

# Kratom and the new class of street drugs: Acute Care

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# Disclosure

- No financial disclosures



# Road Map

- Multispecialty Collaboration Today
- Drugs
- Pre-hospital protocols
- ER Management
- Next steps



# Who are the players...

- **Kratom**
- K2/Spice
- Xylazine
- Medetomidine
- Carfentanil





And, now I'm  
on a watch  
list...



# Kratom

- “Kratom” refers to both *Mitragyna speciosa*, a tree native to Southeast Asia, and to products derived from its leaves that are marketed as herbal supplements
- Has an “opioid and stimulant type effect”
- The vodka/red bull of drugs
- Not FDA Approved
- However, people claim that it helps with opioid withdrawal symptoms or cravings, pain relief and managing mental health problems...

# Kratom

- Most common studied substance in Kratom is mitragynine. When ingested, mitragynine breaks down into another chemical called 7-hydroxymitragynine.
- Kratom's effects on the body include nausea, itching, sweating, dry mouth, constipation, increased urination, tachycardia, vomiting, drowsiness, and loss of appetite. Users of kratom have also experienced anorexia, weight loss, insomnia, hepatotoxicity, seizure, and hallucinations.
- Dose response: Low (stimulation), Higher (sedative)



# Kratom

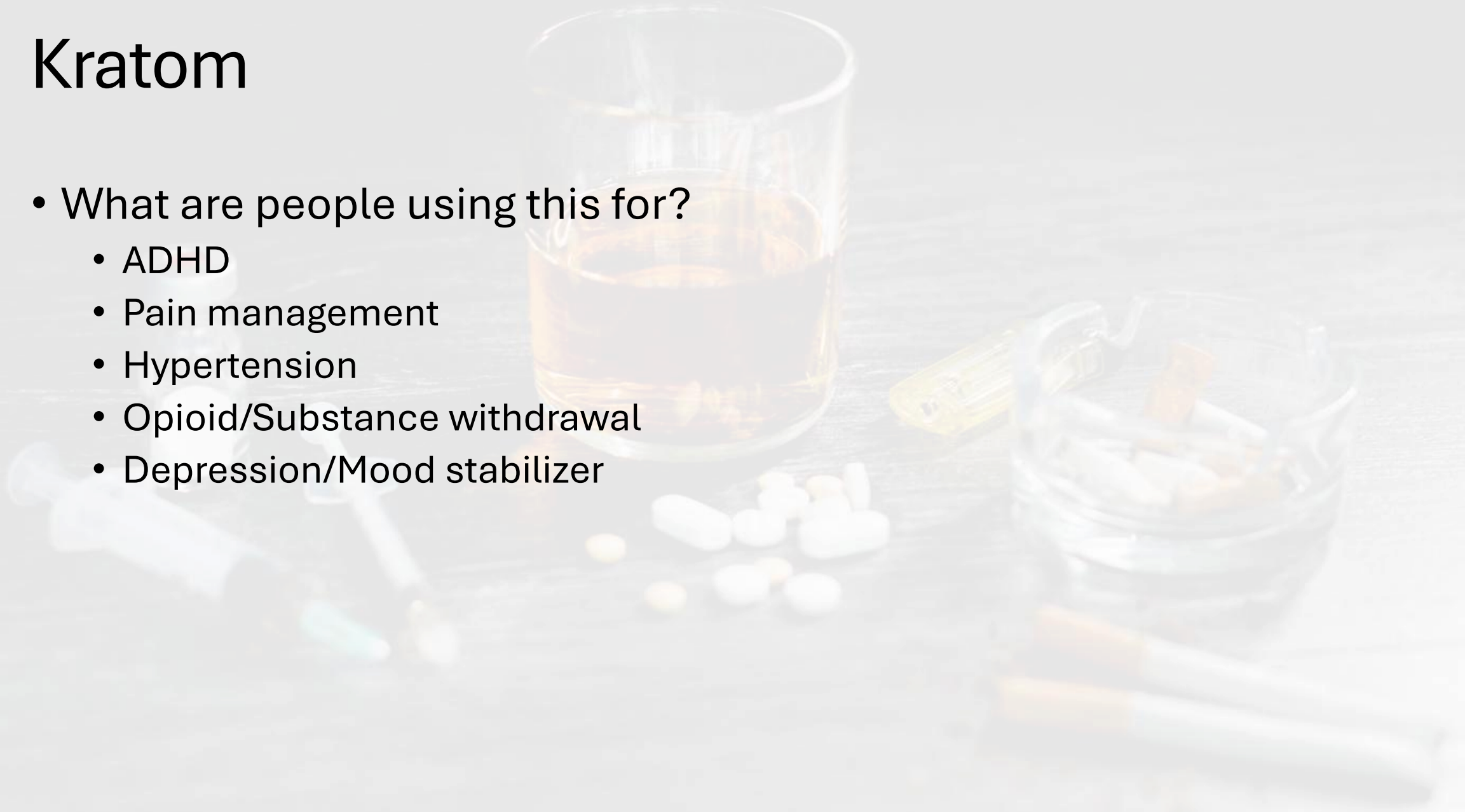
- Indole based alkaloid
- Time to peak serum concentration 1.36 hours
- Half-Life 3.85 hours
- Processed by the liver
- Unknown toxic level
- Receptors:
  - Opioid (Mu, Delta, Kappa)
  - Dopamine D2
  - Serotonin (5-HT<sub>2C</sub>, 5-HT<sub>7</sub>)
  - Alpha-2 Adrenergic (Decrease Sympathetic tone)





