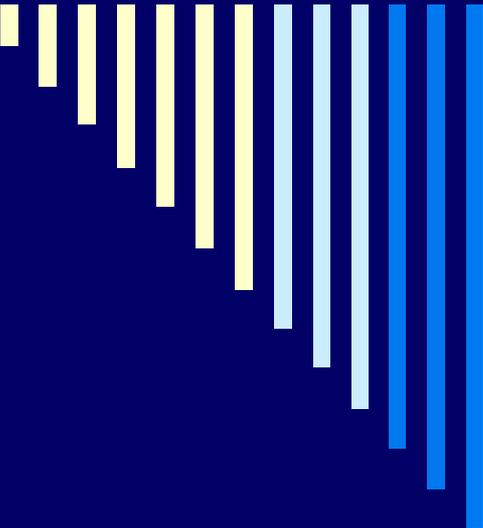


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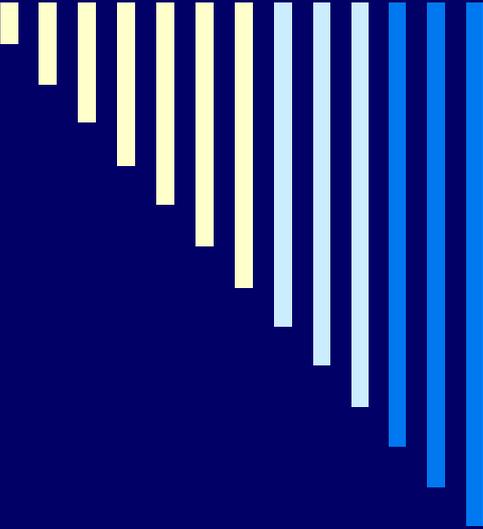


# Treating the Violent Patient Oregon EMS Conference

**Matthew M. Eschelbach, M.S., D.O., F.A.C.E.P.  
Medical Director, EMS and Trauma  
St Charles Medical Center , Redmond OR**

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# The Violent or Dangerous Patient

**TREATMENT:** Treat per Universal Patient Care protocol.

A. Hypoglycemia

1. Determine capillary blood glucose level. If < 80 mg/dl treat with the following:
  - a. If patient can protect their own airway administer **oral glucose**.
  - b. If patient is unable to protect their own airway, administer **Dextrose 50%, 12.5-25 grams slow IV**.
  - c. If the possibility of alcohol abuse, malnutrition, or chemotherapy exists administer *Thiamine 100mg IV* prior to D50.
2. Repeat blood glucose level after 5-10 minutes and repeat treatment if it remains low.
3. If no IV can be established give **Glucagon 1 mg IM**.

B. Opiate Overdose

1. If opiate intoxication is suspected, administer **Narcan 0.4 - 2.0 mg IV/IM/IN/IO/Nebulized**
2. If no improvement and opiate intoxication is still suspected, repeat *Narcan* every 3-5 minutes up to a total maximum dose of 4 mg.

C. Severe Anxiety

1. **Ativan 1 mg IN, IM, or slow IV**

D. Combative Patient

1. Consider causes for behavior (seizure, stroke, poisoning)
2. Request police assistance.
3. Restrain the patient in a lateral recumbent position or supine.
  - i. Consider chemical sedation. *Contact medical control for administration of two or more medications.*
  - ii. **Haloperidol 2-5 mg IM/IV**,
  - iii. **Versed or Ativan 2 mg IM/IV**,
  - iv. **Benadryl 25-50 mg IM/IV**.
4. Probable excited delirium: **Ketamine 4 mg/kg IM or 1 mg/kg IV**.

## PEDIATRIC PATIENTS:

### A. Hypoglycemia

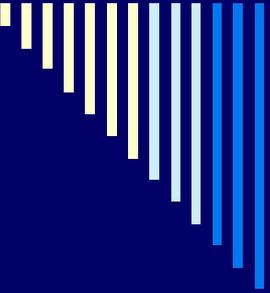
- Infants < 10 kg (birth to 1 year) with CBG < 40 mg%:
  - Give 5-10 ml/kg of **dextrose 10%**.
- Children 10 kg – 35kg with CBG < 60 mg%:
  - Give 2-4 ml/kg of **dextrose 25%**.
- Repeat dextrose as needed.
- **Glucagon 0.5 mg IM** (< 5 y/o or < 20 kg) to a maximum of 1 mg.

### B. If suspected opiate overdose

- Naloxone 0.1 mg/kg IV/IO/IM/IN to a maximum of 2 mg.

## NOTES & PRECAUTIONS:

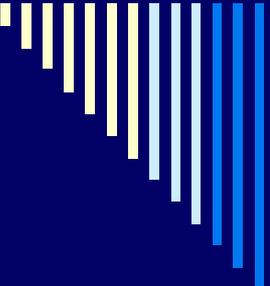
- A. If patient is disoriented, think of medical causes.
- B. If patient is suicidal do not leave alone.
- C. All patients in restraints must be monitored closely.
- D. Observe for decreased LOC, focal neurological findings, and hypothermia.
- E. Look for Medical Alert tags.



