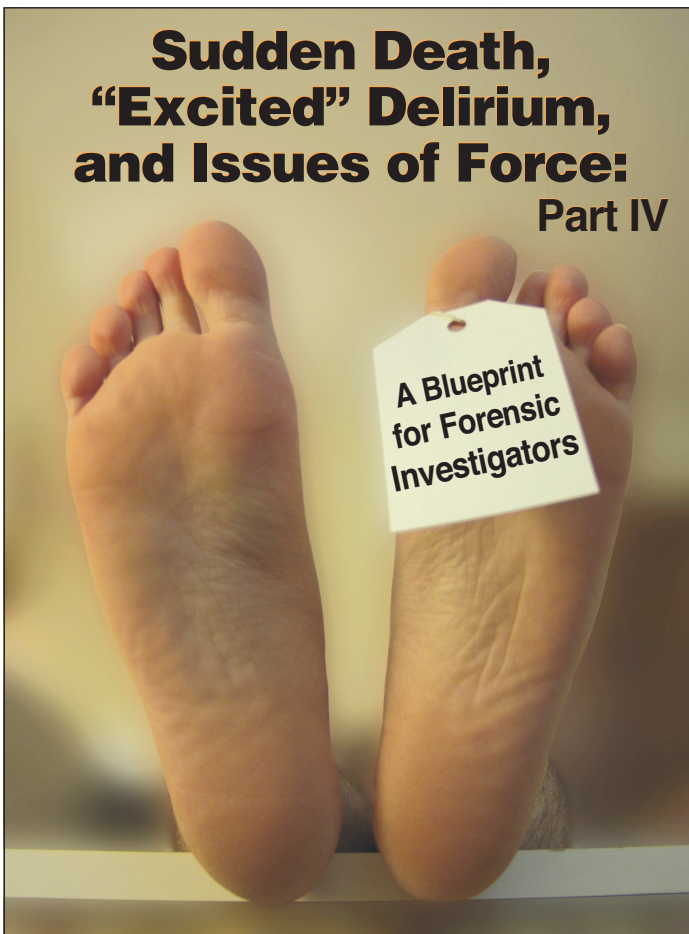


## **Sudden Death, “Excited” Delirium, and Issues of Force: Part IV**



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Part IV focuses upon investigating sudden death events and includes the types of data and medical testing which may be useful in substantiating or eliminating the claim that a decedent was in a state of “excited” delirium prior to dying.

**Plaintiff’s Counsel (PC):** *Officer, in your report you wrote that, in your opinion, the suspect appeared to be on drugs. Is that correct?*

**Officer:** Yes. He was naked, acting bizarre, jumping wildly, sweating profusely, screaming, and no one could get him to quiet down. He also fiercely resisted five of us who were involved in his handcuffing and restraint.

**PC:** *Officer, have you seen the toxicology report about the decedent?*

**Officer:** No, sir, I have not seen it.

**PC:** *Officer, with the Court’s permission, I will provide you with a copy of the toxicology report to review.*

**Court:** You may approach.

(Two minutes go by as the officer reads the toxicology report.)

**PC:** *Officer, have you had enough time to review the toxicology report, specifically page two where the toxicologist found no evidence of drugs in the decedent?*

**Officer:** Yes, sir.

**PC:** *Officer, although you claim the decedent looked as if he were on drugs, you would agree with me that the toxicology report clearly shows there were no drugs found his system at the time of his death. Isn’t that correct?*

**Officer:** Yes, sir.

Although this scenario is hypothetical, the line of questioning is realistic. There are cases when a violator appeared to be on drugs, showed one or more behaviors which were discussed in Part III indicating (s)he was on drugs, died suddenly after being restrained, with subsequent toxicology tests which were negative for drugs in the person’s system at the time of death. Even though the person’s behavior manifested many of the behavioral cues which were discussed in Part III, it is possible (s)he experienced an “excited” delirium event, even with an absence of drugs on board. Remember: In most cases, it is the chronic abuse of illicit drugs which cause an excited delirium event. Sections of the person’s brain experience changes through the chronic abuse of illicit substances, such as cocaine, methamphetamine, and/or ecstasy, which may cause him (or her) to exhibit agitated behaviors with delirium. These behaviors may occur when the person has not consumed illicit substances for a period of 30, 60, 90 days, or longer.

### **Potential Evidence**

Forensic investigators look for potential evidence which can be used in their case. In contrast, medical examiners (MEs) look for *cause, manner, and mechanism* of death. These are not mutually exclusive investigatory goals. Rather, both groups can work harmoniously and synergistically to obtain the best data and po-

tential evidence as possible regarding the sudden death. For investigators, this can start at the scene.