# Kratom

- What are people using this for?
  - ADHD
  - Pain management
  - Hypertension
  - Opioid/Substance withdrawal
  - Depression/Mood stabilizer



# Kratom

The background of the slide is a faded, artistic photograph. It features a glass filled with an amber-colored liquid, possibly kratom extract, in the upper center. Below and to the right of the glass is a small, clear glass bowl containing several white and orange pills. In the lower right corner, a lit cigarette with a white filter and a glowing orange tip is visible. The overall tone is soft and slightly desaturated.

- Podcast after Podcast

- [www.kratomstoriespodcast.com](http://www.kratomstoriespodcast.com)
- <https://player.fm/podcasts/Kratom> (Best Kratom Podcasts)
- <https://kratomsobriety.podbean.com/>
- [The Kratom Guy Show - Podcast - Apple Podcasts](#)
- [Episodes | Kratom Stories Podcast](#)
- [The Kratom Gals](#)
- [\(724\) Kratom Stories Podcast – YouTube](#)
- [Episode – Kratom Science](#)

# Kratom

- Long history of use
- Culturally acceptable in Southeast Asia for centuries, if not longer
- Mostly consumed by crushing the leaves to smoke or make a tea



# Kratom

**Kratom was originally used for the following purposes:** [↪ Kraoma](#) [+4](#)

- Combat fatigue and increase productivity
- Soothe physical discomfort and alleviate stress
- Treat diarrhea
- Manage pain
- Help with opioid and alcohol withdrawal symptoms
- Improve sexual desire
- Detoxify the body from other substances
- Provide natural home remedy in Southeast Asia



# Michigan Poison Control Center

<https://static1.squarespace.com/static/5f777ef4c9213f4b5800fc9a/t/616f1ce9b22cd07ca7ff363b/1634671850221/Kratom+People+in+Recovery+Final+draft.pdf>



**KRATOM HAS THE POTENTIAL TO BE ADDICTIVE** [Kratom Drug Facts | National Institute on Drug Abuse](#)  
Kratom use has been used by individuals in recovery thinking it is an effective means of dealing with addiction, including opioid addiction. **It's not!**

**Kratom is a tropical tree native to Southeast Asia, with leaves that contain compounds that can have psychotropic (mind-altering) effects.**

