

# Evolving Overdose Response

## Adapting to Sedatives in Philadelphia's Drug Supply

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# Learning Objectives

1. Understand the effects of sedatives on overdose presentation and recognition.
2. Evaluate the effects and limitations of naloxone in sedative-involved overdoses.
3. Identify gaps in current opioid overdose training and provide guidelines for responding to sedative-involved overdoses.

# Xylazine & Medetomidine

# Overdose crisis in Philadelphia and the changing drug supply

2014 – Fentanyl starts to replace heroin.



2017 – Carfentanil detected in fatal overdoses.



2019 – Xylazine starts to be regularly used with fentanyl.

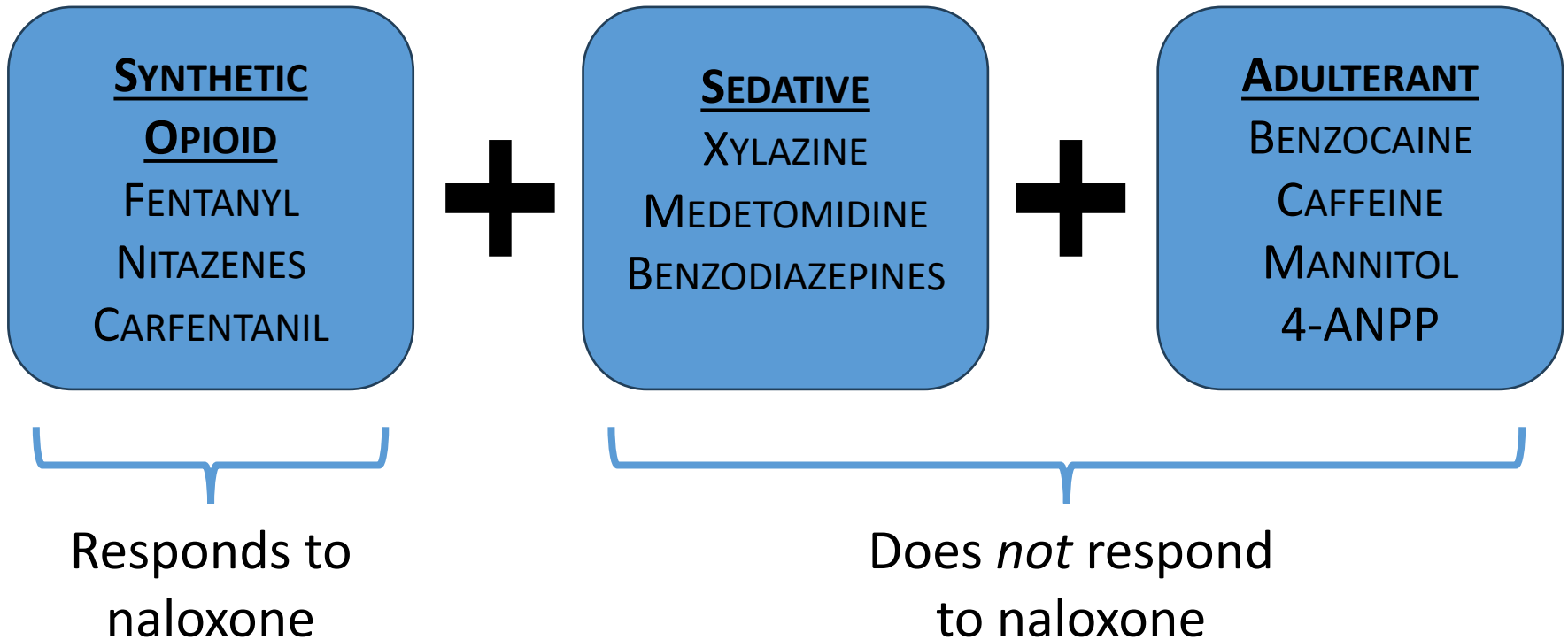


2022 – Nitazenes detected in illicit drug supply.



2024 – Medetomidine starts to replace xylazine.

