

A.B.M.D.I. NEWS

Volume 5, Issue 1
January 2004

Vernon McCarty, Editor

Inside this Issue:

President's Message	1
New Phone/Fax Numbers	1
Low Voltage Electrocutions	2
The Words no Parent Wants to Hear	3
Puzzles and Patterns	4
Exam Schedule	4
Interagency Cooperation	5
Rail Incident Guidelines	5
Associate Degree for Board Certification	6

Message from the President

Mary Fran Ernst, F-ABMDI

Happy New Year!

2003 was an important year for the ABMDI, marking our 5th Anniversary as your professional credentialing organization. The ABMDI was incorporated in Missouri in February 1998, officially beginning operations July 1, and conducting our first Registry examination on December 12, 1998. Since that time we have expanded the Board from four to eight people, and added an Advisory Council of nine. Our Executive Secretary's position (Julie Howe) was expanded to half time and she was provided additional part-time support (Kristin Miserocchi).

We have had 1,520 people apply for ABMDI certifications and currently there are 702 Registered Medicolegal Death Investigators and 66 Board Certified Medicolegal Death Investigators. We have

expanded our testing capabilities thanks to our testing guru, Dr. Steve Clark. The ABMDI now can accommodate retesting at an applicant's local area college testing center, thereby providing more convenient access to re-testing.

2004 will bring new challenges for the ABMDI.

- The first group of ABMDI Registered Medicolegal Death Investigators has just completed the continuing education recertification process required every five-years. Many of you will be facing the task of submitting this critical information that will allow you to maintain your professional credentials.
- Any person wishing

to apply for the highest level of ABMDI certification (Board Certified) will now be required to have an Associate's degree. This criterion has been established to enhance our profession's educational credentials.

- The ABMDI will be one of the first forensic specialties applying to the Forensic Specialties Accreditation Board for accreditation.

The ABMDI has had many challenges in the past that have been successfully met. I have no doubt that our organization will continue to grow, prosper and improve in 2004.

As we begin this New Year, I wish each of you good health, love, happiness and peace.

New ABMDI Telephone and Fax Number

Effective immediately, the office number has changed to (314) 977-5970. The phones will automatically forward for 6 months if you dial the old number. After six months, the

old number will be disconnected so please make a note of the change.

The fax number has also changed to (314) 977-5695.

The old fax number will not forward faxes automatically to the new number. Please make sure your fax has reached us by double checking the fax number.



AN UNUSUAL LOW VOLTAGE ELECTROCUTION

Background and Scene Investigation:

The decedent was a previously healthy 23-year-old enlisted soldier who was found in the bathroom of his locked barracks room after he could not be located all day. When discovered, he was clothed only in an elastic bandage wrapped around his waist and genitals. He was pronounced dead at the scene.

On the toilet seat next to him was a fitness magazine open to a photo of a bikini-clad female weightlifter, and on the floor was a pornographic magazine. Also on the floor of the bathroom was an electrical cord with a standard wall plug on one end. The other cord end had the wires split apart, with insulation stripped away and the exposed wires each twisted into a small loop. The cord was not plugged in. Freshly stripped fragments of wire insulation were scattered about the floor, and a pair of pliers was on the edge of the bathroom sink. The tile floor of the bathroom was dry.

Preliminary examination of the body at the scene was unremarkable.

The only electrical outlet near the decedent was the bathroom outlet, protected by a ground fault circuit interrupter (GFCI). The GFCI protecting the circuit was demonstrated to be in working order, and had not been tripped prior to testing at scene investigation. Because the GFCI was shown to be working properly, a local electrical consultant concluded that the cause of death in the case could not be electrocution.

Autopsy and Toxicology:

At autopsy, the body was that of a young, white, muscular male. On each nipple was a minute black burn. No identifiable natural diseases or other significant injuries were present. Blood

and vitreous volatile screens were negative, as was a liver drug screen.