- ☐ It is sold in pill/capsule/powder/extract form that comes from the leaves of a tree in Southeast Asia.
- ☐ Kratom leaves are sometimes brewed in tea or eaten in food.
- ☐ It has mind-altering effects and can be addictive at high doses. [Kratom Drug Facts | National Institute on Drug Abuse \(NIDA\)](#)

## **What are the Potential Dangers?**

- ☐ Small doses = stimulant effects
- ☐ Large doses = depressant effects
- ☐ It is considered a dietary supplement by the FDA, therefore it is not regulated like medication. This increases the risk of contamination like salmonella. It also means the quantity of active ingredients may differ from what's printed on the label, or that there could be additional, potentially dangerous substances (nickel and lead) mixed in, which may be harmful with long-term exposure. [Kratom: the risky new substance you need to know about \(https://doctors-hospital.net\)](#)

## **Is Kratom Addictive?**

- ☐ **It can be.** Like other drugs with opioid-like effects, Kratom can become addictive for some people. People that have had addiction issues in the past should be very aware that this drug is not safe. [National Institute on Drug Abuse](#)
- ☐ Kratom may have the potential to induce dependence-like symptoms (withdrawal and craving). There are current studies aimed to address the prevalence of, and motivations for, kratom use among individuals receiving substance use disorder treatment. [Recovery Research Institute \(recoveryanswers.org\)](#)



## **Is Kratom FDA Regulated?**

- ☐ Unfortunately, it is not currently regulated in Michigan. This herb is sold in some gas stations, tobacco shops, and on-line in Michigan under a variety of names. However, this product is banned in six states and 18 countries. [National Institute on Drug Abuse \(NIDA\)](#) and [Is Kratom Legal? Kratom Legality by State - Sprout Health Group](#)

# Kratom

Case report

## *Mitragyna speciosa* (Kratom) poisoning: Findings from ten cases

David Peran <sup>a b</sup>  , Michael Stern <sup>b</sup>, Petr Cernohorsky <sup>c</sup>, Roman Sykora <sup>a b</sup>, Stanislav Popela <sup>d e</sup>,  
Frantisek Duska <sup>b</sup>

two cases and lack of response in one patient were observed. All patients survived and the effect of intoxication wore off within two days. Kratom overdose toxidrome is variable and, in keeping with its receptor physiology, consists of signs and symptoms of opioid-like overdose, sympathetic overactivation and serotonin-like syndrome. Naloxone can help to avoid intubation in some cases.

# Kratom

## **Kratom (Mitragynine) Ingestion Requiring Naloxone Reversal**

[Daniel L Overbeek](#)<sup>1,✉</sup>, [Jonathan Abraham](#)<sup>1</sup>, [Brendan W Munzer](#)<sup>1</sup>

