

# Heroin Was So Yesterday: Drug Dealer and EMS Innovations – The Modern Scourge of Methamphetamine

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# Methamphetamine

- History of Methamphetamine
  - Ephedra comes from Chinese herb *ma huang*
  - Has been used for 5,000 years
  - 1885 Nagai Nagayoshi, Japanese chemist studying in Germany, first to identify chemical in Ephedra and called it ephedrine
  - 1919 Akira Ogata streamlined the process to make crystalized methamphetamine (water soluble
    - easier to inject)

# Methamphetamine

- History of Methamphetamine
  - WWII heavily used by Japanese and German military
  - Increased aggression, alertness and risk-taking behavior
  - 1980's Popular among motorcycle gangs, especially in California
  - 2005 Combat Methamphetamine Act regulated sale of pseudoephedrine



# Methamphetamine

- Names of Methamphetamine

- Crank
- Crystal
- Ice
- Speed
- Getgo/Go Fast
- Poor Man's Coke/Redneck Cocaine
- Trash or Garbage



# Methamphetamine

- Names of Methamphetamine Combos
  - Biker Coffee – Coffee and methamphetamine
  - Croak– Cocaine and methamphetamine
  - Hugs and Kisses– MDMA and methamphetamine
  - Mexican Speed Balls– Crack and methamphetamine
  - The Five Way – Methamphetamine, heroin, cocaine, Rohypnol and alcohol





# Methamphetamine

# Methamphetamine Equipment

## Gas cans

## Pails/buckets

## Hot plates

## Propane cylinders

## Ice chests

## Rubber gloves

## Jugs and bottles

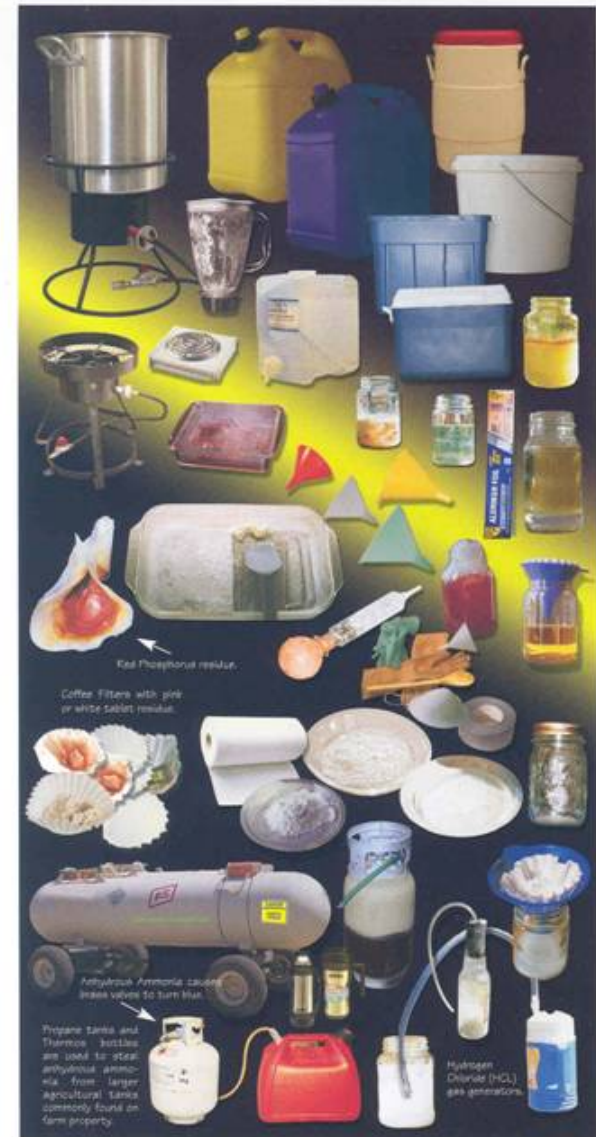
## Rubber tubing

## Kitty litter

## Tempered glassware

## Laboratory beakers/glassware

# Thermometers



# Methamphetamine

- Prevalence in Pennsylvania
  - Three geographic early warning areas of drug abuse
    - Philadelphia
    - Johnstown
    - Pittsburgh



