

LIGHTNING DATA CENTER MINUTES

April 13, 2018

ST. ANTHONY HOSPITAL WEST, LAKEWOOD, CO

www.lightningdatacenter.org

Quote of the Month: ““It sounded like somebody had thrown a grenade into the vehicle,” Campbell said. “There was this bright light and then a loud ‘boom.’” “The bolt hit a VHF antenna on the top of the SUV...which was about 12 inches behind my right ear,” Campbell said. “When that antenna fell, it melted to the (emergency) light bar. It was that hot.” Johnny Campbell, Executive Director, Marble Falls Area EMS, Inc. Source: Dailytrib.com, April 9, 2013.

Link: <https://www.dailytrib.com/2013/04/09/lightning-rattles-marble-falls-ems-director-when-bolt-strikes-his-vehicle/>

1. Members Present: Clark, Gift, Beckmann, Wells, Yarnell, and Terry. Meeting began at 11:55 AM and ended at 1:10 PM. Clark moderated.
2. Greg Stewart e-mailed us with a link to a recent story from 60 Minutes that addresses “Blast Effect” as a direct mechanism of brain injury. Here are Greg’s comments:

“There is some interesting research in "blast effect" that might shed light on lightning injury. Dr. Dan Perl, a neuropathologist who oversees the brain tissue repository at the Uniformed Services University of the Health Sciences, has identified a new mechanism for brain injury. Damage at the juncture of gray and white matter is likely caused by a "supersonic pressure wave" (blast effect). Dr. Perl: "The locations were areas of the brain that had differing densities. This was the interface between gray matter and white matter, between brain and fluid, such as spinal fluid, or brain and blood." This condition is deemed distinct from CTE because the damage isn't sustained through repeated trauma (like NFL players), but through a single event. The blast wave passes through skull and brain. A super-powerful microscope allows close inspection of sliced brain tissue. Dr. Perl: "Well, obviously wherever there is damage, there must be some loss of function. Persistent headaches. They have problems with sleep. They have problems concentrating, memory problems swings of mood, anger management problems." These symptoms seem to mimic those sustained by lightning strike survivors. Might there be a similarity between these modes of injury?" Contact information for Dr. Perl is listed in the Lightning Links section below.

3. Our guest speaker was Brian Dale, Associate Director of Medical Control and Quality Processes with the International Academies of Emergency Dispatch (IAED), via Skype. He was a paramedic for 36 years and retired in 2016 as the Fire Chief of the Salt Lake City Fire Department. He said 911 dispatch operators are often the “first” responder to a crisis and will often have to provide guidance on the care of an injured party until help arrives. This is done via “script cards”, which contain a dialog which must be strictly adhered to. Mr. Dale discussed these cards as related to people struck by lightning and he also gave us an overview of the IAED and allied areas. Here follow my incomplete notes for an interesting topic.

The IAED researches dispatch best practices and maintains priority dispatch system protocols for calls involving medical, fire and police. They certify Emergency Management Communication staff and develop the curriculum for training of dispatchers. Dispatchers receive 24 hours of training per discipline – medical, police and fire. In addition, there is a 30 minute training module for lightning strike.

IAED by the numbers...

- IAED has over 90,000 public safety members.
- Over 90,000,000 calls go through their system.
- The IAED system is used in 45 countries and is written in 21 languages
- The IAED system is used in several major cities in the U.S.

IAED has perpetual protocols that are always changing, yet always the same across the entire system.

The “time on task” spent by IAED dispatchers is, on average, less than 1 minute, which beats the national average.

Brian next gave us a quick demonstration of the ProQA software. This software automatically guides the 911 dispatcher through an initial sequence of questions for every call, then branches into subsets of questions, depending upon the nature of the incident being called in. During the course of questions, the call is prioritized as shown below:

Omega, Alpha, Bravo, Charlie, Delta, Echo
Least serious -----> Most serious

The “Omega” calls are the least serious and can usually be referred to other services that do not require the use of EMS services. At the opposite end of the spectrum, the “Echo” calls are the most serious and get the highest priority in EMS services.

When the call comes in, some of the initial questions asked are:

Caller’s location, caller’s phone number, caller’s problem, the number of people hurt and/or sick, the age of the injured party and their gender. Is the injured party awake? Is the injured party breathing?

A Chief Complaint Code is assigned based upon the responses. When lightning is the Chief Complaint, the list of questions asked changes. The dispatcher is also told to advise the caller help is being sent and to seek shelter in a car or a building.