- 38 F with h/o Anxiety, Depression and Polysubstance Abuse

# Kratom

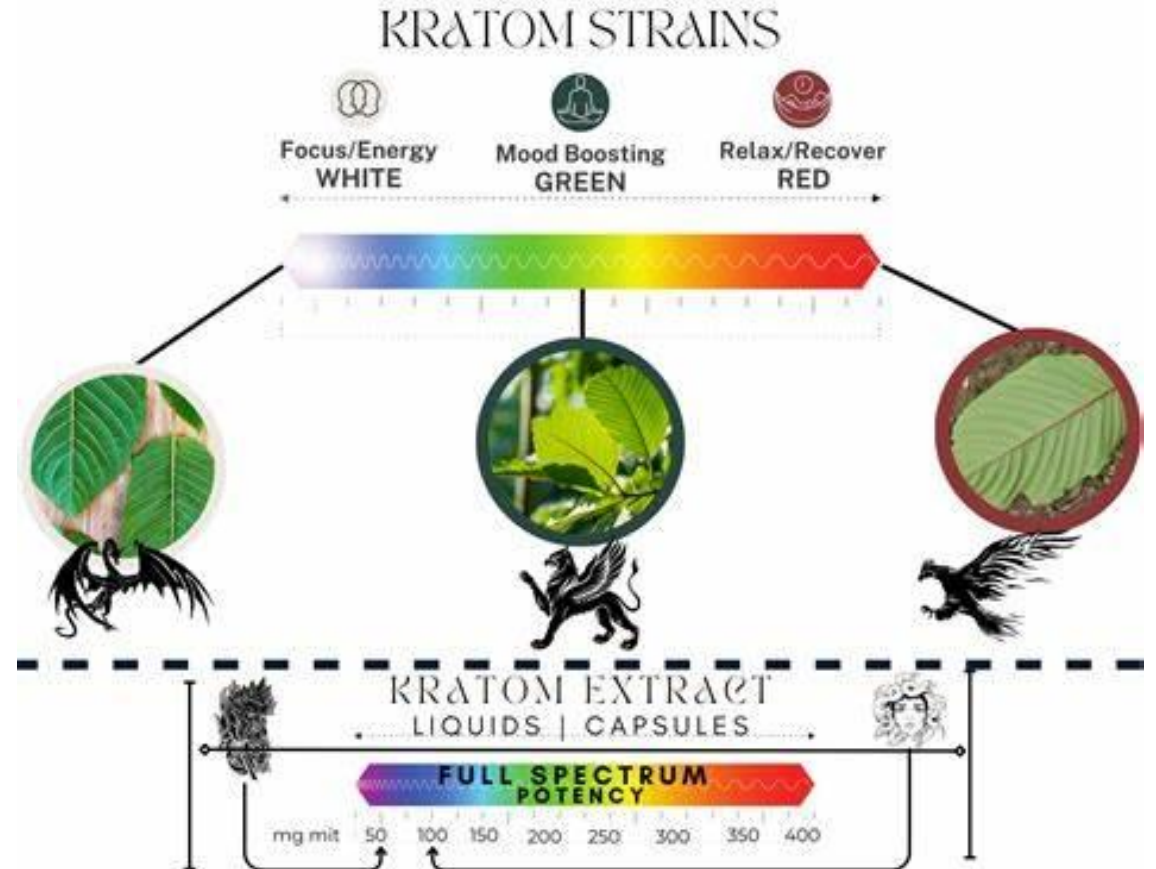
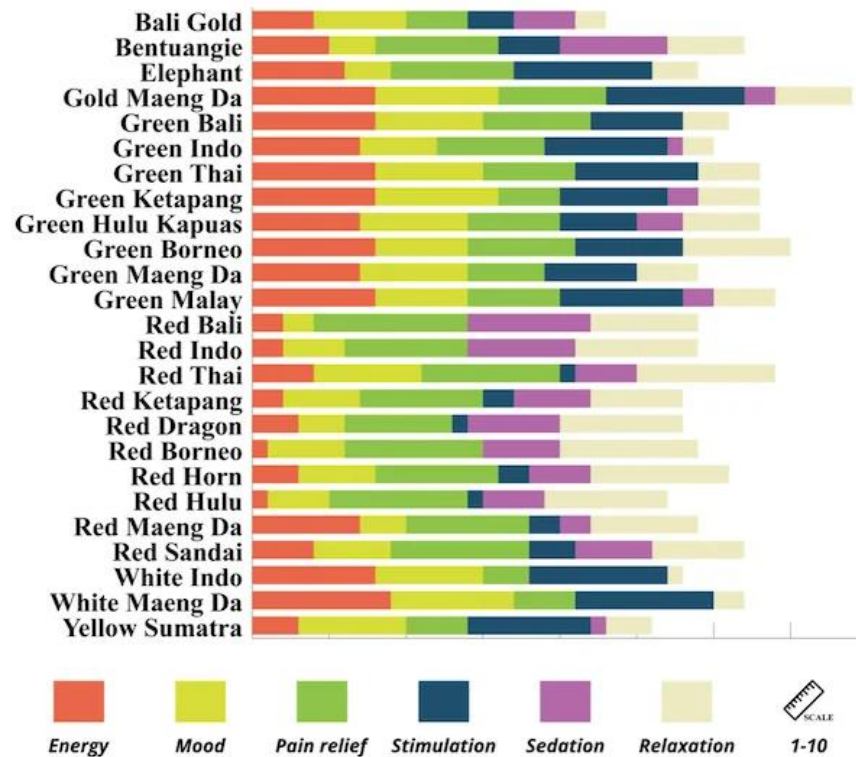
- Pitfalls
  - Using it as an opiate replacement or for opiate withdrawal
  - Can get addicted to anything hitting these receptors
  - Does not go well with other substances
  - Not regulated and cannot get consistent dosing
  - There are 45 different alkaloids that have been isolated from Kratom
    - High likelihood of interaction and side effects



