

**LIGHTNING DATA CENTER MINUTES**  
**NOVEMBER 11, 2011**  
**ST. ANTHONY CENTRAL HOSPITAL, LAKEWOOD, CO**

Monthly Quote: " The lightning there is peculiar; it is so convincing, that when it strikes a thing it doesn't leave enough of that thing behind for you to tell whether --Well, you'd think it was something valuable, and a Congressman had been there.

- "The Weather," *Mark Twain's Speeches*."

1. The meeting began at 11:45 PM and adjourned at 1:10 PM.
2. Members present: Clark, Yarnell, Wachtel, Cherington (Michael and Nancy), Gift, Cui-Gift, Elder, Claus, and Langford. Clark moderated the meeting.
3. Langford started the meeting by reviewing the account of a lightning strike discussed in last month's meeting. Patient had a neck fusion – metal in neck, which posed the following question in last month's meeting: Could the patient be magnetized due to the electricity from the lightning strike? No, metal is titanium. Could the patient be burned if metal inside is heated? Ken thinks the burn potential is about the same inside the body as outside the body. Ken used the idea of a car tire not preventing lightning from going to ground. Clark recalled lightning current flows mostly on the outside of the body, but Ken reminded us that is true only when the body is moist or wet. According to Ken, rain was falling lightly and the ground was slightly damp when the patient was hit.

Ken thought the lightning might have hit the nervous system. Phil thought the strike did not appear to affect the nervous system, but did state the following sequelae are nervous system related: Patient is unable to talk and cannot express himself. Phil indicated the patient had a normal MRI and showed normal sign for epilepsy monitoring.

Regarding the issue of heating of metal inside a patient's body, the issue of MRI safety with respect to metal implants was raised. Howard Wachtel pointed out that MRI poses two issues for metals – first, magnetism (for ferrous and paramagnetic metals). Such objects in the field of an MRI will become hazardous flying objects if they are within the magnetic field generated by these instruments. Second, there is the potential for any metal to be heated when the metal is subject to electromagnetic fields in MRI systems, which could cause harm to parts of the body in contact with, and near to, the heated metal. Ken found two articles discussing this entitled "Electromagnetic Induction Heating of an Orthopedic Nickel Titanium Shape-Memory Device" and "Safety of Orthopedic Implants In Magnetic Resonance Imaging: An Experimental Verification". Links to the article abstracts can be found below in the "Lightning in the News" section.

4. Langford was asked about the progress of the safety poster with the NPS. Ken reported NPS is publishing a “Hazards Document” with lightning being one of the hazards addressed. NPS has said it may incorporate pieces of the safety poster in this “Hazards Document”. Ken has not heard from anyone within the NPS.
5. Langford wondered is lightning could alter neural networks. Phil thinks possibly, but maybe not permanently. Another question was asked: Could lightning cause neurological damage in a way that causes the body and/or brain to give more emphasis to other systems – somewhat like a blind person having a more acute sense of hearing? Clark recalled the man struck by lightning, discussed in Oliver Sack’s book Musicophilia, who listened to rock music prior to the strike, but then started hearing classical music in his head and then later learned to play the piano.
6. Clark played a video segment from CBS's “60 Minutes”, entitled “Apps for Autism”. In that segment, doctors at the University of Pittsburgh Hospital used a radiological technique called “High Definition Fiber Tracking” to examine the brain of Temple Grandin, a Professor of Animal Science at Colorado State University. Temple has a form of autism called “Asperger's”. What doctors are able to do is map the neural pathways that go into the base of the brain. In a normal person, that pathway is relatively streamlined; but in Temple's case, there are many more “ends” into the brain. Clark likened this to a frayed wire going into places that it shouldn't – therefore leading to communication problems because of the wires getting crossed. Howard seems to think it may be normal, but with more endings than usual. Clark wonders if this technology would be beneficial to a lightning strike survivor.
7. LDC Disclaimer: These minutes do not represent official positions of LDC or its members. They simply reflect the comments made at the meeting. Furthermore, the LDC does not explicitly or implicitly recommend or endorse *any* product or service. Any service or product presented in these minutes is done so for the purpose of discussion and analysis. The merit (or lack thereof) is open for consideration and review by the entire membership.
8. Next meeting: Friday, December 9, 2011 at 11:45 AM at St. Anthony Hospital West. Conference Room E. Subject: TBA.

Respectfully Submitted,

Steven E. Clark, Consulting Meteorologist

## **In Case You Missed It...Lightning in the News**

**This is a monthly listing of news and videos about lightning and allied areas as reported in the media. A headline is listed, followed by a link to the article. Please note that some of the links are perishable, which means you'll need to go to the source for the article. Enjoy!**

From WSVN-TV in Tampa, FL:

### **Lightning strike at Tampa park**

Read more: <http://www.wsvn.com/news/articles/local/21005346925820/#ixzz1Y8oPt15r>

More on the Tampa Lightning Strike from Tampa Bay Online...

#### **Lightning Strike at Park Scrutinized**

<http://www2.tbo.com/news/breaking-news/2011/sep/15/menewso4-lightning-strike-at-park-scrutinized-ar-257809/>

#### **OSHA Investigating Adventure Island Lifeguard's Death**

<http://www2.tbo.com/news/breaking-news/2011/sep/15/osha-investigating-adventure-island-lifeguards-dea-ar-257702/>

#### **Water Park Lifeguard Dies After Lightning Strike**

<http://www2.tbo.com/news/news/2011/sep/11/menewso10-water-park-lifeguard-dies-after-lightnin-ar-256911/>

#### **Adventure Island Lifeguard Dies After Lightning Strike**

<http://www2.tbo.com/news/news/2011/sep/10/7/lightning-strike-hospitalizes-adventure-island-emp-ar-256780/>

---

From the pressofatlanticcity.com:

## Lightning strike at Revel kills one worker, injures two others

[http://www.pressofatlanticcity.com/news/press/atlantic\\_city/lightning-strike-at-revel-kills-one-worker-injures-two-others/article\\_48f828fc-dfdc-11e0-8b53-001cc4c002e0.html](http://www.pressofatlanticcity.com/news/press/atlantic_city/lightning-strike-at-revel-kills-one-worker-injures-two-others/article_48f828fc-dfdc-11e0-8b53-001cc4c002e0.html)

---

From the Denver Post:

Lightning likely cause of a fire in a Denver home

[http://www.denverpost.com/search/ci\\_18918856](http://www.denverpost.com/search/ci_18918856)

---

From EMS1.com:

Samaritans Restore Breathing to Electrocuted Calif. Man

<http://www.ems1.com/trauma/articles/1170061-Samaritans-restore-breathing-to-electrocuted-Calif-man/>

---

From Tampabay.com

Lightning Photographer Don Naumann (Lightning Photo Gallery)

<http://www.tampabay.com/blogs/alleyes/content/lightning-photographer-don-naumann>

---

Electromagnetic Induction Heating of an Orthopedic Nickel Titanium Shape-Memory Device”. <http://www.ncbi.nlm.nih.gov/pubmed/20973066>

---

“Safety of Orthopedic Implants In Magnetic Resonance Imaging: An Experimental Verification” <http://www.ncbi.nlm.nih.gov/pubmed/16838376>

---

60 Minutes Story: “Apps for Autism”:

<http://www.cbsnews.com/video/watch/?id=7385686n&tag=cbsnewsMainColumnArea.11>

Clicking on the link above will take you directly to the story, which is preceded by a 30-second ad.