# What is dope in Philadelphia?



# Xylazine and Medetomidine

## The same...

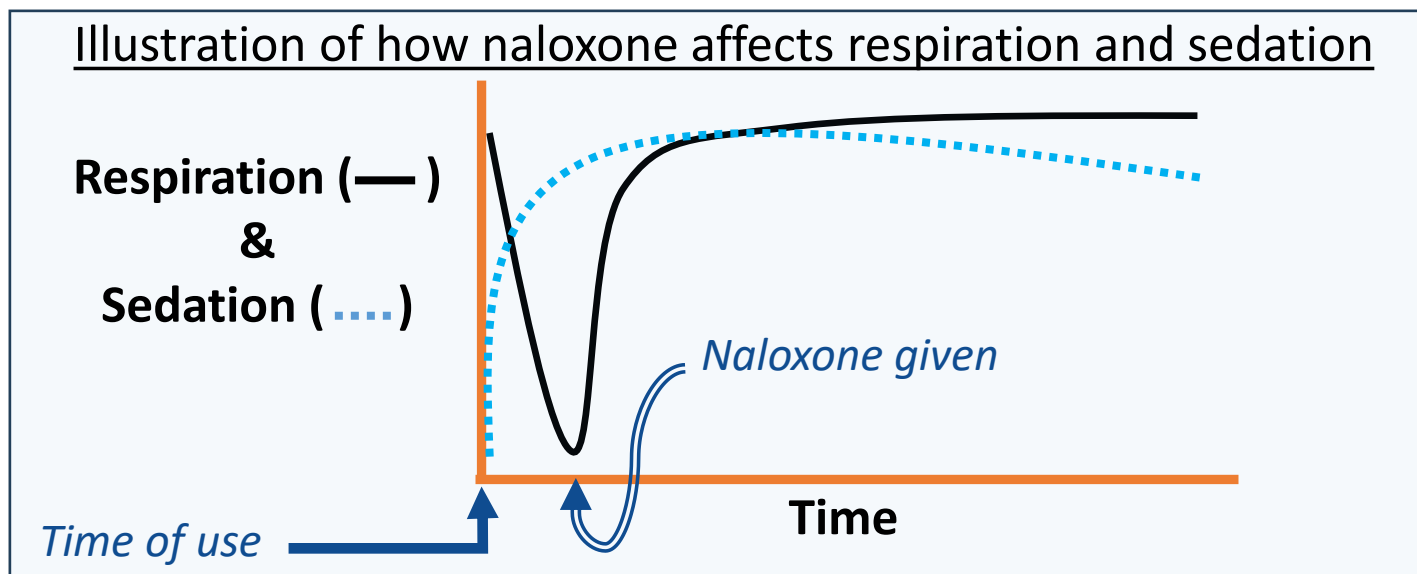
- Veterinary medication
- Alpha-2-agonist
- Not responsive to naloxone
- Rapid onset
- Causes prolonged sedation
- Always found with fentanyl
- Involved in fatal overdose
- Causes withdrawal
- Not federally scheduled

## but different

- **Medetomidine**
  - 200-300x more potent than xylazine
  - Longer sedation
  - More pronounced lower heart rate
  - Anecdotal reports of association with hallucinations and worse withdrawal symptoms
- **Xylazine**
  - Clear association with wounds
  - Scheduled in PA

# How do xylazine and medetomidine affect overdose?

- Prolonged sedation
- Positioning to maintain open airway
- Not responsive to naloxone
- Emphasis on breathing