# Kratom

Multitude of different strains and potencies

## Kratom Strains Chart



# K2/Spice



- Synthetic cannabinoid
- AKA: Spice, K2, Blaze, RedX Dawn, Paradise, Demon, Black Magic, Spike, Mr. Nice Guy, Ninja, Zohai, Dream, Genie, Sence, Smoke, Skunk, Serenity, Yucatan, Fire, and Crazy Clown
- Sold under herbal incense or potpourri and labeled “not for human consumption”
- So, please tell us how to cook this stuff up...

# K2/Spice



- Common: Tachycardia and elevated blood pressure
- Severe side effects: agitation, anxiety, seizures, stroke, coma, and death by heart attack or organ failure
- With a side order of: Intense hallucinations, severe agitation, disorganized thoughts, paranoid delusions, unconsciousness and violence after smoking products laced with these substances.



# Xylazine

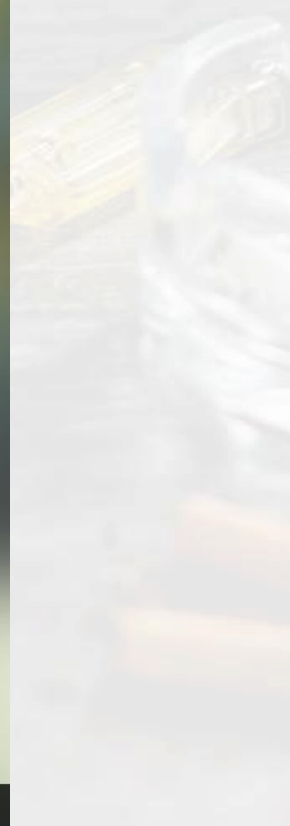
- Street name: Tranq
- Not medically used in humans
- Veterinary non-opioid sedative
- Used to bulk, cut and enhance cocaine, heroin and fentanyl
- Naloxone does not work to reverse it's effect
- Sedation, bradycardia, respiratory depression, severe wounds