# Methamphetamine

- Prevalence in Pennsylvania
  - According to Jennifer Smith
    - Secretary of Dept of Drug and Alcohol
    - Testified to our Senate – confirms a significant uptick in use (March 2019)
    - 2017 Drug overdoses in United States
      - 15% from methamphetamine
      - 50% opiates



# Methamphetamine

- Prevalence in Pennsylvania
  - Largest methamphetamine arrest in Pennsylvania
    - Butler County October 2018 – 122 pounds of methamphetamine and 10 lbs of cocaine worth 2.5 million dollars
    - Intersection of Route 79 and Rt 422



# Methamphetamine

- Manufacturing
  - Three types of Labs
    - *Super Labs* (greater than 10 kilos)
    - Transnational Criminal Organization (TCO)
      - Mexico and other countries



# Methamphetamine

- Manufacturing

- *Small Labs*

- Less than 10 kilos
    - Hurt by restriction of ephedrine and pseudoephedrine pharmacy sales
    - \$100 of ingredients = \$1,000 in profit
    - 1 lb of methamphetamine = 5 lbs. hazardous waste





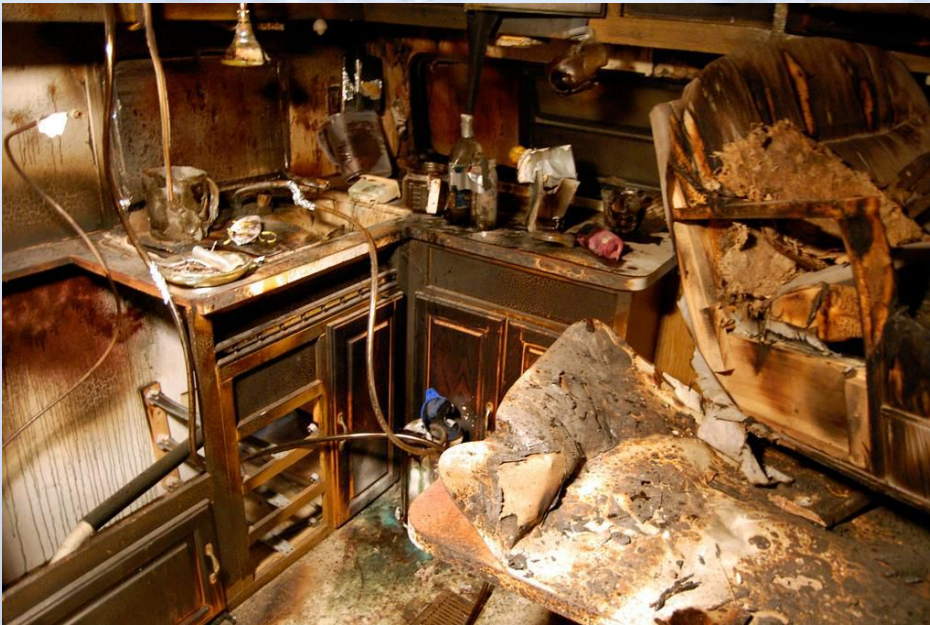
# Methamphetamine

- Manufacturing
  - *Shake and Bake Labs*
    - One vessel for entire production – usually a plastic soda bottle – can cook anywhere)