Discussion:

Low voltage electrocutions in the household setting may be difficult to recognize. Although the electric shock produces ventricular fibrillation (which leads to death), the victim may have a short period of time between the shock and the onset of unconsciousness. This brief window of time—on the order of 10 to 15 seconds—may be more than enough time for the victim to unplug, or walk away from, the offending device, resulting in an “altered” death scene. (1) Compounding the difficulty of scene investigation is the fact that 40-50% of low voltage electrocution deaths do not have identifiable electrical burns at autopsy. (1, 2) Thus, the death investigator and/or pathologist who does not proactively consider the possibility of electrocution is unlikely to reach the correct diagnosis. Electrical devices, including extension cords, may need to be retained as evidence and inspected for defects.

In the present case, both the scene and autopsy findings clearly indicated electrocution had taken place, but the case initially appeared confusing because of the presence of the GFCI. A “ground fault” in an electrical circuit occurs when current leaks from a charged current source to a grounded surface. If the path for the ground fault is through a victim, electrocution may occur.

When an electrical appliance is plugged into a wall outlet, the current on each side of the circuit should be equal. A GFCI works by detecting a difference in the current between the two sides. Inside the GFCI is a transformer, with a coil from each side of the circuit. The coils are wound in opposite directions, such that when the

current flow on either side of the circuit is equal, there is no induction of a magnetic field within the GFCI's transformer. If a ground fault occurs—meaning current has leaked from the circuit to ground—there becomes a difference in current on the two sides of the circuit. A magnetic field is generated within the GFCI's transformer. This magnetic field induces voltage in a third coil, which is amplified and sent to a latching relay that breaks the circuit. (3)

The United States Consumer Products Safety Commission (CPSC) estimates that properly installed GFCIs could prevent more than 2/3 of the approximately 300 electrocutions that occur in homes each year. (4)

Several types of GFCI are available for residential use: the most commonly seen type is that installed at the receptacle level. Other GFCIs can be installed at the circuit breaker level. Some GFCIs are portable, existing on extension cords or as moveable units that can be plugged into wall outlets.

Under the National Electrical Code, GFCI protection is now required for all new construction involving outdoor receptacles (since 1973), bathroom receptacles (since 1975), garage wall outlets (since 1975), kitchen receptacles (since 1987), and in crawl spaces and unfinished basements (since 1990). (4)

Why did the GFCI not trip in the present case, preventing the onset of ventricular fibrillation? Because there was no ground fault. The decedent had literally wired himself as the “appliance” in the circuit: with one electrical lead touching each

nipple, current flowed through his chest and resulted in fatal electrocution. Had he been standing on a wet floor, it is entirely possible he **would** have created a ground fault, resulting in tripping of the GFCI, breaking the circuit, and saving his life.

The scene findings clearly indicated that this was an autoerotic death. It is important to remember that most, but by no means all, autoerotic deaths are asphyxial in nature. A useful definition of autoerotic death is one in which an accidental death occurs "in which some type of apparatus that was used to enhance the sexual stimulation of the victim caused unintended death." (5) Such a definition is useful in that it includes not only the more commonly seen asphyxial deaths, but also autoerotic fatalities where non-

asphyxial mechanisms are employed.

Conclusions:

Low voltage electrocutions, for the reasons listed above, may be difficult to recognize. The death investigator and/or pathologist needs to consider electrocution as a possibility in the appropriate setting, or the correct diagnosis will be missed. On-site testing of circuits, as well as examination of potentially offending devices, may be necessary to prove or disprove electrocution.

References:

- (1) DiMaio VJM, Dana SE. Handbook of Forensic Pathology. Austin, TX: Landes Bioscience, 1998.
- (2) Wright RK, Davis JH. The investigation of electrical deaths:

a report of 220 fatalities. J Forensic Sci 1980; 25(3): 514-521.

- (3) Geddes LA. Handbook of electrical hazards and accidents. Boca Raton, FL: CRC Press, 1995.
- (4) Consumer Product Safety Commission. GFCIs Fact Sheet. <http://www.cpsc.gov/CPSCPUB/PUBS/99.html>. Accessed November 29, 2003.
- (5) Byard RW, Bramwell NH. Autoerotic death: a definition. Am J Forensic Med Pathol 1991; 12(1): 74-76.

