

CRISIS INTERVENTION TEAM TRAINING
BEXAR COUNTY SHERIFF'S OFFICE

Excited Delirium

Instructors:

Objectives

- Identify the symptoms of Excited Delirium
- Officers will be able to recognize Excited Delirium.

Thomas A. Swift's Electric Rifle (TASER)

M26 Taser. Manufactured by Taser International

Tasers.

In and of themselves, are not lethal weapons.

Tasers Use Electricity

- *It's not the voltage it's the amperage that is dangerous*
- *Tasers use high voltage, but very low amperage*
 - *M26: 3.6 milliamps (average current)*
 - *M26:1.76 joules per pulse*

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- X26: 2.1 milliamps (average current)
- X26: 0.36 joules per pulse
- X26 Taser delivers 19 pulses per second

Taser Effects

- High voltage affects nerves
- Leads to intense muscle contraction
- Does not affect muscles directly

Taser Safety

- 215,000 officer have received taser "ride" in training
- Over 500,000 reported taser deployments to date
- No causal effects for death found

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- After 5 second taser ride on numerous subjects:
 - No EKG changes
 - No cardiac cell injury
 - No hyperkalemia
 - No acidosis

There is no scientific evidence to date of a cause and effect relationship between Tasers and in-custody deaths.

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

What is Excited Delirium?

- *An imminently life threatening medical emergency...*
- *Massive release of epinephrine, norepinephrine, dopamine, serotonin in the body and brain.*
- *Severe delirium and agitation*
- *Not a crime in progress!*

The "Freight Train to Death"

- *How police restrain or position the subject will not stop "the freight train to death"*
- *The sooner the severe agitation is terminated, the better*
- *This requires EMS response and transport to the hospital.*

What is Excited Delirium?

- *Diagnostic criteria*
 - *Characteristic behavioral components*
 - *Metabolic Acidosis/to much acid in the body fluids*
 - *Hyperthermia/heat –related illness*
 - *Identifiable cause*
 - *Stimulant drugs*
 - *Psychiatric disease*
 - *Alcohol or medical problems rarely can cause*
- *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*
 - *High release of other neurotransmitters*
 - *Accounts for behavioral changes*
 - *Accounts for hyperthermia*

Behavioral Components: Delirium

- *Delirium:*
 - *"Off the track"*
 - *Confusion*
 - *Clouding of consciousness*
 - *Shifting attention*
 - *Disorientation*
 - *Hallucinations*
 - *Onset rapid – acute*
 - *Duration brief – transient*

Behavioral Components:

Excited (Agitated)

- *Extreme agitation, increased activity*
 - *Aggravated by efforts to subdue and restrain*
 - *Not likely to comply after one or two tasers*
 - *Pressured speech, grunting*

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- *Inappropriate words and flight of ideas.*

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*

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*

Excited Delirium

- *Hyperthermia*
 - *Aggravated by*

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

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*

Excited Delirium:

The Usual Suspects

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

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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*

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*

Stimulant Drugs

- *Other known culprits include:*
 - *Methamphetamine*
 - *Phencyclidine (PCP)*
 - *LSD*

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- *Cocaethylene = Cocaine + Alcohol*
 - *Toxic to the heart*
 - *Unknown role in excited delirium deaths*

Concurrent Health Conditions

- *Obesity*
- *Heart Disease*
 - *Coronary artery disease*
 - *Cardiomegaly (enlarged heart)*
 - *Hypertrophic cardiomyopathy (heart muscle becomes thick, makes it hard for blood flow)*
 - *Myocarditis (inflammation of heart muscle)*
 - *Fibrotic heart (thickening of heart valves)*

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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Tasers and

Excited Delirium Deaths

- *It's not the Taser*
- *Many in-custody deaths long before tasers were ever used*
 - *Documented in 1980s medical literature*
- *Deaths of persons not in custody*
 - *Found naked in bathrooms*
 - *Wet towels*
 - *Empty ice cube trays scattered about*
 - *A futile effort to cool themselves*

Excited delirium is an imminently life-threatening medical emergency.

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

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

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)*

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- *Dilated pupils/less reactive to light*
- *Rapid breathing*

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)*

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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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.

Alternative Strategy

- *Attempt verbal de-escalation*
- *Summon back-up quickly*
- *Summon EMS as early as possible*
- *Use taser before a struggle ensues*
- *Jump the subject and administer tranquilizer*
- *Back off and contain the subject without restraint*
- *Once calm transport (no restraints?)*
- *Minimize struggle and restraints*
- *Unrealistically simplified?? – Maybe!*

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

The "Ideal" Drug

- *Rapid effective tranquilization*
 - *No repeat dosing*
- *No significant adverse effects*
 - *respiratory depression*
 - *cardiovascular depression*
 - *neurological adverse effects*
- *Easy to administer (Intramuscular Injection)*
- *Allows easy assessment of neurological status on ED arrival*

In Search of The "Ideal" Drug

- *Benzodiazepines*
- *Neuroleptics*
- *Atypical antipsychotics*
- *Ketamine*

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Benzodiazepines

- *Effective*
- *But usually require repeat doses*
- *Adverse reactions:*
 - *Hypotension*
 - *Respiratory Depression*
 - *Too long to take effect*
 - *Over sedation*

Neuroleptics and Atypical Antipsychotics

- *Rapid onset (10 – 15 minutes or less)*
 - *Do we have 15 minutes?? NO*
- *Can be very effective in a single dose*
- *Prolong the QT Interval (Droperidol)*
- *Target dopamine D2 receptors*
 - *May exacerbate hyperthermia*
 - *HALDOL or GEODON*

Ketamine

- *Very rapid onset of action (<5 minutes)*
- *Highly effective in a single dose*
- *Favorable safety profile in healthy patients*
- *Potential adverse effects:*

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- *Adrenergic over stimulation in excited delirium*
- *"Emergence reactions" in adults*
- *Dose 3-4 mg/Kg IM*

Rapid Chemical Sedation is Life-saving

- *Get a chemical restraint drug into the patient at once.*
- *Remove physical restraints when feasible*
- *Never allow hobble or prone restraint!*

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

Immediate Exam

- *Core temperature*
- *Blood gas*
- *CBC and electrolytes*
- *Stat glucose*
- *Toxicology*
- *EKG*
- *Urine for myoglobin*
- *CPK*

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Immediate Treatment

- Dehydration/Metabolic Acidosis:
 - IV NS X 2 W/O Get ABG Bicarb for under 7.0
- Hyperthermia:
 - Cool environment, disrobe, tepid mist and fanning, cooling blankets
- Hyperkalemia?:
 - Fluids, Calcium Chloride, Sodium Bicarbonate, Albuterol

Psychiatric History

- Diagnosis
- On Meds?
- Has patient stopped meds?
- Schizophrenia
- Personality disorder
- Manic disorder

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*

References:

Taser International

Academic Emer. Med. 2006

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Thomas A. Swift's Electric Rifle (TASER)

Jerry Staton, Training Director - Affordable Realistic Tactical Training

Videos: YouTube

Thank you for your time.