# Xylazine



Image tweeted by @matTTTT187

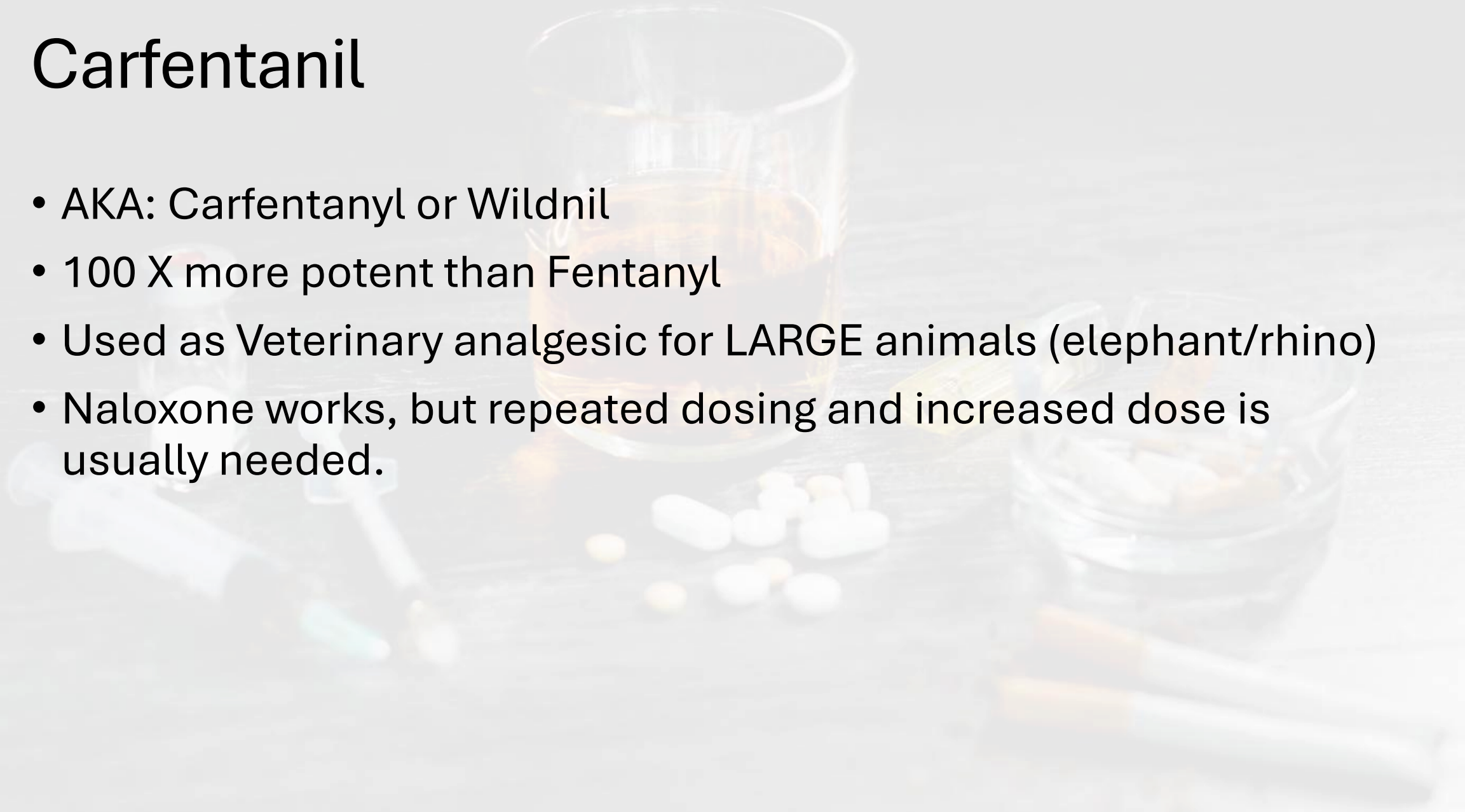


# Medetomidine

- Used in Veterinary Medicine for sedation and lowering the therapeutic threshold for anesthesia medications
- Alpha-2 Adrenergic Agonist, similar to clonidine
- Sedation, pain modification
- Marked vasoconstriction and bradycardia
- Narcan ineffective, but can give atipamezole IM
- Found with Xylazine and Fentanyl

# Carfentanil

- AKA: Carfentanyl or Wildnil
- 100 X more potent than Fentanyl
- Used as Veterinary analgesic for LARGE animals (elephant/rhino)
- Naloxone works, but repeated dosing and increased dose is usually needed.