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# Typical Scenario

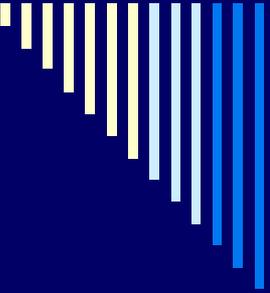
- Male subject creating a disturbance
  - Triggers 911 call
  - Obvious to police that subject will resist
  - Struggle ensues with multiple officers
    - May involve OC, Taser, choke holds, batons, etc.
-



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# Typical Scenario

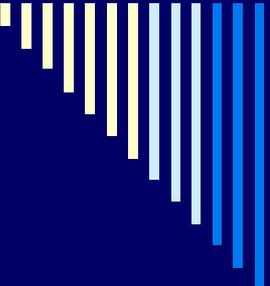
- Physical restraints applied
    - Subject subdued in a prone position
    - Officers kneeling on subjects back
    - Handcuffs, ankle cuffs
    - Hogtying, hobble restraint or TARP
  - Prone vs. lateral positioning
  - Transported in a squad car to jail
-



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# Typical Scenario

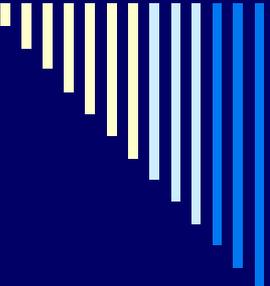
- Continued struggle against restraints
    - Sometimes damages squad car
  - Apparent resolution period
    - Subject becomes calm or slips into unconsciousness
    - Labored or shallow breathing
    - Followed unexpectedly by...
-



# Typical Scenario

## □ Death

- Resuscitation efforts are futile
- Los Angeles County EMS Study
  - 18 ED deaths witnessed by paramedics (all were restrained)
  - In 13 – rhythm documented
  - VT and asystole were most common
    - No ventricular fibrillation
  - All failed resuscitation

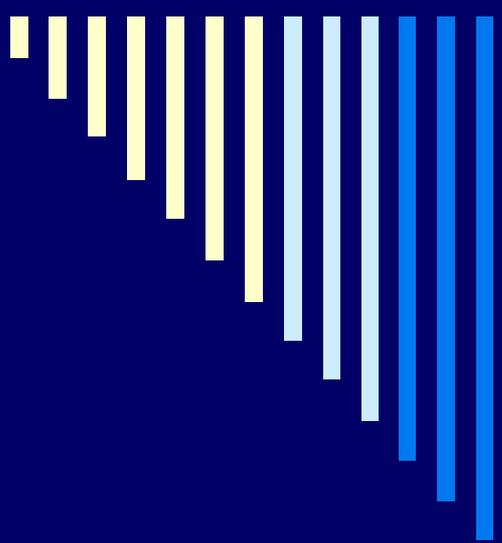


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# Typical Aftermath

- Several weeks later – autopsy results...
    - Cause of Death
      - Excited delirium
      - Illicit stimulant drug abuse
      - Concurrent medical problems
      - Minimal injury from police confrontation
    - It wasn't the taser after all
    - Officers exonerated
-

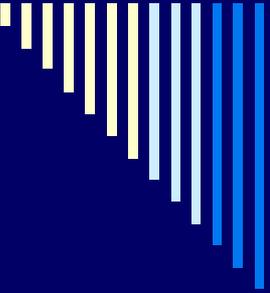
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Several forensic pathology studies have cited excited delirium, not Tasers, as the cause of death.

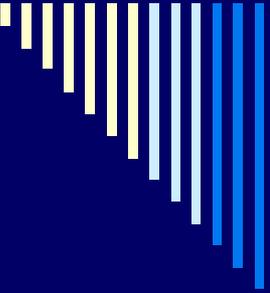
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# What is Excited Delirium?

- A controversial theory
  - An imminently life threatening medical emergency...
  - Not a crime in progress!
-

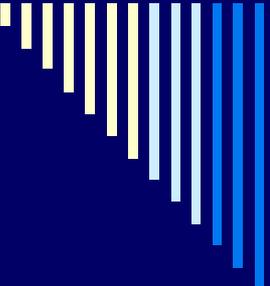


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# What is Excited Delirium?

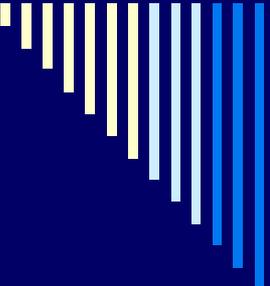
- Diagnostic criteria
    - Characteristic behavioral components
    - Metabolic Acidosis
    - Hyperthermia
    - Identifiable cause
      - Stimulant drugs
      - Psychiatric disease
  - It does not explain all behavior that leads to confrontation with police
-

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# Pathophysiology

- Central nervous system effects:
    - Changes in dopamine transporter and receptors
    - Accounts for behavioral changes
    - Accounts for hyperthermia
-

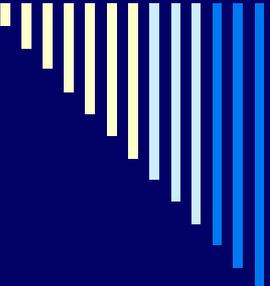


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# Behavioral Components: Delirium