# Methamphetamine

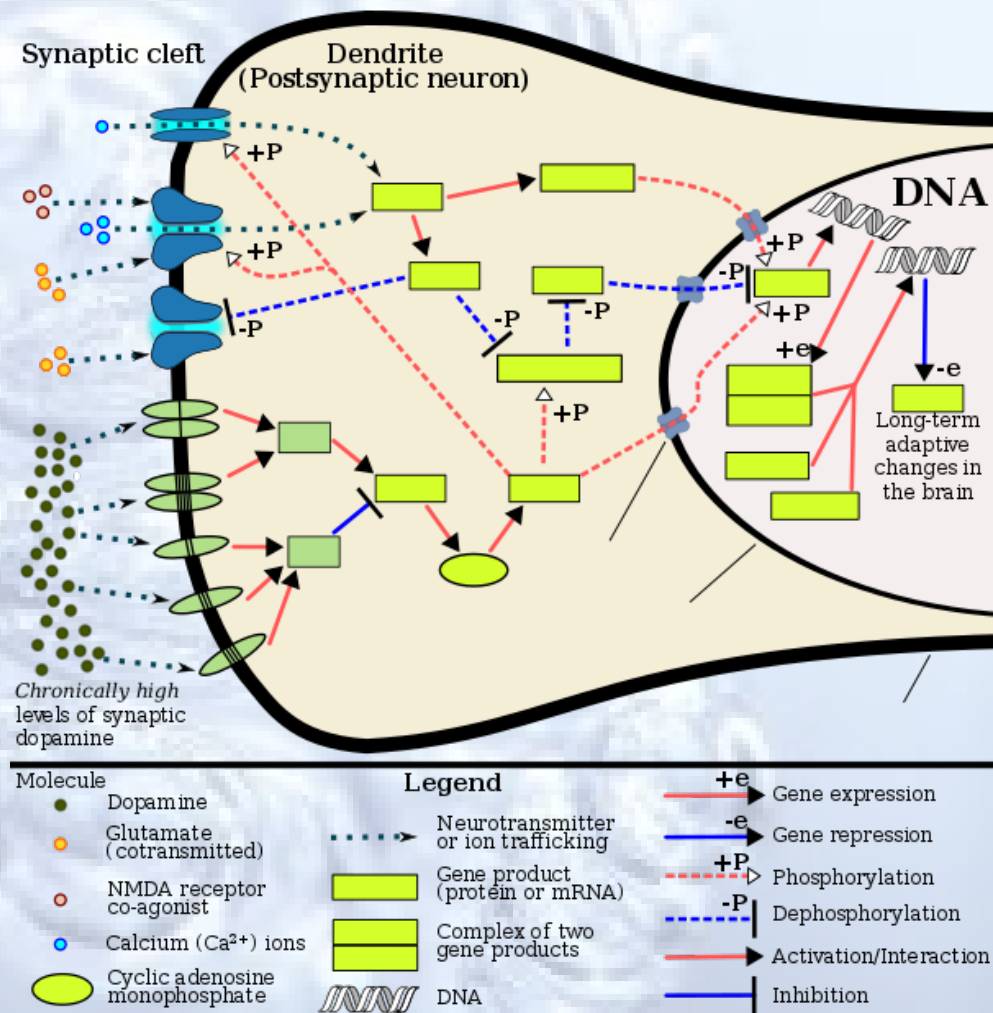
- Methamphetamine Lab Explosion Risk





# Methamphetamine

- Methamphetamine Pharmacology
  - Extreme dopamine release and re-uptake prevention
  - Dopamine 12-13 times normal in the prefrontal cortex
  - Lasts 50x longer than cocaine
  - Bing and crash



# Methamphetamine

## Methamphetamine

- Inhale it
- Inject it
- Smoke It
- Snort it
- Shoot it
- Swallow it
- Mix it



Meth Mouth

# Methamphetamine

## Methamphetamine

- Extreme weight loss
- Anxiety
- Stroke/MI
- Paranoia & Violence
- Hallucinations (crank bugs)
- **Excited Delirium**



# Excited Delirium



*Controversial Term AKA Hyperactive Delirium*

Not recognized by The Diagnostic and Statistical Manual of Mental Disorders  
Recognized by ACEP and By The National Association of Medical Examiners

# Excited Delirium

- **Definition-Controversial**

- Severe disturbance in level of consciousness
- Change in mental status over short period of time
- Physiological arousal, agitation, hostility
- Heightened sympathetic stimulation
- Sudden Death





