

**EXCITED DELIRIUM / SICDS**



**ROWLETT MARSHAL'S OFFICE**

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**EXCITED DELIRIUM / SICDS**

› **ROB DeGROOT**

- City Marshal / Detention Svcs. Commander,
- 26+ Years of law enforcement experience
- Graduate of the FBI Natl. Academy (203<sup>rd</sup> Session) and SPI Command College
- FEMA Certified Emergency Mngmt. Professional
- Vice President of the Texas Marshal Assoc.
- Lot's of other cool stuff
- ...And some not so cool stuff.

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**ROWLETT MARSHAL'S OFFICE**

What I'm **NOT** here to do tonight;

- ▶ To try to impress you with my resume.
- ▶ Bolster my fragile male ego by trying to convince you I'm some kind of expert.
- ▶ Tell you how to live your personal or professional life.
- ▶ To sell you anything...so **RELAX!**

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**EXCITED DELIRIUM / SICDS**

**DISCLAIMER**

The instructor is **not an attorney**, and does not offer or provide legal advice. Legal advice, when necessary, should be sought from a competent and licensed Attorney at Law. This instruction is meant to provide background and guidelines as a training aid. Personnel in attendance should be familiar with their agency policies and procedures, laws pertaining to their jurisdiction, and applicable Local, State, and Federal / Appeals Court rulings.

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**EXCITED DELIRIUM / SICDS**

**WHAT WE'RE GOING TO DO IN THE NEXT HOUR**

- ▶ Define and understand Excited Delirium
- ▶ Recognize the relationship between Positional Asphyxia and SICDS
- ▶ Inform you on the history of SICDS
- ▶ Address recognition of SICDS
- ▶ Provide response options for addressing SICDS

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**Excited Delirium Defined:**

“A state of extreme mental and physiological excitement, characterized by extreme agitation, hyperthermia, hostility, exceptional strength and endurance without apparent fatigue”

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**Excited Delirium Defined (cont):**

A sudden state of severe confusion and rapid changes in brain function, sometimes associated with hallucinations and hyperactivity, in which the patient is inaccessible to normal contact.



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**Excited Delirium Syndrome**

“Excited delirium syndrome involves the sudden death of an individual, during or following an episode of excited delirium, in which an autopsy fails to reveal evidence of sufficient trauma or natural disease to explain the death.”

Di Maio, Excited Delirium Syndrome: Cause of Death and Prevention

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***In Custody Death***

12-Month key findings: SOURCE: JEFFREY D. HO, M.D.

- 96% of the individuals were male
- Average age 35.7 years old
- 62.3 % confirmed illicit drug use prior to arrest
- 100% handcuffed
- 68.5% were subject to hands-on force
- 30% of cases involved TASER application
- 12.3% of cases involved pepper spray
- 8.6% of cases involved baton use

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***Response to control attempts***

- ▶ Expect one of two responses
  - *They will fight you*
  - *They will flee from you or fight to flee*
- ▶ Avoid a one on one confrontation
- ▶ Usually able to overpower one or two officers

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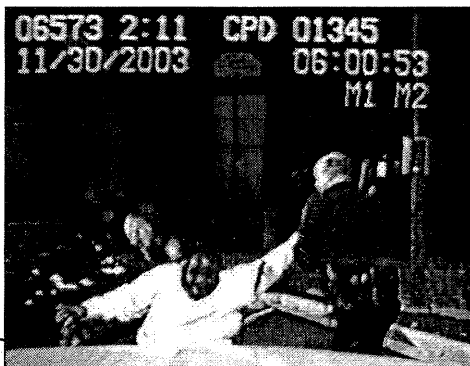
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**In Simple Terms:**

- ▶ Sympathetic nervous system activation
- ▶ Chemicals are pumped into the body
- ▶ Primal fight or flight response
- ▶ The body can only function this way for a limited time
- ▶ Analogous to putting your car in park and pressing the accelerator to the floor
- ▶ If it does not slow down eventually you will find a weak point in the "engine"

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**Profile of the at risk person:**

- ▶ The causes of the excited or agitated state vary but the subjects' presentations are usually quite similar
- ▶ When you study all the facts after the event they "read like a script"
- ▶ Why do we fail to recognize this condition?
- ▶ Answer: Due to a lack of training

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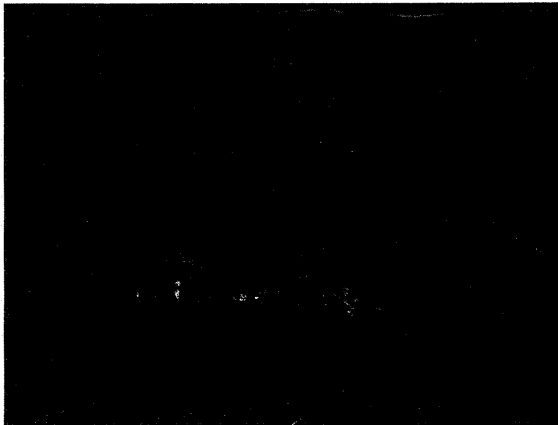
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### Recognizing Behaviors