## □ Delirium:

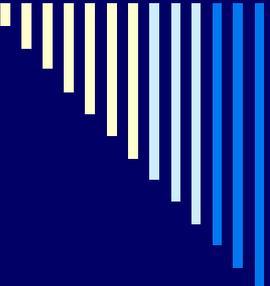
- “Off the track”
  - Confusion
  - Clouding of consciousness
  - Shifting attention
  - Disorientation
  - Hallucinations
  - Onset rapid – acute
  - Duration brief – transient
-



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# Behavioral Components: Psychosis

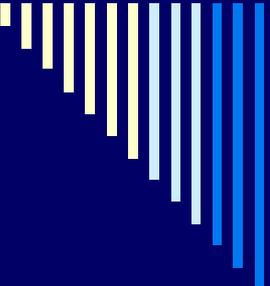
- Psychosis:
    - Bizarre behavior and thoughts
    - Hallucinations, paranoia
-



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# Behavioral Components: Excited (Agitated)

- Violent or aggressive behavior
    - Towards inanimate objects, especially smashing glass
    - Towards self, others or police
  - Noncompliant with requests to desist
  - Superhuman strength
  - Insensitive to pain
-

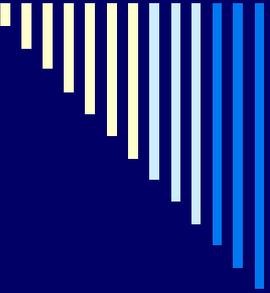


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# Excited Delirium

## □ Hyperthermia

- High body temperature
  - 105 – 113 °F
  - Drug's effect on temperature control center in brain (hypothalamus)
  - Tell-tale signs:
    - Profuse sweating
    - Undressing – partial or complete
-



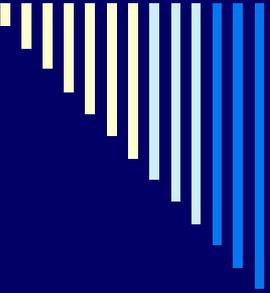
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# Excited Delirium

## □ Hyperthermia

### ■ Aggravated by

- increased activity
  - the ensuing struggle
  - warm humid weather (summertime)
  - dehydration
  - certain therapeutic medications
-



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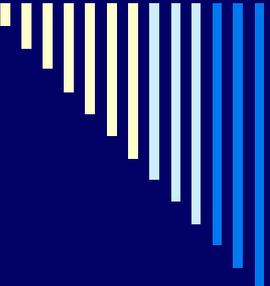
# Excited Delirium

## □ Metabolic Acidosis

- Potentially life threatening
  - Elevated blood potassium level
- Factors: dehydration, increased activity

## □ Survivors:

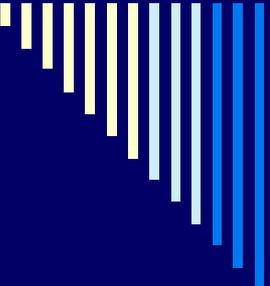
- Kidney damage due to muscle breakdown
  - May require dialysis
-



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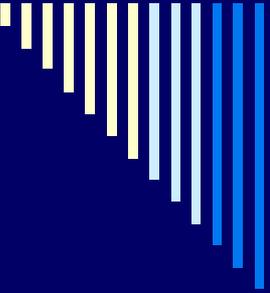
# Excited Delirium: The Usual Suspects

- #1 Cause: Stimulant Drug Abuse
    - Acute intoxication
    - Superimposed on chronic abuse
    - Acute intoxication triggers the event
-



# Excited Delirium: The Usual Suspects

- Underlying psychiatric disease
    - First described in 1849 before cocaine was first extracted from cocoa leaf
    - Mania (Bipolar Disorder)
    - Psychosis (Schizophrenia)
  - Noncompliance with medications to control psychosis or bipolar disorder
    - Unusual – #2 Cause
  - Rare: New onset schizophrenia
-



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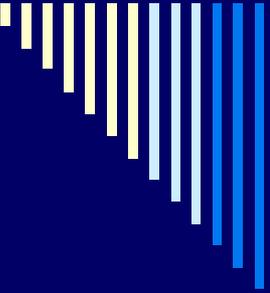
# Stimulant Drugs

## □ Cocaine

- The major offender
- On the rise due to “crack epidemic”

## □ Toxicology studies show...

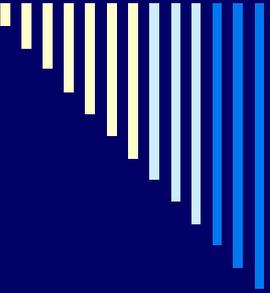
- Low to moderate levels of cocaine
  - High levels of benzoylecognine (the major breakdown product of cocaine)
  - Suggests recent use superimposed on chronic abuse
-



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# Stimulant Drugs

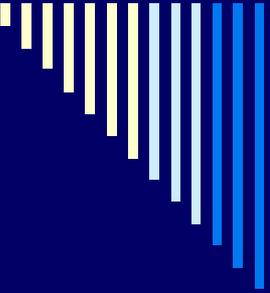
- Other known culprits include:
    - Methamphetamine
    - Phencyclidine (PCP)
    - LSD
  - Cocaethylene = Cocaine + Alcohol
    - Toxic to the heart
    - Unknown role in excited delirium deaths
-



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# Concurrent Health Conditions