# Excited Delirium

- Considerations
  - Reversible Conditions & Treatable Causes
    - Hypoxia
    - Hypoglycemia
    - Drug/alcohol intoxication
    - Brain injury, tumor, stroke
    - Hyperthyroidism (thyroid storm)





# Excited Delirium

- Treatment Considerations
  - Verbal De-escalation
  - ***Physical Restraint***
  - Pain Compliance
  - ***Chemical Restraint***
  - ***TASER***
    - Thomas A. Swift Electric Rifle



# Excited Delirium

- Verbal De-escalation
  - Respect personal space
  - Do not be provocative
  - Be concise
  - Listen closely to what patient is saying
  - Set clear limits



# Excited Delirium

- Physical Restraint
  - Handcuffing
  - Hobbling
  - Hog-tie
  - Transport Considerations



# Handcuffing Considerations

- Extremely Dangerous for LEO
- Close Distance
- Handcuff can be used as a weapon
- 670 people die in police custody each year
- All have been handcuffed
- Positional Asphyxia
- Not necessarily secure

# Handcuffing Considerations

- Complications of Handcuffing
  - Positional asphyxia
  - Restraint asphyxia
  - Aspiration
  - Severe acidosis
  - Rhabdomyolysis
  - Sudden cardiac death
  - A QUIET PATIENT IS A DEAD PATIENT



# Handcuffing Considerations

A QUIET PATIENT IS A DEAD PATIENT!



Eric Garner and NYPD,  
7/17/14



# Handcuffing Considerations

- Not Necessarily secure
  - Handcuff keys have been around for a century
  - All handcuff keys are the same
  - Multiple methods of disguising keys



# Handcuffing Considerations



# Chemical Restraints

## *Current Pharmacology Choices*

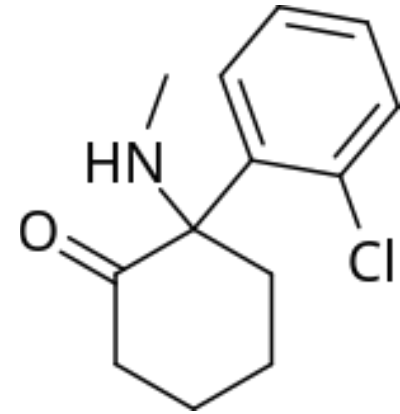
- Benzodiazepines
- Antipsychotics
- Paralytics and endotracheal intubation
- \*Ketamine



Don't exacerbate the toxic ingestion with medical therapy!

# Ketamine

- Categorized as “dissociative anesthetic”
  - Distorts perception of sight and sound
  - Produces feeling of detachment from environment and self
- Induces trance-like state/sedation



# Ketamine

- **IMCRASS Score**

- Score

- Scale of +4 to -5

- Term

- Combative/Very Agitated
    - Agitated/Restless
    - Alert/Calm

Improved Montgomery County Richmond Agitation Sedation Scale (IMCRASS)			
Score	Term	Description	EMS Activity
+4	Combative	Overtly combative, violent, immediate danger to staff	Unsafe to care for patient without maximal assistance, requires law enforcement assistance
+3	Very agitated	Pulls or removes tubes and catheters, aggressive	Struggles aggressively and forcefully against care. Routine EMS care impossible
+2	Agitated	Frequent, nonpurposeful movements, fights interventions	Resists EMS care, requires gentle physical redirection to allow for routine EMS care
+1	Restless	Anxious but movements are not aggressive or vigorous	Verbally redirectable, follows commands, routine EMS care possible
0	<b>Alert and Calm</b>		
-1	Drowsy	Not fully alert but has sustained awakening and eye contact to voice (> 10 seconds)	Awakens to voice
-2	Light sedation	Briefly awakens with eye contact to voice (< 10 seconds)	Awakens to bumps / potholes in roadway during transport or application of oxygen via NC or NRB
-3	Moderate sedation	Movement or eye opening to voice (no eye contact)	Eyes open to physical exam, venous tourniquet application and / or BP cuff inflation
-4	Deep sedation	No response to voice but movement or eye opening to physical stimulation	Responds to insertion of Nasopharyngeal airway or IV start.
-5	Unarousable	No response to voice or physical stimulation	No response to insertion of Oralpharyngeal airway, Nasopharyngeal airway, or IV start