# Pre-Hospital

- Saginaw Tuscola Medical Control Authority
- <https://www.saginawtuscolamca.org/>





# Pre-Hospital



## PROTOCOLS

### SECTION 1 - TREATMENT PROTOCOLS

#### SECTION 2 - TRAUMA AND ENVIRONMENTAL

#### SECTION 3 - ADULT TREATMENT

#### SECTION 4 - OBSTETRICS AND PEDIATRICS

#### SECTION 5 - ADULT CARDIAC

#### SECTION 6 - PEDIATRIC CARDIAC

#### SECTION 7 - PROCEDURE PROTOCOLS

#### SECTION 8 - SYSTEM PROTOCOLS

#### SECTION 9 - MEDICATIONS

#### SECTION 10 - SPECIAL OPERATIONS

#### \*EMERGENCY PROTOCOLS\*

#### PROTOCOLS FOR REVIEW/AWAITING MDHHS APPROVAL

#### SYSTEM MEMOS/ADVISORIES

## Section 1 - Treatment Protocols

1-1 - General Pre-Hospital Care

1-2 - Abdominal Pain (Non-Traumatic)

1-3 - Nausea & Vomiting

1-4 - Syncope

1-5 - Shock

1-6 - Anaphylaxis/Allergic Reaction

1-7 - Adrenal Crisis

1-8 - Behavioral Health Emergencies

1-9 - Opioid Overdose Treatment and Prevention

1-10 - Foreign Body Airway Obstruction

# Pre-Hospital

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- EMS Protocols
  - Excited Delirium → Hyperactive Delirium with Severe Agitation
    - Ketamine (4mg/kg or 500mg IM)
    - Midazolam (10mg IM/IN)
  - Unresponsive
    - CPR (pulseless) → ACLS
    - Naloxone or opioid reversal agent
    - Intubated
    - Blood Glucose

















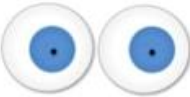






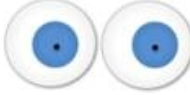
















# Pre-Hospital

- What about Kratom or Synthetic Cannabinoids?
  - Symptom management until they hit the ER





# Emergency Department

	HR & BP 	Resp. 	Temperature 	Pupils 	Bowel Sounds 	Diaphoresis 
<b>Anticholinergic</b> Anticholinergics – Atropine, scopolamine, glycopyrrolate, bntropine, trihexyphenidyl Antihistamines – Chlorpheniramine, Cyproheptadine, Doxylamine, Hydroxyzine, Dimenhydrinate, Diphenhydramine, Meclizine, Promethazine	 	No change 		Dilated 		
<b>Cholinergic</b> Organic Phosphorous Compounds: Carbamates • Arecholine, Pilocarpine, Urecholine (Betanecol), Carbachol, Choline, Metacholine, Mushrooms	No change 	No change 	No change 	Pinpoint 		
<b>Opioid</b> Morphine • Codeine • Tramadol • Heroin • Meperidine • Diphenoxylate • Hydromorphone • Fentanyl • Methadone • Propoxyphene • Pentazocine • DXM • Oxycodone • Hydrocodone	 			Pinpoint 		
<b>Sympathomimetic</b> Caffeine, cocaine, amphetamines, methamphetamines, Ritalin, LSD, Theophylline, MDMA	 			Dilated 		
<b>Sedative-Hypnotic</b> anti-anxiety agents, muscle relaxants, antiepileptics and preanesthetic medications – Barbituates – Benzodiazepines	 			No change 		



# Emergency Department

- ABCs + Trauma Eval
- Electrolytes, EKG, Chest XR
- Symptom Management
  - Naloxone (0.4mg-2mg IV/IM/IO/IN)
  - Ondansetron 4mg ODT/IV
  - IV Fluids

## PRIMARY SURVEY



# Emergency Department

- Supportive Care
- Hopefully get more of a story
- Contact Poison Control (800-222-1222)



# Emergency Department

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- Next steps
  - Involve Crisis Team or Social Work/Case Management
  - Voluntary v Petition/Clinical Certification
  - Psychiatrist in the acute setting
    - Unlikely
  - Legal/Liability issues
    - AMA v Discharge
  - Likely to be outpatient follow up after discharge



Thank you