- Obesity
  - Heart Disease
    - Coronary artery disease
    - Cardiomegaly
    - Hypertrophic cardiomyopathy
    - Myocarditis
    - Fibrotic heart
-

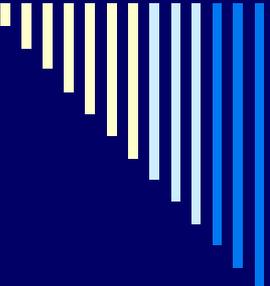


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# Autopsy Proof

- Specialized laboratories can identify changes in brain chemistry that are characteristic of excited delirium
  - Blood and brain tissue levels of benzoylecognine and cocaine
    - Typical ratio 5:1
-

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# Restraints and In-Custody Deaths

- What roles do physical restraint, restraining technique and restraint position play in excited delirium deaths?
-

# Physical Restraints

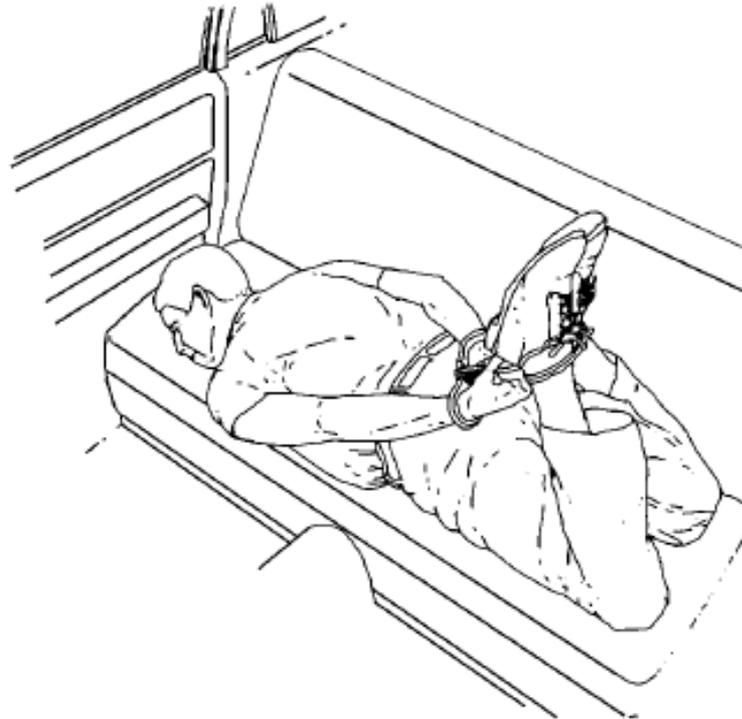
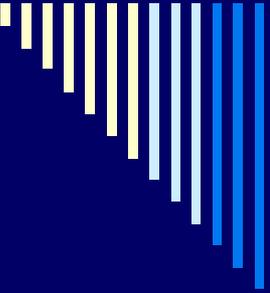


FIGURE 1. Example of a hobble ("hog-tie") restraint. Reproduced with permission from: Reay DT, Fligner CL, Stilwell AD, et al. Positional asphyxia during law enforcement transport. *Am J Forens Med Pathol.* 1992;13:90-7.

Source: *Prehosp Emerg Care*, 2003;7(1); 48-55.



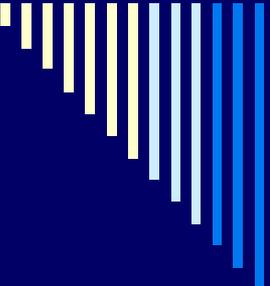
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# Physical Restraint Issues

## □ Positional Asphyxia

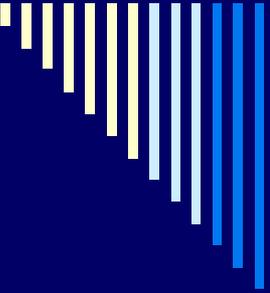
- Deaths have occurred with subjects restrained in a prone position
  - Theory: restricts breathing
  - The role of the position is unclear
  - Little data to support causality
  - Other factors are the likely culprits
-

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# Physical Restraint Issues

- No clinically significant changes in pulmonary function tests in healthy volunteers
    - Am J Forensic Med Pathol. 1998 Sep;19(3):201-5.
-

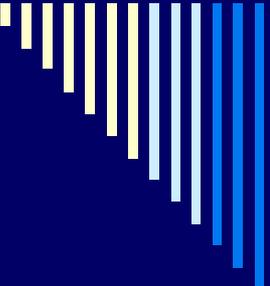


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# Physical Restraint Issues

## □ Restraint Asphyxia

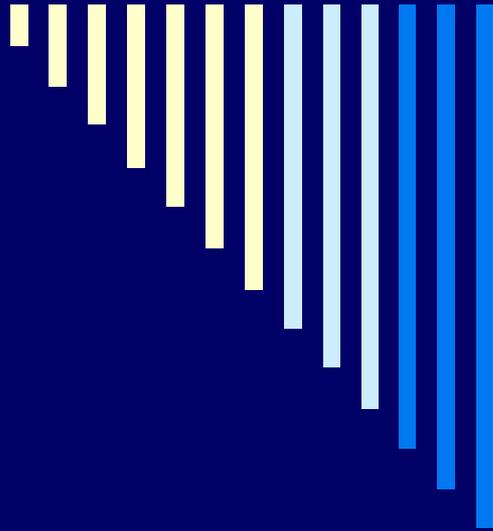
- Increased deaths in restrained patients
  - Rat Study
    - 3 fold increase in cocaine-related deaths among “restrained” rats
    - Life Sci. 1994;55(19):PL379-82.
  - Whether these may be contributory remains controversial, but still possible
  - Not considered causal
-