- ▶ **Bizarre**, violent, aggressive behavior
- ▶ Violence towards objects
- ▶ Attack / break glass (*windows and mirrors*)
- ▶ Overheating / excessive sweating or very dry (*body shut down perspiration production because of over demand on system*)
- ▶ Public disrobing – partial or full (*cooling attempt*)
- ▶ Extreme paranoia
- ▶ Incoherent shouting (*animal noises or loud speech*)

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### Recognized behaviors cont.:

- ▶ Unbelievable strength
- ▶ Undistracted by any type of pain (*including broken bones and damaged limbs. Can easily over power a lone officer.*)
- ▶ Irrational physical behavior
- ▶ Fight or flight behavior (*subject perceives attempts to restrain as threat to his existence. It is a primal sympathetic nervous system response*)
- ▶ Hyperactivity
- ▶ "Bug Eyes" (*they look "nuts!"*)

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### Typical Incident

- ▶ 911 call to police about a man standing in the street partially naked and / or acting "bizarre"
- ▶ Obvious to officers that subject will resist
- ▶ Struggle ensues with multiple officers: *May involve O.C., LVN holds, baton, ECD, "swarm technique"*
- ▶ Physical restraints applied: *handcuffs / hobbles*
- ▶ Struggle continues or escalates after restraint
- ▶ Placed in squad for transport to jail (*if you fight with the cops you go to jail!*)

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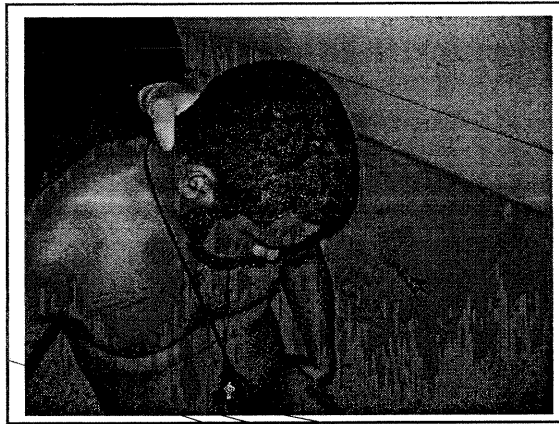
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### Typical incident cont.:

- ▶ Apparent resolution period
  - Subject becomes calm or slips into unconsciousness (*officers believe the subject is faking or has finally calmed down*)
  - Labored or shallow breathing
  - Followed unexpectedly by **DEATH!**
  - Even when death occurs in the care of paramedics or at the E.R. resuscitation fails

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### In-custody deaths

- ▶ LE gets called when the subject suddenly acts bizarre and gets out of control
- ▶ The resulting bizarre behaviors are caused by the on-going mental / chemical / medical problems
- ▶ By the time the bizarre behavior occurs they are a long way into the crisis. The "dominos are already falling"
- ▶ It is too late to start planning your ems and LE response protocol

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### What should we do?

- ▶ Get EMS on the way prior to confrontation if possible (*emergency response*)
- ▶ Avoid confrontation if at all possible
- ▶ Attempt to contain / isolate the subject without confrontation
- ▶ Attempt verbal de-escalation
- ▶ Have as many backup officers as possible

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## Reality

- ▶ Bizarre / violent behaviors most often will require confrontation and restraint
- ▶ Restraint can make the problem worse
- ▶ Without restraint this medical emergency can not be treated
- ▶ Get the fight over quickly (*i.e. TASER, swarm*)
- ▶ Pain compliance techniques will not work
- ▶ EMS protocols and transport to the hospital

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## Positional / Restraint Asphyxia

### *Fact and Assumption*

- ▶ Arrest involving a violent struggle and the use of physical restraint, including handcuffs, leg hobble, and positioning of individual face down.
- ▶ Autopsy lacks pathological findings indicating a specific cause of death. Based on a history of restraint use during arrest, the M.E. attributes death to "positional restraint asphyxia"- asphyxia as a result of restraint body position.
- ▶ Possible contributing factors may be OC exposure or TASER application.
- ▶ Alleged cause of death—restriction in ability to breathe, loss of the "bellows effect" of using the diaphragm during increased oxygen need.
- ▶ M.E. bases diagnosis on the temporal relationship of restraint to sudden death without obvious cause of death on autopsy.