*Andrew M. Baker, M.D.
Minneapolis, MN*

*Eric Berg, COL, MC, USA,
Fort Campbell, KY*

The Words No Parent Ever Wants To Hear

I was nearing the end of my shift as a Medical Examiner Investigator on November 12, 2003 when my cell phone rang. My ex-wife was calling to tell me that our son and his wife had been killed in a car crash near their hometown. I kept my composure long enough to ask; Where and when, then said, "I would be right there."

I called my partners and informed them and arranged to be off the schedule for an unknown amount of time. They told me not to worry. Then, I called the sheriff's office where the crash had occurred to ask for the medical examiner. I was on my way home to pack when he called me back. I explained who I was and my line of work. I asked what time the crash happened and what the condition of my son's body was. He said the crash happened at approximately 3:20 p.m. and my daughter in law had been driving. She apparently fell asleep and crossed the centerline, striking a truck, head on. Both she and my son were pronounced dead at the scene. He then

told me my son had "mostly lower extremity and abdominal trauma with a cut on his head." I thanked him for the information and hung up. It was now 5:45 p.m. and I had a lot to do.

During the hour drive back to my son's hometown, I called the Iowa Donor Network to offer any tissues they could use for transplantation. The rest of the night was a blur. So many tears, hugs and trying to decide what immediate plans could be made for their two children, ages 2 and 1. All I really remember was telling my daughter and my ex-wife that our son could most likely be viewed.

I didn't sleep that night, thinking not only of my son growing up and the wonderful woman whom he had made his wife, but also of the many thousands of times I had given this type of information to families. I never realized how just how devastating it could be. I had other relatives who had died, but they had all been elderly or had suffered long illnesses

prior to death.

Morning came and, after showering and dressing, I received a call from the donor network coordinator. She was very kind and said she was calling to say that none of my son's tissues could be used for transplantation "because of the extensive trauma". I was confused. I thanked her and we decided to allow his eyes to be taken for research purposes. Then, I called the funeral director. I asked him about viewing my son. He asked if I could wait a day or two to allow restorative work. I asked why it would be so long. It turned out my son's head had been crushed. My heart sank and, at the same time, my blood began to boil. I told the funeral director to do what he could and I would see my son before any other family members to make the final decision on whether it would be an open or closed casket funeral. We agreed to wait three days.

Cont'd on page 6

Puzzles and Patterns

How often are you asked to describe what your job is like? If you're anything like me, it's a fairly regular question. People who don't understand the work of a medicolegal death investigator tend to gravitate toward the Hollywood version of our role as seen through the eyes of the creators of CSI or Quincy reruns. Wouldn't it be swell if the *real world* worked like television? You mean it doesn't?

Over the years, I have devised an answer for these people that I think applies more often than not. I put on my best sincere expression and tell them that I believe our work is like putting together a jigsaw puzzle without the aid of the box-top to go by. After that sinks in, I explain that we (or at least I) never seem to get all the pieces of the puzzle in the right place. I tell them, however, we usually manage to get enough of those puzzle pieces to fit, to create the picture that accurately reflects how and why the person died. Often that's enough to satisfy their curiosity and they go away thinking that I'm kind of philosophical. Either that or they think I'm so odd they don't really want to risk another question. In any case, they usually go away. Desired outcome achieved!

So, how is any of that useful to you? Well, consider for a moment the amount of time we look at and for *patterns* in our work. Patterns can be found in almost every aspect of our investigative scheme. We train to recognize pattern injuries. When we find particular patterns, we connect their presence to a particular event. Likewise, we learn to identify patterns in social history. For example: we are called to an apparent suicide and discover an individual with a gunshot wound to the right temple. We notice a star shaped entry wound with gunpowder residue, soot and charring

into the wound. We see cerebral contents extruding from the injury. We see an inward beveling of the underlying skull. We see the abrasions left in the imprint of the firearm's muzzle.