### At the Scene

The following information is designed to assist forensic investigators in their search for potential evidence. This information should neither be construed as establishing or creating a standard of care, nor enhancing applicable medical or legal standards of care.

**Locate the body:** The investigator(s) should determine if the body is still at the scene. If so, information and photographs should be obtained and taken regarding the body's final position, location, clothing, etc. If possible, it should be determined if the person had been sweating. If it appears the person had been sweating, photographs should be taken of wet clothing, perspiration on the skin, hair, etc. to highlight and confirm the sweating.

**Core body temperature:** A core body temperature should be taken of the decedent, regardless of where (s)he is located. If the body is still at the scene or if it was taken to the hospital, a core body temperature should be obtained rectally which may be evidence of hyperthermia and point to chronic or past drug abuse (especially stimulants). Recall that a body temperature greater than or equal to 103° F (39.44° C) is considered to be evidence of hyperthermia. Paramedics and emergency room personnel should avoid using ear canal infrared measurement, skin strips, and skin palpations, as these are unreliable, even to the point of being misleading.

Admittedly, many medical professionals are not worried about taking a core body temperature when they are trying to save a person's life. However, if the person is experiencing malignant hyperthermia, post exercise peril, etc., the professionals need this vital information. Also, asking for a core body temperature after the medical interventions have been completed is not an unreasonable request, as an accurate and timely temperature can greatly aid in the investigation. Investigators may need to educate local medical care professionals (e.g., paramedics and/or emergency room physicians) about the importance of a core body temperature to these categories of investigations, and also to the ME's findings and investigation.

There will be times when the decedent's core body temperature will not be taken at the scene or in the emergency room. Although time is of the essence, there is a possibility that a core body temperature can still be calculated. The human body, on average, will cool at 1.5° F per hour after death (obese people may take longer). If the core body temperature is taken, say, four hours after the time of death and is found to be 100° F, then adding 6° F (1.5° F x 4 hours) to the core body temperature should give you the core body temperature at the time of death – 106° F. Keep in mind that ambient room temperature may affect the cooling rate (i.e., air-conditioning), as well as placing the body into a refrigerator at the morgue. Investigators should not wait too long to obtain this temperature, as a more accurate core body temperature reading in relationship to the time of death may be less challenged by both the medical and legal communities.

**Collect and preserve toxicological evidence:** While this may seem basic, numerous postdeath investigations have found this invaluable information was lost forever due to unintentional oversight. If a person is still alive upon arrival at the hospital, staff, harried in trying to save the person, will almost always test for the *presence* of toxic substances. However, they will too often *not* test for the *levels* of the substances. After the person dies, staff often fail to consider the importance of an adequate toxicology screen.

Also, some substances (e.g., cocaine) continue to metabolize after death – if not properly preserved. Even though a blood sample may have been taken for screening, if the sample is not appropriately preserved, any accurate measurement of substance levels may be forever lost.

In one clear case of chronic cocaine abuse induced excited delirium, the autopsy was performed four days after death, with no predeath blood sample taken, and the taken samples were not properly preserved. Once litigation commenced, the plaintiff's expert ME testified that any cocaine levels were undeterminable and that there was no reliable way to infer that the deceased was under the influence of cocaine immediately prior to, or at the time of, death. Hence, an opportunity for accurate death determination clearly lost forever.

**Collect predeath information:** Once death occurs, numerous important pieces of evidence are lost forever. These usually include, but are not limited to, blood pressure, heart rate, cardiac rhythm(s), pH and potassium levels, etc. Consider an Ohio autopsy: Even though the person was alive when medical intervention arrived, in their valiant, although unsuccessful, efforts to save the person's life, they did not collect and preserve all of the EKG strips, the pH level, the potassium level, the blood pressure, the heart rate, the core body temperature, etc. Much of the valuable evidence to substantiate excited delirium died with the person.

**Identify restraints:** Determine if the person was restrained prior to his (or her) death, and/or was restrained at the time of death. The type of restraint(s) used (e.g., metallic, plastic, nylon, specialty restraints, combinations) should be identified in the investigation report, and photographs taken of the restraint(s) applied to the person. Photographs of the person's wrists, ankles, etc. should be taken to show how the restraints were applied; how forcefully the person's fought the restraints; and how tightly they were applied.

**Photographs and video:** Photographs and/or video should be taken of the decedent's body to clearly show trauma to the body (or the lack of it); injuries to the body (i.e., self-inflicted wounds, drug injection sites); position of the body; scene terrain; and property damage (e.g., broken windows, mirrors, etc.). In one Nebraska case, the ME took over 300 photographs of the decedent's body to clearly show the absence of trauma and/or injuries to the person. According to the ME, photographs were taken of every part of the body to clearly show that no one, including the police officers who had restrained him, caused any visible external injuries. Remember: A picture is worth a thousand words.