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## Understanding Asphyxia

- ▶ Asphyxia "is the death of an individual from failure of critical organ systems owing to lack of oxygen delivery."
- ▶ Oxygenation of blood requires adequate ventilation and good gas exchange.
- ▶ Tests demonstrated that a normal individual has tremendous ventilatory reserves.
- ▶ Asphyxiation of a normal person requires a dramatic reduction in the ability to ventilate.
- ▶ 20-25% of ventilatory function appears adequate to maintain life.
- ▶ Death by asphyxia takes several minutes to occur after cessation of all breathing

Deaths in Custody

Dr. Tom Newman, Sudden

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## Debunking Dr. Reay

- ▶ Former King County Medical Examiner studies in 1988 led to his conclusion that the death of individuals placed in hog tie restraints and in a prone position were the result of restricted chest and abdominal movement, thereby reducing ventilation, leading to asphyxia.
- ▶ Studies by Dr. Theodore Chan in 1996 demonstrated no functional effect on ventilation from the combination of the hogtie position plus heavy exercise. Second study showed no significant physiological effects from combination of pepper spray and hobble position.
- ▶ No scientific evidence that restraint results in hypoxia – inadequate supply of oxygen.
- ▶ Cardiopulmonary arrest in cases of EDS typically occur after the struggle has ceased, when no pressure is being applied to the chest.

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## Other Explanations for Cause of Death

- ▶ Neck Holds – Carotid Artery v. Choke Hold
  - Autopsy findings of hemorrhage in the neck or fractures of the hyoid or larynx
  - “Resuscitative injuries of pharynx and larynx secondary to intubation can mimic injuries by strangulation and neck holds.”  
Dr. Di Maio, Excited Delirium Syndrome: Cause of Death and Prevention
- ▶ OC Spray – alleged death by laryngospasm and bronchoconstriction
  - Chan’s studies demonstrated that OC did not significantly impact ability to oxygenate, even when subjects were in restraint position.

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## TASERS the latest target

- ▶ Facts
  - Single static shock is 30,000 volts
  - TASER X-26 gives out 50,000 volts at clothing, 1200 for the body, but divided into 19 pulses per second. This means current is off 99.8% of the time, meaning the average voltage is about 2/3 rds of a volt. Less than a AA battery.



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## TASERS and Heart Rhythms

- ▶ Skeletal muscles shield the heart
- ▶ The pulse is 50–200 times too short to efficiently stimulate the heart.
- ▶ Electrical current favors the grain of the muscle, so the current stays outside the chest.
- ▶ No credible study showing that TASER can affect / disrupt heart rhythm.

Mark Krall, PhD

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## What is really causing sudden death?

- ▶ Understanding the physiology of the exaggerated exercise response.
- ▶ Recognizing the similarities of the at-risk individual.
- ▶ Realizing that the situation presents a medical emergency.
- ▶ Knowing the four phases of excited delirium.

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## Physiology Basics

- ▶ Sympathetic Nervous System
  - Controls "fight or flight"
  - Influences cardiovascular system through changes in release of nor epinephrine and epinephrine, both catecholamine's.
- ▶ Coronary Arteries
  - Arteriosclerosis, produced by chronic cocaine and methamphetamine use, causes vasoconstriction during exercise.

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## More Basics

- ▶ Heart
  - Nor epinephrine works on the heart, causing it to beat harder and faster.
  - In individuals with arteriosclerosis, either from disease or chronic drug use, contraction of arteries decreases supply of oxygenated blood to myocardium at a time when increased amounts are needed.
  - This can cause cardiac arrhythmia.

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## More Basics

- ▶ Lactic Acid build up—increase in acid level in blood from exaggerated exercise.
- ▶ Potassium level in blood fluctuates in a narrow range of safety. Levels increase during exercise, falling rapidly in the first or second minute post-exercise.

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## Effects of Drugs

- ▶ Cocaine, methamphetamine, and PCP are most common drugs associated with EDS.
- ▶ Cocaine and meth are cardio toxic, causing accelerated arteriosclerosis and coronary artery disease.
- ▶ Cocaine and meth are CNS stimulants, preventing uptake of dopamine and increasing the concentration of nor epinephrine.
- ▶ All increase heart rate, blood pressure, and myocardial contractility due to increased levels of epinephrine and nor epinephrine.

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### Cause of death – the “hyper adrenergic state”

- ▶ Death results from a fatal cardiac arrhythmia caused by:
  - Excited delirium, which in itself triggers release of catecholamine's;
  - Additional release of catecholamine's due to the struggle;
  - A rapid and steep drop in blood potassium concentrations following cessation of the struggle in association with increasing levels of catecholamine's;
  - Aggravated by illegal stimulants increasing level of catecholamine's.