If CPR is needed, the dispatcher can help the caller with the compression rate using a video metronome, which has been found to help make the compression rate more even.

A party’s breathing rate can be checked with clicks during the call. The number of clicks over a specific unit of time will determine whether breathing is okay or not.

Statements can be made during a call to calm or reassure the caller as the call progresses. Some of the things said are: “They’re on the way, ASAP.” “I’ll stay with you.” “We can do this together.” “You’re doing great.” “That’s very good.”

If a person falls and is injured, there are three categories of fall: Extreme: greater than 30 feet, Moderate: between 10 and 30 feet, and Minor: less than 10 feet.

The Quality Management section performs case reviews, obtains feedback, and provides ongoing education. As part of that process, the input of responders and administrators is solicited. Another part of the process is data analysis and research, where outcome data is compared to responder data.

At the end of the presentation, two questions were posed. Robert Gift asked if the patient is the 911 caller, do you tell them what to do? Brian said yes and the questions will change. He used an example of a pregnant woman giving birth. Bruce Beckmann, with Alpine Mountain Rescue, asked about extended response times, for example, 4 hours to the trail head & 2-3 more hours to reach the subject. Callers often have little power left on their cellphone battery, which is often consumed before help arrives. Brian said training is offered to address this kind of situation. When such a call comes in, the dispatcher tells the caller help is on the way, that it will take a while for it to arrive, and then sets up a schedule for an exchange of text messages, say once every hour.

4. Phil Yarnell wants to discuss in the future, some of the content from Lloyd Burrell’s ElectricSense.com website. The website promotes “...living a Naturally Healthy life in our electromagnetic world”. They believe EMF is unsafe and their goal is to offer solutions to reduce exposure to EMF in our lives.
5. Phil presented a case referred to him by Dr. Mary Ann Cooper. A patient reported a series of powerful static shocks at home where there were large sparks and a loud audible sound. After the first shock, the patient was okay for the remainder of the day, but felt different the next day. Patient was wearing leather soled shoes on carpet during dry winter weather. After a number of other shocks, patient began to have other issues such as fatigue, dizziness, diminished hearing, and a changed appetite. Patient thinks the nervous system was affected and wants to know if others experiencing static electric shocks have experienced similar disjointed feelings.
6. Questions, comments, notification of errors, and critiques of these minutes are welcome. Please forward those to Steve Clark at: sclarktoto@gmail.com. Please keep your communications professional and respectful. Communications will be forwarded to the appropriate author(s) of the minutes and addressed accordingly.
7. LDC Disclaimer: These minutes do not represent official positions of the LDC or its members. They simply reflect the comments made at the meeting. Furthermore, the LDC does not implicitly or explicitly recommend or endorse any product or service. Any product or service presented in these minutes is done so for purposes of discussion and analysis. The merit (or lack thereof) is open for the consideration and review by the entire membership.

8. Next meeting: Friday, May 11, 2018, from 11:45 AM to 1:00 PM at St. Anthony Hospital West.
Room: Conference Rooms E & F. Meeting Format: TBA.

Respectfully Submitted,
Steven E. Clark, Consulting Meteorologist

Lightning Links

This is a monthly listing of periodicals, websites, and videos about lightning and allied areas from a variety of sources. A headline or description is listed, followed by the link. Please note that some of the links are perishable, which means you'll need to go to the source for the information.

Clifton, D., 2013. Lightning Rattles Marble Falls EMS Director When Bolt Strikes His Vehicle. *Dailytrib.com*. April 9, 2013. Link: <https://www.dailytrib.com/2013/04/09/lightning-rattles-marble-falls-ems-director-when-bolt-strikes-his-vehicle/>

Smith, R., 2018. One in 1,083,000: Florida Grandmother Survives Lightning Strike. *TheDenverChannel.com*. Link: <https://www.thedenverchannel.com/news/national/one-in-1083000-florida-grandmother-survives-lightning-strike>

Schuster, H., 2018. Mancini's Brain. *60 Minutes*. April 1, 2018.
Link: <https://www.cbsnews.com/news/brian-mancini-brain-how-ieds-may-be-physically-causing-ptsd/>

From the 60 Minutes website: *“Editor's Note: Since this story aired, we have received many inquiries about how to contact Dr. Daniel Perl and The Center for Neuroscience and Regenerative Medicine. Here is that information: <http://www.researchbraininjury.org> or 1-855-366-8824.”*