**Crack thumbs:** One specific area of photographic interest is the decedent's thumb(s). A person who is addicted to or uses crack cocaine on a regular basis will often use a disposable lighter to heat a crack pipe. According to Steven Karch, M.D., in his text, *Pathology of Drug Abuse* (3<sup>rd</sup> edition), crack users may use their lighters to heat crack pipes several times a day which will many times cause a callous to be formed on the underside of their thumbs, known as "crack thumb." Make sure photographs are taken of the thumbs if there is evidence of "crack thumb." This potential evidence may help establish the person as a chronic or past user of illicit drugs.

**Crack hands:** Dr. Karch also writes that a crack user can develop "crack hands"; that is, small burns to the palm side of the hands. These often blackened "burns" are caused by handling a hot crack pipe. If such marks are seen on the decedent's hands, make sure photographs are taken of these areas as, again, this is

potential evidence which may help establish the person as a chronic or past user of illicit drugs.

**Medical intervention drugs:** Identify the type(s) of drugs given by emergency medical service personnel to the person. This information may help to identify possible medical changes and drug interactions versus nonmedical changes which have occurred in the person. Generally, these drugs will be listed on the autopsy report or on the EMS report, but don't take it for granted. Identify and record the drugs given and, if possible, the quantity, frequency, and timing of the drugs administered to the individual.

### Forensic Autopsy

Since most law enforcement personnel are not medical doctors, do not tell the ME how to perform or conduct an autopsy. Rather, prior to the next sudden death event, sit down with him (or her) and explain the information and tests which are helpful to a sudden death investigation. If the deceased is identified as a chronic, long-term, past or current drug and stimulant user and/or abuser, recommend that a well versed toxicologist be consulted to determine potential drug interaction(s).

Encourage expedient performance of the autopsy. At the time of death, numerous important items are immediately, and forever, lost: blood pressure, heart rate, pH and potassium levels, etc. Within a few hours, accurate toxicology levels and neurochemistry tests become unreliable.

The following list is not meant to be exhaustive, but rather to identify key items which are, at times, overlooked by forensic investigators and also MEs who are investigating sudden death events in people who are suspected of being illicit and/or prescription drug users and/or abusers.

**Brain analysis:** Obtain and become familiar with the protocols from the University of Miami Neurochemistry Lab (phone: 800-UM-BRAIN), or from another neurochemistry lab (i.e., state neurochemistry lab which does this type of analysis). In a review of numerous autopsy reports across the United States which involved a sudden death, less than one percent of the MEs harvested the brain for a neurochemistry analysis. This is a critical test and should be done as a matter of routine protocol in a law enforcement involved sudden death event. In one very controversial and litigious New York incident, a timely performed neurochemistry exam clearly showed the neural effects of long-term drug use.

One half of the decedent's brain is needed for a neurotransmitter analysis. Generally, it should be harvested within 12 hours after death, or for autolysis times within 24 hours after death. The brain should then be rapidly frozen, with corneal slices of the anterior straitum and the substantia nigra collected as soon as possible for toxicological analysis. Specifically, the examiner is looking for changes in the D-2 receptors. While this may sound very technical, and it is for the untrained reader, a knowledgeable ME will be able to understand what is being looked for in the examination.

For example, there are changes which occur in the D-2 receptors which indicate chronic stimulant abuse, rather than an acute overdose of a drug – say, cocaine. This extensive neurochemistry test is generally necessary to establish evidence that the person was a chronic user of stimulants. Remember: The chronic stimulant abuser is most likely to experience an excited delirium event and possible sudden death.

**Hair analysis:** Equally important is the taking of hair samples and keeping them for analysis. Hair can provide insights into a person's chronic and/or recreational history of drug abuse. The testing of hair samples can also reveal the use of steroids which

can also be linked to an excited delirium event. Hair samples should be taken from two locations of the body, with a minimum of 50 mg – 100 mg of hair being removed and stored for immediate or future analysis. The hair should be plucked so the apical roots are attached. Again, sit down and talk with the ME about the need for taking and keeping hair samples prior to a sudden death event occurring.

**Fingernails:** Samples of the decedent's fingernails should be taken for drug testing.

**Swab for drug residue:** The nasal, oral, vaginal, and rectal areas should be swabbed for drug residue, as these are areas where drugs may be "packed" or used as administration entry points.

**Heart:** The entire heart should be saved for close examination. The examination may show the person's heart is enlarged; has small vessel wall thickening; fibrotic tissue scarring; crossband necrosis (microscopic examination); and so forth.