Dr. Di Maio, Excited Delirium Syndrome: Cause of Death and Prevention

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### “Period of Peril”

- ▶ Putting the physiology together...
  - Excited delirium results in an exaggeration of normal exercise physiology.
  - Chemical changes in the minutes after cessation of exercise create risk of cardiac arrhythmias
    - Catecholamine levels rise dramatically in the minutes following cessation of exercise.
    - Potassium levels, which increased during exercise, drop suddenly.
  - High acid level in blood from lactic acid build up.

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### Similarities of the At-Risk Individual

- ▶ John Peters, PhD, head of IPICD, has trademarked the following mnemonic:
  - C Confused, disoriented about self
  - R Resists violently, before, during, after restraint
  - I I can't breathe (*may indicate respiratory issues*)
  - S Strips off clothing; naked; Sweating profusely
  - I Intense paranoia
  - S Super human strength; Seemingly unstoppable, prolonged Struggle

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## **A Medical Emergency**

- ▶ Often the underlying criminal conduct is minor
- ▶ The longer the struggle, the greater the risk in the "*period of peril*" after the struggle stops.
- ▶ Know that cardiac arrest is likely to occur.
- ▶ Immediate call for medical assistance increases chance of having aid present if / when arrest occurs.
- ▶ Where would you rather the suspect die, in your patrol car or jail, or in an aid car?

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## **Suggestions for Response**

- ▶ Recognize the situation as a medical emergency, not just a law enforcement call, and request medical aid
- ▶ Respond with sufficient officer power to capture and control the suspect without prolonging the struggle.
- ▶ Use medical aid for transport.



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## **The role of the TASER**

- ▶ Individuals suffering from EDS will not respond to pain compliance techniques.
- ▶ Their paranoia will cause them to respond violently, prolonging the struggle.
- ▶ The TASER is the tool that will overcome willful resistance.
- ▶ Restrain the suspect during the power cycle and avoid multiple cycles.



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**Other Preventative Measures**

Work with Fire EMS to develop a protocol for responding to and dealing with individuals exhibiting EDS

Appropriate methods of restraint

Appropriate methods of transport

Educate line officers on behavior cues indicative of EDS.

Teach them the CRISIS mnemonic.

Teach them the 4 phases of excited delirium

Educate dispatchers they need to know to dispatch medics.



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**Additional Training:  
Crisis Intervention Training (CIT)**

- › Recognizes different types of abnormal behavior—neurotic / psychotic / sociopathic
- › Understanding common psychotic illnesses.
- › Tactical responses to implement
  - Wait for backup and observe before engaging, ignore verbal abuse, be patient, speak slowly and calmly, move slowly, etc.

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**Investigative Considerations**

- › Complete investigation of circumstances leading to and surrounding death.
- › Drug use, past medical and mental health conditions, and other factors that may have predisposed the subject to negative outcome.
- › Detailed photo documentation of body still at scene.
- › Gathering of all available medical records of deceased, including EMS and Hospital.
- › Blood draw and core temperature measurement at hospital if possible.
- › Work with ME on a plan for autopsy:
  - Tissue samples gathered from all major organs.
  - Harvest the brain for evaluation (U. of Miami; 800-UMBRAIN)
  - Harvest hair and fingernail samples.

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## Media Relations

- › Develop a media kit that defines and explains sudden death and “excited delirium.”
- › Have talking points prepared on the science behind the TASER.
- › Speak with a single informed voice.
- › Be proactive and not reactive.

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## Four phases of Excited Delirium

- › Hyperthermia, marked by profuse sweating and clothing removal (*not always present*)
- › Delirium
- › Respiratory Arrest – breathing stops
- › Cardiac Arrest – heart stops

PND, IPICD

John Peters

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## Resources

- › Institute for the Prevention of In-Custody Deaths, Inc. [ipicd.com](http://ipicd.com)
- › TASER International at [taser.com](http://taser.com)
- › Sudden Deaths In Custody By Ross Chan
- › Excited Delirium Syndrome: Cause of Death and Prevention by Di Maio

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**EXCITED DELIRIUM / SICDS**



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**EXCITED DELIRIUM / SICDS**

**THANK YOU FOR YOUR TIME & ATTENTION**

**QUESTIONS?**

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**EXCITED DELIRIUM / SICDS**

At the time of this presentation

**34**

Law Enforcement Officers have given their lives in sacrifice to their communities, in the line of Duty. They were men, women, husbands, wives, best friends and brother and sisters. All will be loved, and missed.

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*Totally gratuitous & unnecessary pictures.*



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**ROWLETT MARSHAL'S OFFICE**  
Thank you for your time,  
attention, patience,  
consideration.

**BE WELL, BE SAFE**

**Marshal Rob DeGroot**  
rdegroot@rowlett.com  
(972) 463-3938

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