In what we see, we recognize the patterns associated with a contact gunshot wound, in a selected location of the head. We add to this the patterns found in the blood spatter and it's direction, the location of the decedent when found and the way in which the firearm is loaded (perhaps with one fired cartridge in the chamber beneath the hammer or one expended cartridge from an otherwise empty magazine). We see the pattern and another piece of that puzzle.

These patterns lead us to look for still others, often derived from our questions to family or friends of the decedent. Has he been depressed? Has he attempted suicide in the past? Has there been a recent change in his behavior? Has he gone through any recent stress in his life? Loss of a job? Loss of a friend or family member? Broken marriage or close relationship?

When we learn that the decedent has experienced some or all of these challenges in his life we add that social or life experience pattern to the others found in the physical evidence. We continue to build upon that puzzle. Finally, we add enough of these patterns together, like pieces of the puzzle, until we reach the point of a logical and responsible conclusion. In our example case, the puzzle is complete when we decide that the decedent has committed suicide by self-inflicted gunshot wound to the head.

What is remarkable when you consider it, is the fact that we repeat this process of looking for, identifying and

cataloging *patterns* in *every* death investigation. And, through the use of a standardized approach to our work, we *go about* this search for patterns in the same way every time, regardless of the circumstance, location, day or conditions. That is why, I believe, we are able to become consistently accurate in our work without the help of Quincy or even the cast of CSI.

**Jeff McLennan, F-ABMDI
Clackamas County, OR**

Registry and Board Certified Exam Dates:

St. Louis, MO
January 30, 2004

Richmond, VA
January 30, 2004

Dallas, TX
February 17, 2004

Richmond, VA
April 2, 2004

St. Louis, MO
April 30, 2004

Grand Rapids, MI
September 10, 2003

Richmond, VA
September 24, 2004

St. Louis, MO
October 8, 2004

2004 Directory

The 2004 Directory will be received in March after the Board elections occur in February.

Interagency Cooperation

Upon arrival at a death scene the medicolegal death investigator should seek out the lead law enforcement investigator. Depending on the relationship and the type of death you are investigating, this may occur outside the designated crime scene. Once contact is made all parties can formulate a plan for investigating the scene.

This agreed upon plan can combine the photographic documentation, collection of evidence and examination of the body. Proper photographic documentation is a must. When done as a team not only do you have pristine, undisturbed, "as is" scene photographs but you also have back up documentation. This will prove invaluable in the event of equipment failure or other unforeseen problems. Dual photography often produces an image by one photographer that is not captured by another.

A team approach for evidence collection is also useful. Not only will this meet the law enforcement and medicolegal needs, but it may result in a shortening of the chain of custody. As a team you may be able to identify evidence that can be gathered by law enforcement technicians at the scene. This could eliminate the need for later evidence gathering at the medical examiner's facility. Additionally, gunshot residue tests are generally better if preformed sooner than later. A team approach to bagging the hands lends confidence to all agencies that the evidence is being properly preserved.

When a medicolegal death investigator conducts a physical examination of the body, other agencies should witness the process. At that time, concerns, suspicions and questions can be addressed. This creates comfort and trust in the process.

A solicitation for comments on the benefits of a team approach resulted in the following response from a colleague:

"The cooperation between the medical examiner's office and the major crimes unit has been instrumental in the investigative process. The advantages of these personnel responding to the scene and providing their expertise are endless. The experience of the medical examiner personnel have been invaluable in assisting with death investigations. Additionally, medical examiner personnel have sought out the knowledge of the law enforcement profession to further facilitate cooperation between agencies. The medical examiner's office has opened both their doors and their minds to law enforcement investigators so that we can further understand the medicolegal investigation of death. Both agencies work closely together through a fluid exchange of information, mutual trust and respect. This cooperation can only lead to further positive attributes for the respective agencies and the death investigation process." Multiple agency cooperation benefits everyone, especially if the process is scrutinized in future litigation .

Ultimately a team type approach will not only make your job easier but it will

validate the public trust in your agency by producing superior crime scene investigations.