# Ketamine

- **IMCRASS Score**

- **EMS Activity**

- Unsafe to handle patient, requires law enforcement
    - Struggles aggressively, routine EMS impossible
    - Resists EMS
    - Verbally redirectable
    - Alert and calm

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# Ketamine

- IMCRASS Score
  - RED Ketamine indicated
  - GRAY Ketamine not indicated

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# Ketamine

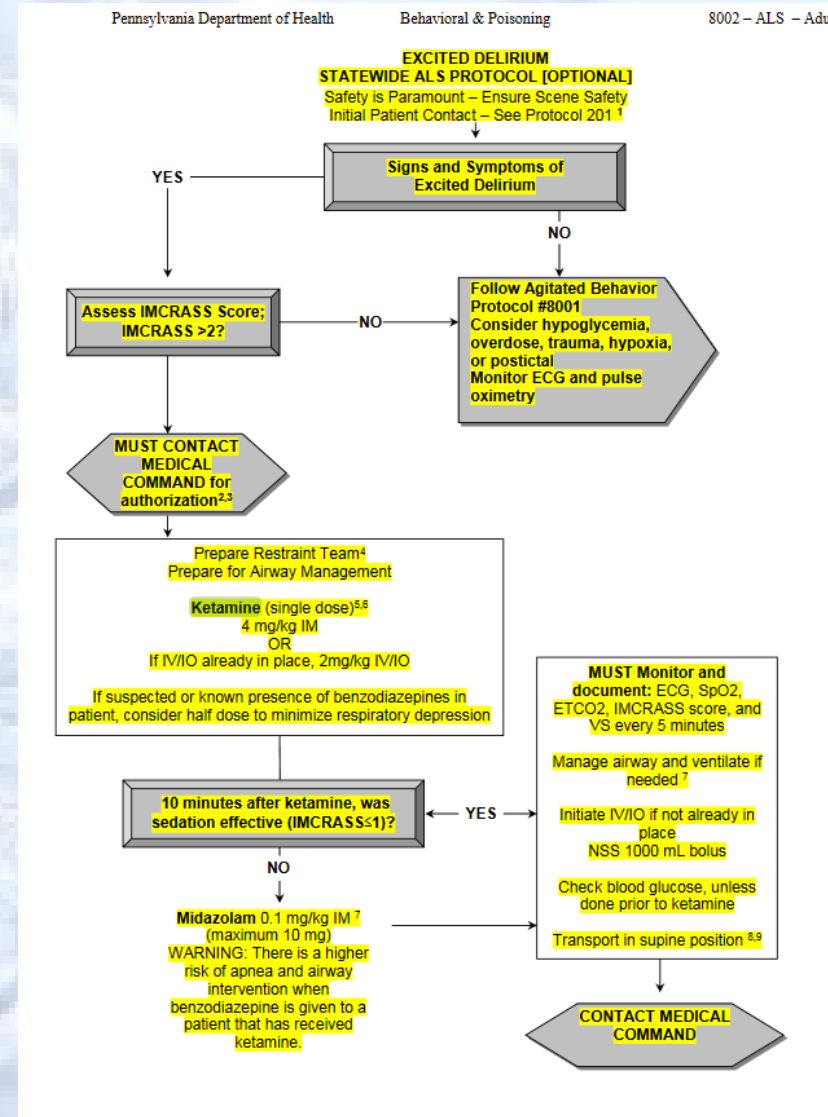
- IMCRASS Score
  - Response to Ketamine
  - GREEN
    - Drowsy
    - Light Sedation
    - Moderate Sedation
    - Deep Sedation
  - BLUE
    - Unarousable

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# Ketamine

- Excited Delirium Protocol

- Ensure scene safety
- IMCRASS score  $> 2$
- MUST contact MC
- Prepare restraint team\*
- Prepare airway mgt
- Ketamine Dose
  - 4 mg/kg or
  - 2 mg/kg if IV already established
  - Half dose if benzo suspected