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# Physical Restraint Issues

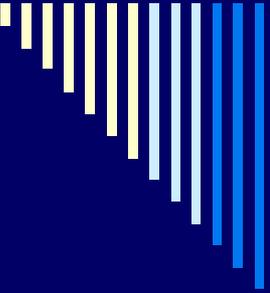
- Compression asphyxia
  - What are the adverse effects on breathing and circulation when one or more officers kneel on the subjects back as they handcuff him?



Excited delirium is an  
imminently life-  
threatening medical  
emergency.

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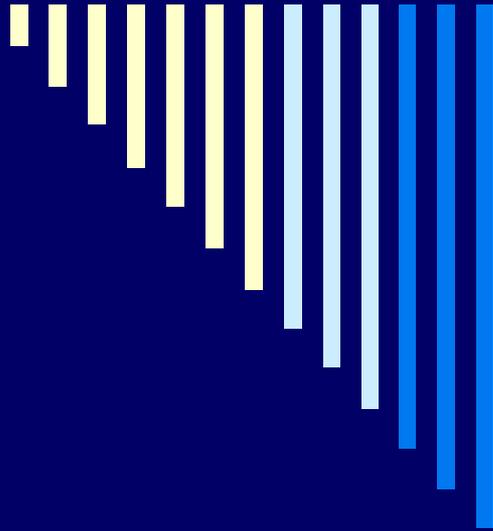
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# The “Freight Train to Death”

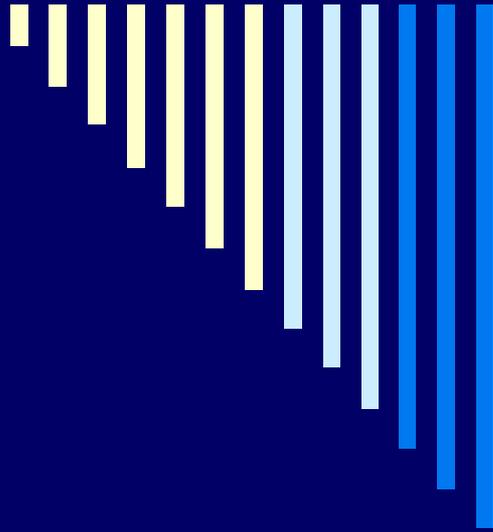
- How police restrain or position the subject will not stop “the freight train to death”
-

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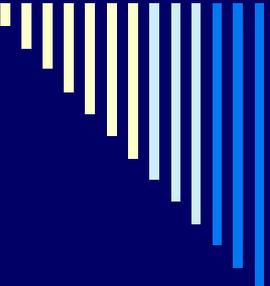
The behavioral features of excited delirium include criminal acts, but...

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Excited delirium is not  
a crime in progress,  
and responders must  
recognize the  
difference, before it's  
too late.

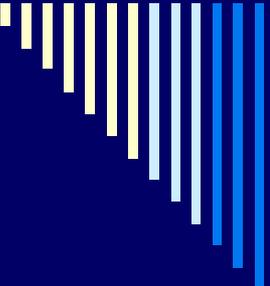
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# Recognizing Excited Delirium

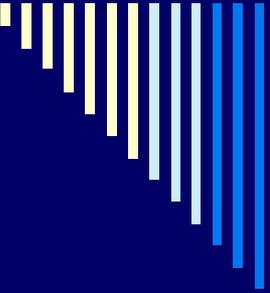
- How they act
  - How they look
  - What they say and how they say it
  - What they are doing
  - How they make you feel
  - How they respond to you
  - How they respond to force
  - How they respond to the taser
-



---

# Recognizing Excited Delirium

- Agitation or Excitement = Increased activity and intensity
    - Aggressive, threatening or combative – gets worse when challenged or injured
    - Amazing feats of strength
    - Pressured loud incoherent speech
    - Sweating (or loss of sweating late)
    - Dilated pupils/less reactive to light
    - Rapid breathing
-

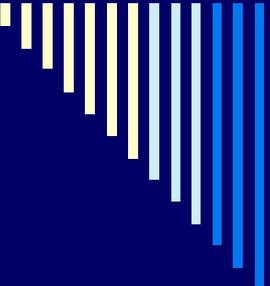


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# Recognizing Excited Delirium

## □ Delirium = Confusion

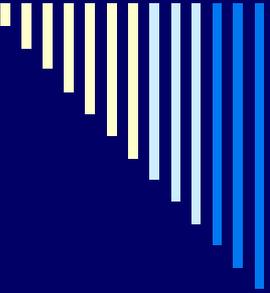
- Disoriented
    - Person, place, time, purpose
  - Rapid onset over a short period of recent time
    - “He just started acting strange”
  - Easily distracted/lack of focus
  - Decreased awareness and perception
  - Rapid changes in emotions (laughter, anger, sadness)
-



