicit opiates contain xylazine. From 2019 to 2020, US xylazine-related overdose deaths increased by 50%, with the highest rates in the Northeast US. In 2023, 28% of opioid-related fatalities in Vermont involved xylazine.

## BACKGROUND

- Despite increasing prevalence of Neonatal Opioid Withdrawal Syndrome (NOWS), there is no data about effects of gestational xylazine use on the developing fetus or neonatal outcomes in humans.
- Data from veterinary medicine suggest serious implications for fetal growth and development, demonstrating xylazine-associated decrease in blood flow to uterine and fetal vasculature.
- The University of Vermont Children's Hospital (UVMCH) NICU is the only NICU in VT, serving patients primarily from VT and upstate NY.
- UVMCH and surrounding community hospitals use Eat, Sleep, Console (ESC) for evaluation and treatment of NOWS. All infants receiving pharmacological treatment are transferred to UVMCH NICU where methadone is used first line and clonidine is used second line.

## OBJECTIVES

- This case series sought to describe symptomatology associated with xylazine exposure in infants with prenatal opioid exposure.

## METHODS

- Retrospective chart review of all infants born >35 weeks and monitored for NOWS between August 2022-October 2024 at UVMCH Children's Hospital.
- Xylazine exposure (Xyl) was identified by drug testing or parental report. Data related to growth, ESC assessments and feeding patterns were collected.
- Infants with feeding difficulty were evaluated by speech language pathologists (SLP) and provided feeding interventions based on infant needs.

## RESULTS

Table 1

Infants >35 weeks GA with prenatal opioid exposure	Infants with any symptoms on ESC assessments	Assessments positive for any symptoms	Positive assessments with eating difficulty	Positive assessments with sleeping difficulty	Positive assessments with consoling difficulty
No xylazine exposure (n=45)	22 (49%)	157	96 (61%)	76 (48%)	34 (22%)
With xylazine exposure (n=7)	7 (100%)	107	93 (87%)	19 (18%)	12 (11%)

Symptoms as noted on Eat Sleep Console (ESC) assessments for infants with opioid exposure with and without xylazine exposure. For all positive assessments in each group, reasons for positive assessment (non-exclusive) were combined across infants and compared between groups. GA= gestational age.

Table 2

Case	BW z-score (WHO)	Birth HC z-score (WHO)	Day of initial oral feeding cues	Day of start of NG feeds	Day of life of first PO ad lib	Other treatment details	Feeding difficulty per SLP evaluation
1	0.01	0.03	1	2	13	Methadone and clonidine	Habituation to nipple; excessive sucking with poor milk transfer; SSB disorganization
2	-1.54	-2.43	1	6 (readmission)	1	G-tube placed for poor feeding	Reduced latch and oral containment resulting in oral loss; disorganized vs dysfunctional oral stage skills
3	0.11	0.95	1	2	10	Methadone	Reduced root, reduced NNS; chomping pattern vs NS; difficulty maintaining suck; disorganized SSB
4	-1.68	-2.72	1	2	22	Methadone	Reduced tongue cupping and jaw excursions; reduced NNS and NS; excessive gagging; concern for oral defensiveness
5	1.35	0.38	1	3	11	Methadone	Reduced latch; decreased NS, short NS burst pattern
6	-0.24	-0.76	1	N/A	1	Only early pregnancy exposure	NA – not evaluated by SLP
7	-0.41	-3.27	1	2	6	Methadone and clonidine	Reduced milk transfer, difficulty maintaining suck, chomping pattern, oral loss, disorganized SSB
Mean	0.17	-0.78	-	-	12	-	-

Growth demographics, timing of feeding progress, treatment characteristics, and details of Speech Language Pathologist (SLP) evaluation for each infant with xylazine exposure in utero. BW = birthweight; NG = nasal gastric tube; DOL = day of life; PO = per os/by mouth, SSB = suck, swallow, breathe, NS = nutritive suck, NNS = non-nutritive suck

## DISCUSSION AND CONCLUSIONS

- **Infants with both opioid and xylazine exposure had more significant feeding difficulties than what is typically observed for infants with prenatal opioid exposure at our hospital.**
- **Though veterinary data suggests a potential impact on growth, growth parameters within our cohort were within expected range**
- **We did not observe improvement in feeding in response to methadone or clonidine in babies with xylazine exposure.**
- **In our cohort, this population had unique and prolonged feeding challenges requiring compensatory strategies and may benefit from early SLP support.**
- **Further study of this population is needed.**

- **Prevalence:**
  - 13% of infants with opioid exposure also had known xylazine exposure by history or lab testing
- **NOWS symptomatology:**
  - Xyl more consistently had difficulty feeding on ESC assessment than did those without known xylazine exposure
- **Treatment:**
  - 5 of the 7 Xyl infants were treated with methadone
  - 2 of these received methadone and clonidine
  - None showed improvement in feeding following treatment
- **Time to oral feeding:**
  - Infants who required NG feeds took an average of 12 days to reach full ad lib oral feeds (range 6-22 days)
  - Case 2 did not require gavage feeds but later required g-tube placement due to poor oral intake
  - Case 6 had only early pregnancy exposure and no feeding difficulty
- **SLP evaluations:** Xyl were noted by SLP to have oral > pharyngeal stage difficulties characterized by:
  - Reduced latch
  - Ineffective nutritive suck pattern
  - Difficulty with suck-swallow-breathe organization
- **Feeding support:** All Xyl required increased caregiver support and compensatory strategies to promote developmentally appropriate oral feeds, reduce the risk of feeding-induced cardiorespiratory events, and to improve quality of feeding.

Is there xylazine in your local opiate supply?



Streetcheck.org  
Drug Testing Data

## REFERENCES



## POSTER