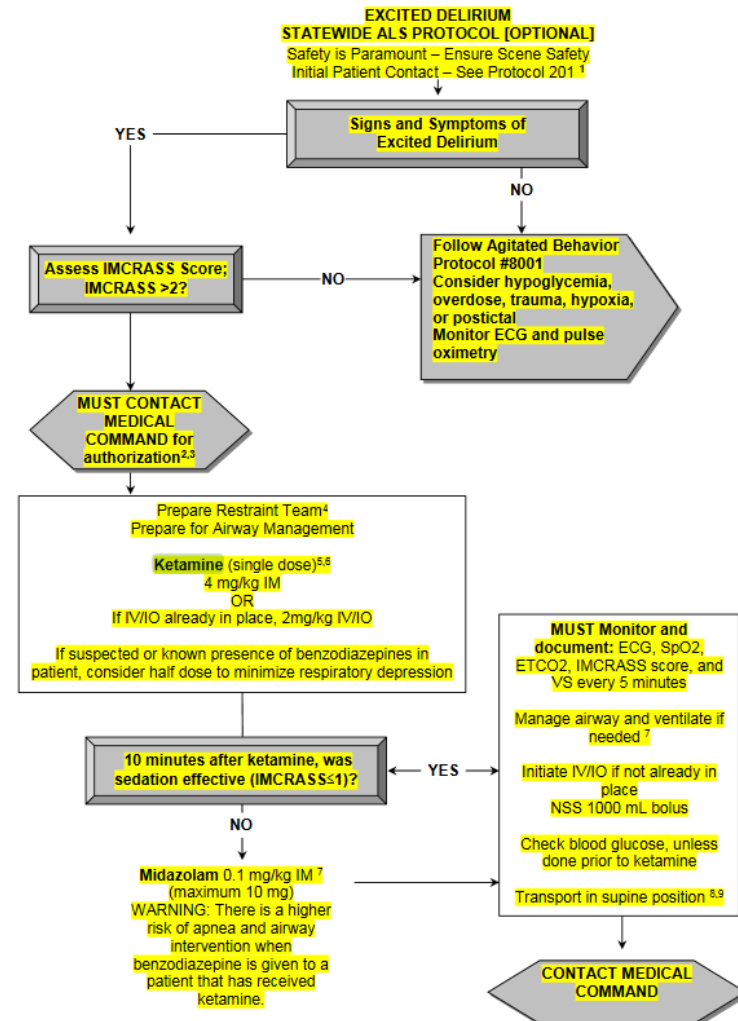
# Ketamine

- Excited Delirium Protocol
  - After 10 minutes, reassess IMCRASS
  - IF  $<1$ , monitor document
    - ECG, SpO<sub>2</sub>, ETCO<sub>2</sub>, IMCRASS score Q5 min
    - Manage airway, ventilate if needed
    - Initiate IV/IO, 1000 mL NSS bolus
    - Check blood glucose
    - Transport supine