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# Recognizing Excited Delirium

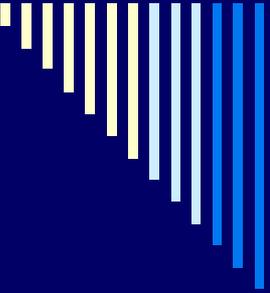
- Psychotic = bizarre behavior
    - Thought content inappropriate for circumstances
    - Hallucinations (visual or auditory)
    - Delusions (grandeur, paranoia or reference)
    - Flight of ideas/tangential thinking
    - Makes you feel uncomfortable
-



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# Mnemonic: NOT A CRIME

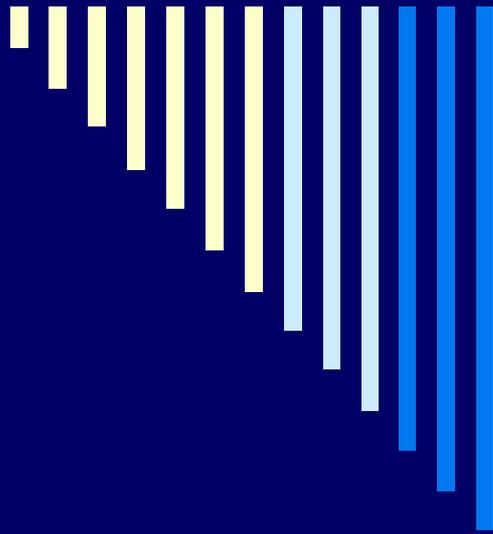
- Naked – and sweating from hyperthermia
  - Objects – violence against, especially glass
  - Tough – unstoppable, insensitive to pain
  
  - Acute onset – “He just snapped!”
  
  - Confused – person, place, purpose, perception
  - Resistant – will not follow commands to desist
  - Incoherent speech – shouting, bizarre content
  - Mental Health or Makes you uncomfortable
  - Early EMS Back-up
-



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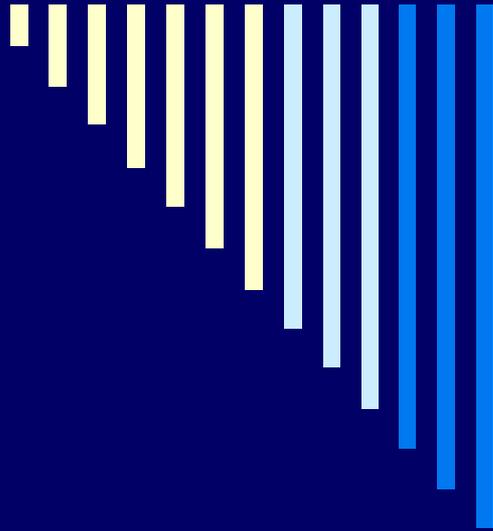
# Bad Behavior: Other Reasons

- Alcohol intoxication or withdrawal
  - Other drug use problems
    - Example: Cocaine psychosis
  - Pure psychiatric disease
  - Head injury
  - Dementia (Alzheimer's Disease)
  - Hypoglycemia
  - Hyperthyroidism
-



Patients with excited delirium need rapid aggressive medical intervention.

---



The first goal of  
therapy is to gain  
control of the violent  
behavior.

---



# The Combative Patient

## Basic

- ❑ Maintain crew safety, ask for law enforcement assistance if available.
- ❑ If altered mental status, check oxygen saturation and option to perform finger stick to measure blood glucose



# The Combative Patient

## Intermediate

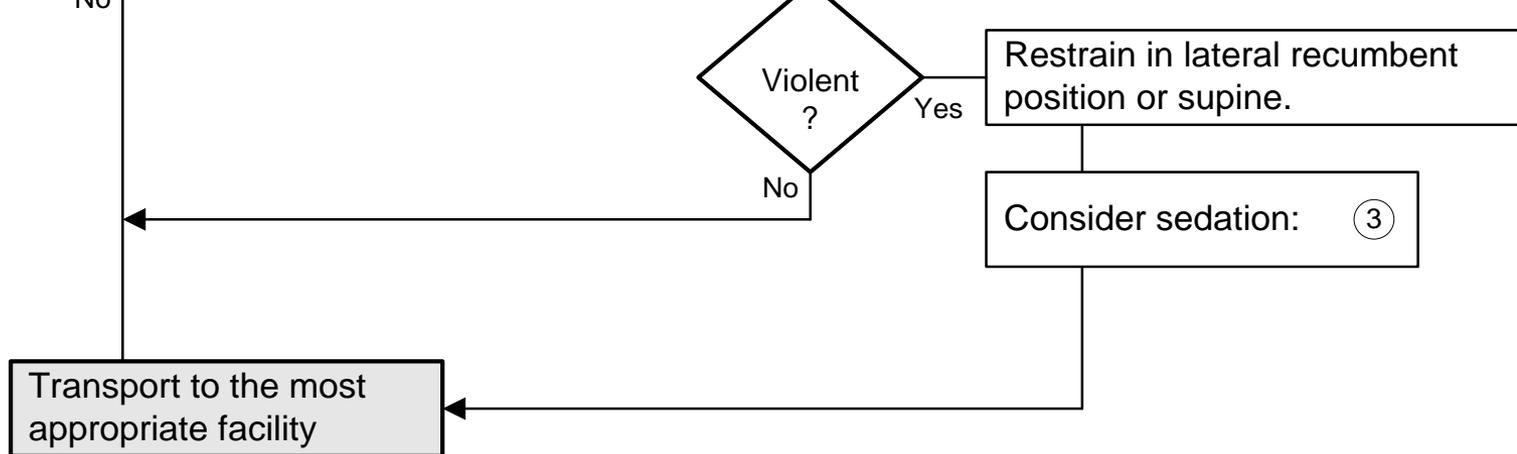
- Consider blood glucose if patient with altered mental status. If blood glucose is  $< 80$  mg/dL, establish IV for Option of administering Dextrose 25 gm (50 ml of 50% solution IV). Recheck blood glucose in 5 minutes.