Brett Harding, F-ABMDI
Ft. Myers, FL

Contributors:

Detective Ryan M. Bell
Major Crimes Unit
Lee County Sheriff's Office
State of Florida

Lieutenant Rick Joslin
Crime Scene / Forensics Unit
Lee County Sheriff's Office
State of Florida

Physicians and Staff
District 21 Medical
Examiner's Office
State of Florida

US Rail Incident Investigation Guidelines

The US Rail Incident Guidelines report is enclosed as an insert. This form was provided to the ABMDI by Dave Sprankle at the Canadian National Railway. In my discussions with him, he mentioned that there is little or no training available to law enforcement or medicolegal death investigators regarding rail fatalities. It was his hope that by providing this information to us, these fatalities could be more thoroughly, efficiently and effectively investigated. Please review the form to see if it would be of benefit to you and your office.

Mary Fran Ernst

2003 Board Members:

Mary Fran Ernst
President

Steve Nunez
Vice-President

Jeffrey Jentzen, M.D.
Secretary

Roberta Geiselhart
Treasurer

At large members:

Patrick Clifford, J.D.
Vernon McCarty
Zeb Johnson

Staff:

Julie Howe
Kristin Misericocchi

2003 Advisory Council Members:

Shari L. Beck
Wichita, KS

Joe Frisino
Seattle, WA

Brett Harding
Fort Myers, FL

Libby Kinnison, M.D.
Norfolk, VA

John Kraemer
Des Moines, IA

James Kramer
Pueblo, CO

Jeff McLennan
Portland, OR

Kevin Rowland
Oklahoma City, OK

Greg Schmunk, M.D.
Santa Clara, CA

Educational Consultant:
Steven Clark, Ph.D.
ORA

Cont'd from page 3

I called the medical examiner again. He did not return my call. I went to his office and was told he would not be able to see me because of his schedule. I then went to the county sheriff. I discussed my concerns with him and learned several more things. The medical examiner had stayed at the scene only long enough to make a tentative identification of the bodies then departed without doing a full body examination. He then called my ex-wife to verify the identification and make the death notification over the telephone. Neither he nor any law enforcement person ever spoke in person with anyone in my family or my daughter-in-law's family. The sheriff apologized and said he thought the M.E. was going to come to the house when he left at approximately 5:00 p.m. The sheriff had been at the scene until nearly 8:00 p.m.

When the medical examiner spoke with me by phone, the bodies were still inside the car and he was long gone from the scene.

When the time came to view my son's body, I went to the funeral home and walked down the long isle where my son lay in his casket. I saw a face that was nothing but makeup and putty. I began to cry and put my hand on his arm and felt all the shattered bones. I asked to have the casket closed because I didn't want anyone to see my son looking this way.

Now, nearly three weeks after the funeral, I sit here, preparing to return to work. My thoughts are still with my son and his wife. Now I have a new understanding of my job. I have never done a death notification by phone and never would. I will be even more honest when discussing the condition of the deceased. Whenever possible, I will always make a home visit with the family. I will work with a whole new understanding of how horrifically necessary my line of work is and the kind of dedication it takes. How will I react when I investigate my next motor vehicle fatality? That remains to be seen. I can only hope that I will be as honest and thorough

as I need to be, especially in my dealings with the family.

Over the years, my son showed me in many ways that he was proud of me, but I can only recall him saying it once; when I passed the board certification exam in July 2003. I can promise each of you, I will try to keep my son proud.

*Michael Gross, F-ABMDI
Des Moines, IA*

Associates Degree Required for Board Certification

An Associate degree in a related professional field from an accredited post secondary institution will be required beginning January 1, 2004 for any Diplomate applying for Board Certification. Verification of the Association degree must accompany all Board Certification application requests.

ABMDI
1402 S. Grand Blvd.; R-512
St. Louis, Mo. 63104-1028
Phone: (314) 977-5970
Fax: (314) 977-5695
Email: abmdi@slu.edu
[www.slu.edu/organizations/
abmdi](http://www.slu.edu/organizations/abmdi)