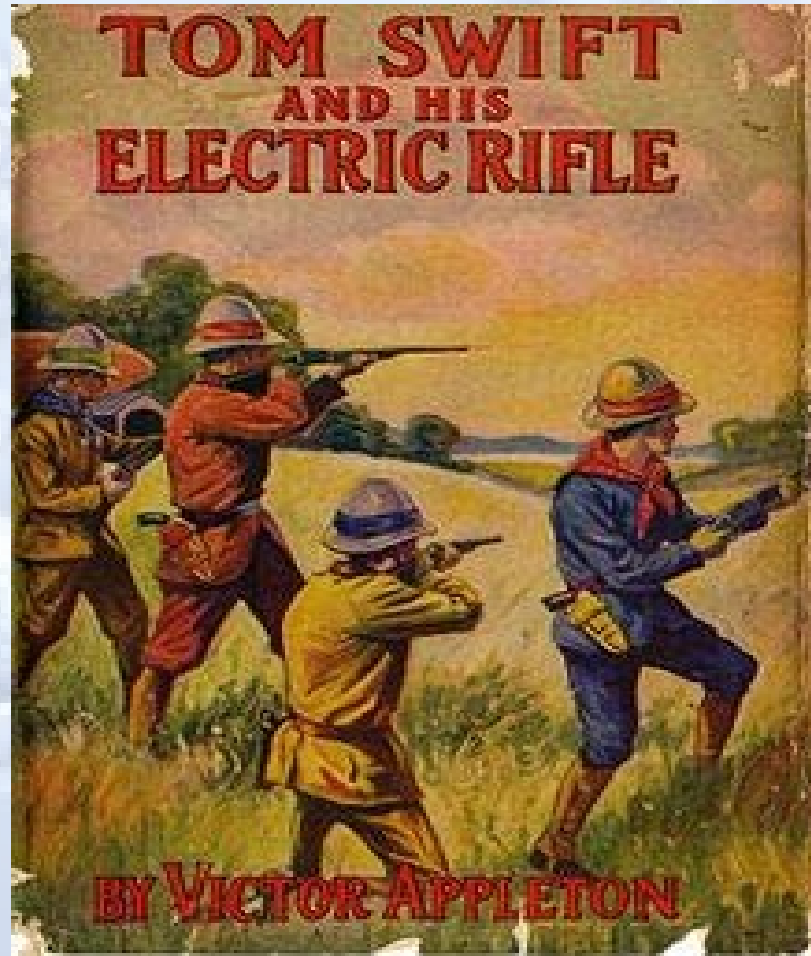
Pennsylvania Department of Health

Behavioral & Poisoning

8002 – ALS



# Thomas A. Swift's Electric Rifle (TASER)



Children's Adventure Book Published in 1910-1941

# Taser History

- Invented in 1974 by Jack Cover, NASA
- Initially considered a firearm by the ATF
- Rick and Tom Smith created Taser International in 1993, Scottsdale Arizona
- 1993 Air Taser was created using nitrogen
- 1999 M26 was created
- 2003 X26 was developed





# Facts: What it is!

- A weapon that fires electrical probes that give an electric shock, causing temporary paralysis
- Nitrogen powered
- Deploys at 55 meters per second
- Delivers 50,000 volts of energy at low amps
- Delivers 5 second shocks
- 80% of Law Enforcement uses it at the level of pepper spray

# Facts: What it is! (cont)

- 500,000 LEO carry Tasers in the US
- Used in 170 Countries
- Used by 18,000 law enforcement agencies
- Shown to dramatically decrease injury to officers and offenders
- 30% of the time used in lethal confrontations
- Used 620 times per day
- Considered safe based on controversial evidence
- Company claims 161,000 lives saved

# Facts: What it is not!

- Non lethal-proper term Less Lethal
  - Amnesty International claim 150 deaths 2001-2005
    - Widely disputed by medical examiners as the Taser being the cause of death as many factors are involved including ED
- Not FDA approved
- Not intended for repetitive shocks
- Testing based on 2 million healthy law enforcement officers with a single 5 second shock

# Excited Delirium

- TASER video



# Not for Hospital Inpatient Restraint

**Central Pa. hospital gives up stun guns after wrongly using one on patient in mental crisis**

Updated Jun 12, 2019; Posted Jun 12, 2019



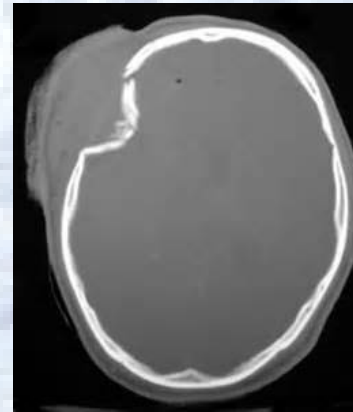
The health department faulted the hospital for using the taser “as a healthcare intervention” rather than a law enforcement tool, and for failing to ensure all lesser forms of force were tried first.