# The Combative Patient

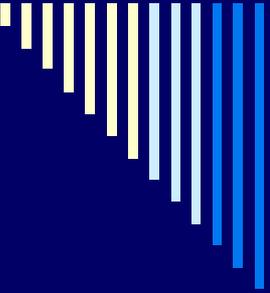
## Critical Care/Paramedic

- A. Consider blood glucose if patient with altered mental status. If blood glucose is  $< 80$  mg/dL, establish IV and administer Dextrose 25 gm (50 ml of 50% solution IV). Recheck blood glucose in 5 minutes.
- B. If IV unavailable and blood glucose  $< 80$  mg/dL, consider IO or administer Glucagon 1 mg IM.



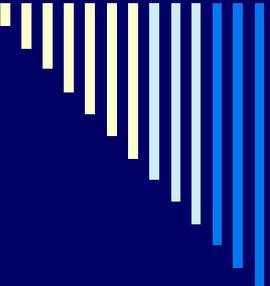
- 1** Note: Bizarre behavior, abrupt change in behavior, suicidal ideation, possible drug or alcohol ingestion, history of diabetes, etc. Look for Medic Alert tag.
- 2** Consider possibility of hypoglycemia. A low blood sugar can cause agitation, confusion, irritability.
- 3** Consider 1) Haloperidol 5 mg IM 2) Ativan 2 mg IM 3) Benadryl 25-50 mg IM. Contact medical control for IV administration of two or more medications.

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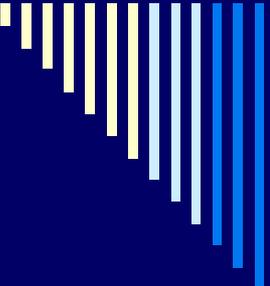
# In Search of The “Ideal” Drug

- Benzodiazepines
  - Neuroleptics
  - Atypical antipsychotics
  - Ketamine
-



# Haldol -Haloperidol

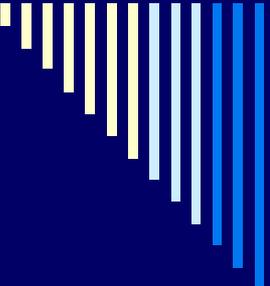
- Haloperidol is used to treat psychotic disorders (conditions that cause difficulty telling the difference between things or ideas that are real and things or ideas that are not real).
- Also used to control motor tics (uncontrollable need to repeat certain body movements) and verbal tics (uncontrollable need to repeat sounds or words) in adults and children who have Tourette's disorder.



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# Haldol

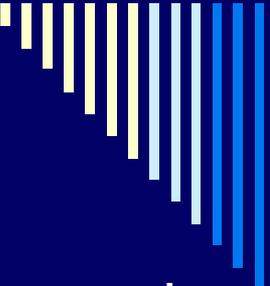
- Used to treat severe behavioral problems such as explosive, aggressive behavior.
- Haloperidol is in a group of medications called conventional antipsychotics. It works by decreasing abnormal excitement in the brain.



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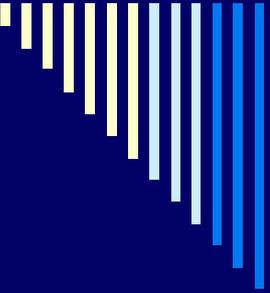
# Neuroleptics and Atypical Antipsychotics

- Rapid onset (10 – 15 minutes or less)
  - Can be very effective in a single dose
  - Prolong the QT Interval (Droperidol)
  - Target dopamine D2 receptors
    - May exacerbate hyperthermia
-



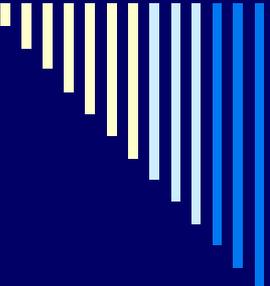
# Haldol Side Effects

- drowsiness
  - dry mouth
  - increased saliva
  - blurred vision
  - diarrhea
  - heartburn
  - nausea
  - vomiting
  - Headache
  - uncontrollable eye movements
  - unusual, slowed, or uncontrollable movements of any part of the body
  - restlessness
  - agitation
  - nervousness
  - mood changes
  - dizziness
-