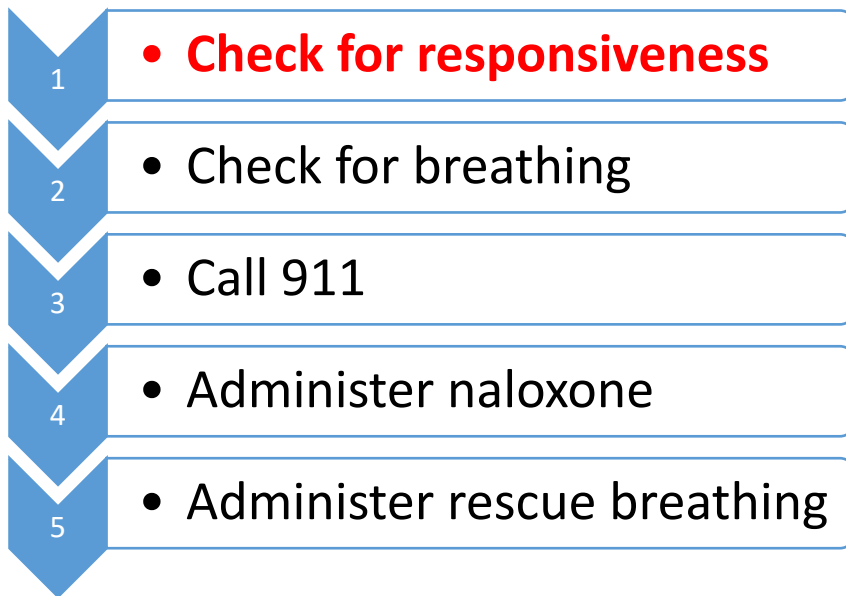


# Adapting overdose response



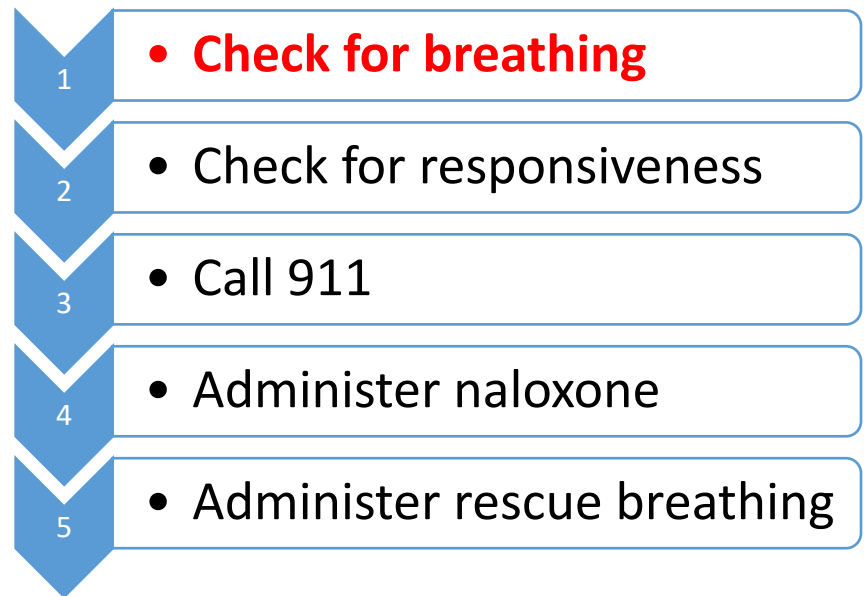
# Sedative-involved overdose recognition

## Synthetic opioid overdose



**Focus on responsiveness**

## Synthetic opioid + xylazine/medetomidine overdose



**Focus on breathing**

# Recognizing the emergency

- Previous OD response utilizes responsiveness, **but that is no longer effective!**

**The emergency is that they are not breathing, not that they are not answering you.**

# Guidelines for responding to sedative-involved overdoses

***Don't just ask if they're okay. Check to see if they're blue or gray.***

- Instead of focusing on responsiveness as the goal of overdose response, train responders to look for **color changes and respiration**.
  - At least 1 breath is taken every 5 seconds.
  - Check “lips & tips” for gray or blue coloration.

# Gaps in current standard overdose response training

- The priority must shift from eliciting a response to assessing, and supporting, breathing/oxygenation.
- Assessing for responsiveness with painful stimuli can cause unnecessary harm.
- Responsiveness is no longer the goal of overdose response.
- There is such a thing as too much Narcan.



The Narcan works, but....

**MYTH:** Narcan doesn't work on sedative-involved overdoses.

**TRUTH:** Narcan is working to restore breathing *AND* the person may still be sedated.

## The Narcan works, but....

- Narcan will not resolve sedation, but it will help people breathe during overdose situations.
- Sedation resolves with time, which may be up to 2-3 hours

## The Narcan works, but... make a plan for monitoring

- Naloxone takes time to work and should be supported by rescue breathing.
- Naloxone wears off in 45min - 2hours, but the person may still be sedated.
- **Pro tip:** have a plan ready for monitoring or transition.

# Too much Narcan can be harmful

- A 2023 study comparing 4 mg to 8 mg of an initial intranasal (IN) dose found that people who received the higher dose were 2.5 times more likely to experience withdrawal symptoms, with no difference in survival. (Payne et al., 2024)
- ***“The ideal dose of naloxone is one that restores breathing without inducing withdrawal”*** (Russell et al., 2024)



# Too much Narcan can be harmful

- Inducing withdrawal increases fatality risk.
  - Precipitates return to use and overdose.
  - Incentivizes using alone/in isolation.
  - Severe withdrawal can lead to medical complications from other substances in the dope.