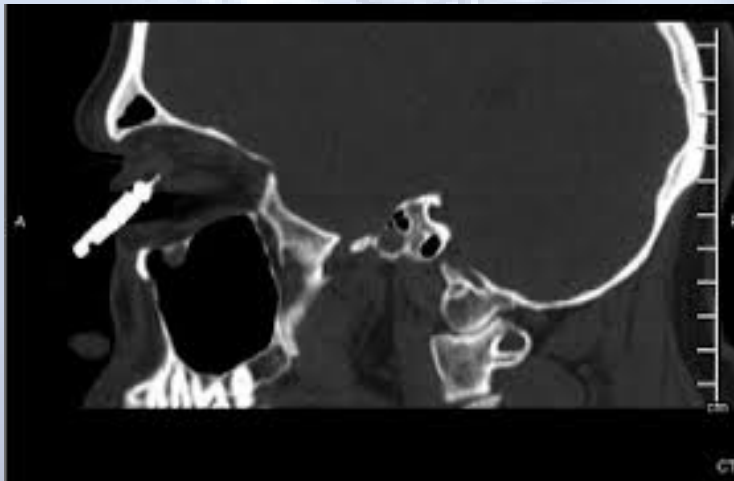
# Taser Related Injuries

– Injuries DO occur

- Skull fractures
- Intracranial bleeds
- Long bone fractures
- Shoulder dislocations
- Pneumothorax



# Taser Related Injuries

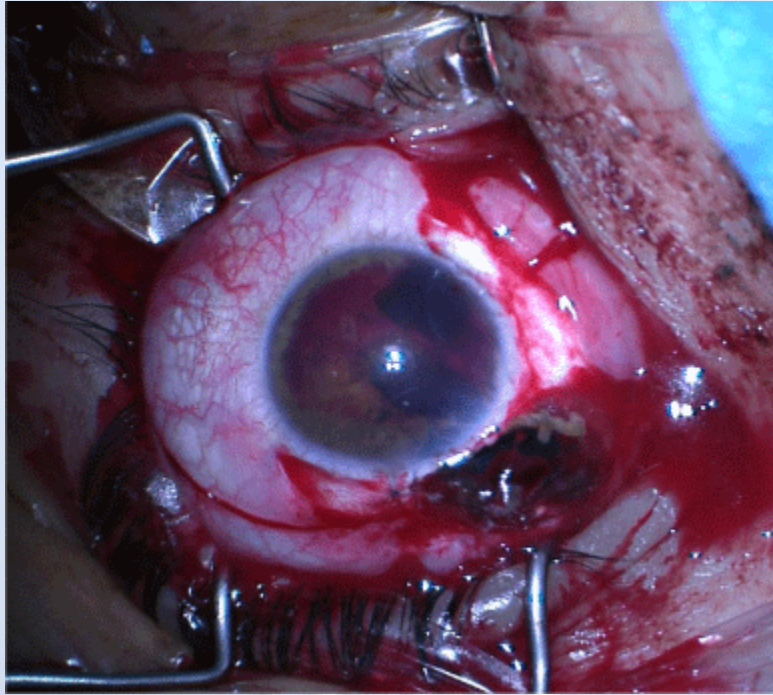


# Taser Related Injuries





# Taser Related Injuries



# Taser Probe Removal



- PA EMS considered as an impaled object not to be removed
- Gentle firm pressure, skin will tent
- Local wound care
- Use caution not to stick yourself!





# Summary

- Methamphetamines
  - Not a safe alternative to opiates
  - Growing in popularity in Pennsylvania
  - Have been present since the late 1800's
  - Unique risks to first responders
  - Multiple health implications
  - Easily manufactured
  - Can result in excited delirium
  - Chemical treatment options - Ketamine

# Summary

- Tasers are highly popular and useful law enforcement tools
- They are considered less lethal, not non lethal
- Many injuries can occur
- Always treat the patient with dignity and respect
- Be aware of positional asphyxia
  - A quiet patient is a dead patient!

# Questions?

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