**Other contents:** Spinal fluid should be taken prior to autopsy for evaluation of cocaine. Urine samples should also be taken, as cocaine can be present for greater than (or equal to) a one week duration. Stomach contents also should be analyzed for evidence of swallowing drugs prior to death. Bowel contents may indicate that they were "packed" or swallowed "wrapped" drugs. Lungs, too, can be examined for changes which may indicate the smoking of crack cocaine or other substances.

**Environmental:** A sudden drop in barometric pressure (from thunderstorms or snowstorms) may cause a person with coronary artery disease to have a heart attack. Also, research indicates that sudden deaths from cocaine use may increase when the outside temperature exceeds 88° F (31.1° C). Some research indicates the frequency of sudden deaths may increase in warmer weather, although such deaths are not geographically limited to the Southern States. Sudden deaths do occur throughout the year and under a variety of environmental conditions. Therefore, obtain official weather and/or environmental reports from the National Oceanic and Atmospheric Administration (NOAA) for the three days prior to the sudden death and for the day of the event. Make sure the relative humidity, ambient temperature, and heat index are included in the official reports.

### Causation of Death

Recall that MEs are primarily interested in the *cause, manner,* and *mechanism* of death. Many times, they will look at what took place immediately prior to the person's death. For example, if one or more officers sat on the back of the individual, they may rule that *compressional asphyxia* may have been a cause of death, or was a *temporal* factor in the person's death. *Temporality*, "A" precedes "B," often becomes the focus in sudden deaths. Oftentimes, an autopsy report will read that the cause of death was "excited delirium caused by cocaine," with a contributing cause being the use of pepper spray, a TASER® electronic control device (ECD), restraint, etc. However, because "A" came before "B" does not mean that "A" *caused* "B."

**Temporality:** The research literature is clear that *temporality* by itself does not equal cause and effect, since it *only shows* that "A" came before "B." This is a basic research concept, but one that is often misused. Here is an example to illustrate temporality. The rooster crows (A) before the sun rises (B). To say that the rooster's crowing was the cause of the sun rising, the effect, is nonsense.

**Correlation:** Similarly, proving statistically that warm weather causes more human jellyfish stings is also not cause and effect.

This is an example of *correlation*. Correlation is never *cause and effect*, but rather shows the relative strength between two or more variables; in this case, warm weather and human jellyfish stings. A more rigorous analysis would likely conclude the warm weather brought more people to the beach and ocean, resulting in more people being stung by jellyfish when they entered the water to get cool.

**Cause and effect:** Cause and effect depend upon what is known as causal inference which includes, but is not limited to, the following:

- the cause must precede the outcome;
- the strength of association between the causative variable and the outcome;
- the cause must lead to the same outcome over and over and not lead to a variety of outcomes;
- there must be *consistency* between the cause and outcome which is found over and over, in a variety of groups, locations, etc.;
- other explanations of the cause and effect relationship must be eliminated;
- cause and effect are not scientifically established based upon nonscientific articles, anecdotal stories, etc.;
- scientists and researchers know it takes more scientific proof to *disprove a claim* than to prove it (disproving the negative); and,
- tenacity, intuition, respected authority, and rationalism do not equate to scientific research.

### Summary

When a person dies during (or after) a law enforcement intervention, often there is a specific cause of death (e.g., bullet wounds to vital organs). In contrast, when a person suddenly dies during (or after) confronting law enforcement officers, there may not be a clear cause of death; hence, such deaths call for a rigorous investigation by forensic investigators and also MEs. Sadly, there is no uniform death investigation system in place at the national level to guide and direct such investigations. Since many deaths surrounding law enforcement intervention are often complicated, it is imperative that forensic investigators work closely with MEs to help identify the specific cause(s) of death and not “guesstimate” a cause because a potential *cause* cannot be ruled out by an ME. MEs are provided a high level of discretion, therefore making it incumbent upon forensic investigators to work very closely with them and, in some cases, gently providing them reliable information about why specific tests and examinations are important.

In short, the forensic investigators working with the MEs must make sure the following items are completed and analyzed: scene examination and potential evidence collection; predeath collection; internal examination of the deceased, including neurochemistry of the brain and hair sample testing; toxicological analysis of blood, urine, and other samples; microscopic examination of various organs, including the brain; and pathological findings. Only after a thorough and scientific analysis of these and other items should causation be discussed, established, and reported. Careers and lives depend upon it.

**Note: This is Part IV of a five part series about sudden death, “excited” delirium, issues of force, and jail suicide. In a pioneering and cooperative venture between Police and Security News and the Institute for the Prevention of In-Custody Deaths, Inc. (IPICD), readers can earn their Basic Certification in the Identification, Prevention, and Management of Sudden and In-Custody Deaths, including jail suicide from the IPICD. For additional information, please contact the IPICD at [www.ipicd.com](http://www.ipicd.com).**



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