# Compassionate Overdose Response - Resources

HMA

## Compassionate Overdose Response Summit

Highlights and Key Takeaways

WWW.E

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Essay

A call for compassionate opioid overdose response

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***“The perception that more naloxone doses are needed to reverse synthetic opioid overdoses is not supported by research studies.”***  
(Russell et al., 2024)



Department of  
Public Health  
CITY OF PHILADELPHIA

SUBSTANCE USE PREVENTION & HARM REDUCTION (SUPHR)

# Different forms of naloxone

## Best forms:

0.4mg intramuscular (IM) (generic)



1mg nasal applicator (generic)



3mg nasal spray (brand)

# Different forms of naloxone

## Good forms:



4mg nasal spray (Brand)



4mg nasal spray (Generic)

# Different forms of naloxone

**Not recommended:**

**8mg nasal applicator (brand)**

**2mg auto injector intramuscular (IM) (brand)**



**5mg auto injector intramuscular (IM) (brand)**

# Naloxone dosage comparison

(1) 3mg nasal spray



= (3.75) 0.4 IM doses



(1) 4mg nasal spray



= (5) 0.4 IM doses



(1) 8mg nasal spray



= (10) 0.4 IM doses



What can you do?

# Look at your toolbox

## We'll explore 2 different scenarios:

- My toolbox is basic, and I can't change much.
  - Budget limitations
  - Training and/or capacity limitations
- We're looking to expand our options!
  - Available funding
  - Invested stakeholders
  - Training capabilities



# Limited in changing your toolbox

## **Standard kit:**

- Barrier/CPR mask
- Narcan
- Gloves

## **What to add:**

- Emphasis on breathing support and assessment.
- Patience! Let the Narcan work.
- Positioning (head tilt, rescue position)

# Comfortable in the gray zone

- The grey zone is larger.
- After reversing an overdose:
  - Naloxone can wear off and the person is still sedated (positioning).
  - Always call 911.
- The person was not overdosing but is severely sedated.
  - You can still reduce the harm!
- Have a couple of ready-to-go transition plans.
  - Can you get them to a community hub/nearby resource?
  - Are there any bystanders you can ask to check on them?
  - +/- Call 911/EMS
  - Can you find a safe place for them to sit?

Comfortable in the gray zone

**You do the best you can for the  
situation you are in...**

***...that doesn't always mean more  
Narcan.***

# Expanding your toolbox

## Standard Kit

- Barrier/CPR mask
- Narcan
- Gloves

## Additional Tools

- Pulse oximeter
- Ambu-bag
- Supplemental Oxygen

# Pulse oximeters

## PROS

- Provides ongoing data to refer to during overdose response.
- Can help assess oxygen levels if you're unsure.
- Assists with monitoring breathing when in a gray zone.

## CONS

- Requires training to use.
- Has higher supply costs.
- Unreliable
  - Skin color
  - Nail polish
  - Injury



# AMBU bag

## PROS

- Better respiration
- Hesitation to do rescue breaths (COVID)

## CONS

- Training
  - Seal
  - Frequency
- One vs two people
- Single Use
- Expensive
- Supplies/cost



# Supplemental oxygen

## PROS

- Best respiration
- Hesitation to do rescue breaths (COVID)
- Reduces need for Narcan

## CONS

- Training
- Potential dangers (flammable)
- Difficult to transport
- Very expensive
- Supplies/cost



## What to remember...

- Naloxone works!
- Breathing > responsiveness.
- Sedation is not the emergency.
- The grey zone is bigger.
- Naloxone dose matters (there is such a thing as too much).
- More tools doesn't mean better tools.



# Citations

- Jen Shinefeld, [@Jenfir215]. (2023, June 03). PSA: Sternum rubs do not reverse overdoses. They are a tool to see if someone is alert. Administering a sternum [Tweet]. X. <https://x.com/Jenfir215/status/1665089678343585792>
- E.R. Payne, S. Stancliff, K. Rowe, J.A. Christie, M.W. Dailey, Comparison of administration of 8-milligram and 4-milligram intranasal naloxone by law enforcement during response to suspected opioid overdose—New York, March 2022–August 2023, MMWR. Morbidity and Mortality Weekly Report, 73 (5) (2024), pp. 110-113, [10.15585/mmwr.mm7305a4](https://doi.org/10.15585/mmwr.mm7305a4)
- Russell E, Hawk M, Neale J, Bennett A, Davis C, Hill LG, Winograd R, Kestner L, Lieberman A, Bell A, Santamour T. A call for compassionate opioid overdose response. International Journal of Drug Policy. 2024 Nov 1;133:104587.

Thank You!