# Extrapyramidal Syndrome

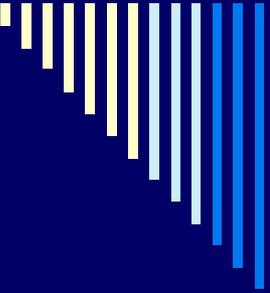
- ❑ Akinesia -inability to initiate movement A paralysis type condition.
- ❑ Akathisia- inability to remain motionless, the patient is unable to stop moving.
- ❑ Torticollis- A spasm of the neck where the the neck muscles pull the head to one side.
- ❑ Dysphonia- Inability to talk or phonate
- ❑ Treatment Benadryl IV/ IM



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# Benzodiazepines

- Effective
  - But usually require repeat doses
  - Adverse reactions:
    - Hypotension
    - Respiratory Depression
    - Over sedation
-

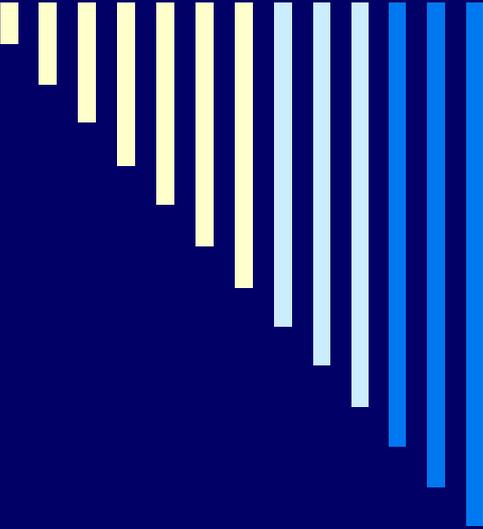


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# Ketamine

- Very rapid onset of action (<5 minutes)
  - Highly effective in a single dose
  - Favorable safety profile in healthy patients
  - Potential adverse effects:
    - Adrenergic over stimulation in excited delirium
    - “Emergence reactions” in adults
-

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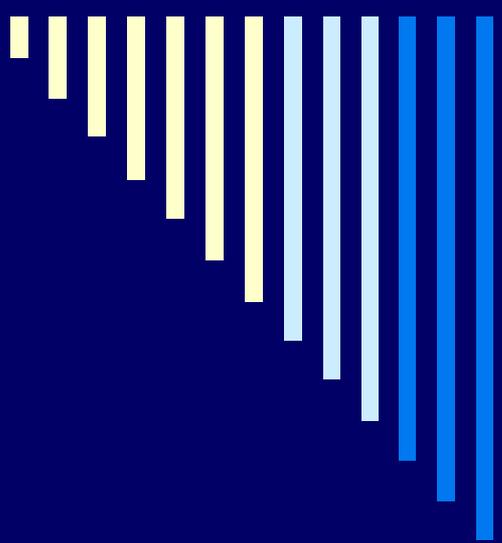


# Are there Alternatives?

# Bazzoka Geodon 40 IM Versed 10 mg IM

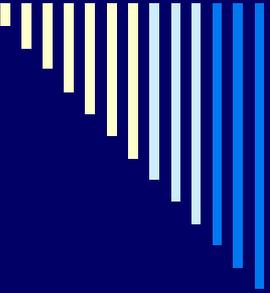


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The second goal of therapy is to stabilize the underlying pathophysiologic processes.

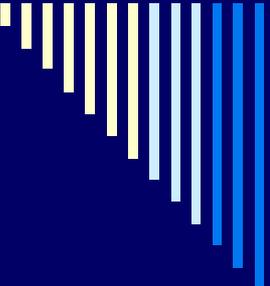
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# Other ALS Interventions

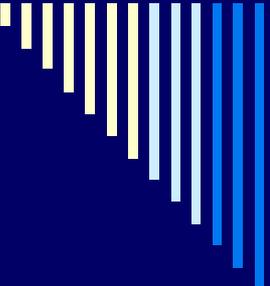
- Dehydration/Metabolic Acidosis:
    - IV NS X 2 W/O
  - Hyperthermia:
    - Cool environment, disrobe, tepid mist and fanning, cooling blankets
  - Hyperkalemia?:
    - Fluids, Calcium Chloride, Sodium Bicarbonate, Albuterol
  - Rapid transport
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# Caveats

- ❑ Never place an agitated and combative patient in an ambulance without physical restraints
  - ❑ Never transport a restrained patient without an officer present who can unlock the restraints
  - ❑ Should the transporting officer disable his/her weapons?
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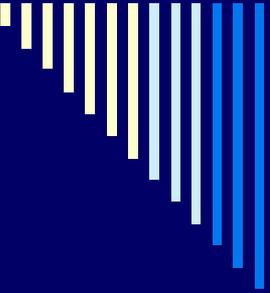


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# Summary

- ❑ Excited Delirium is an imminently life threatening medical emergency, not a crime in progress
  - ❑ In-custody deaths likely related to excited delirium
  - ❑ Tasers – if used early – may help (remains unproven)
  - ❑ ALS medics can give potent tranquilizers
  - ❑ Rapid aggressive medical stabilization needed
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# Summary

- Beware of potential side effects of therapeutic drugs
  - Treat for hyperthermia, dehydration, metabolic acidosis and potential hyperkalemia
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