

May 8, 1998 Minutes **Lightning Data Center CenturaHealth St. Anthony Hospital**

Quote of the Month:

"How many physicians does it take to make the audiovisual equipment work? The answer seems to be $n + 1$, where n = the number of physicians present. Strict adherence...to two rules ('if it doesn't work, turn it on: if that doesn't work plug it in') is occasionally helpful...Specialist consultation with a trained audiovisual technician is for now the only remedy."

Dr. Kenneth Rockwood, The Lancet 1998;351:70

1. Meeting began at 11:30 am and adjourned at 1:20 pm.
2. Members present: Cherington, Clark, Deem, Glancy, Kamin, Keen, Simmons, Smith, Swanson, Toler, H Wachtel, Yarnell.
3. I distributed the following articles from the literature:
 - a.) Holle RL and Lopez RE. Lightning--Impacts and Safety. World Meteorological Organization Bulletin 1998;47:148-155.

This is an outstanding review article. Topics discussed include: impacts of lightning on people; impacts of lightning on objects; profiles of lightning victims; safety; education.
 - b.) Informational material from the International Tesla Society, Inc. of Colorado Springs.
4. Howard Wachtel provided some thoughts on Nikola Tesla of alternating current fame, and on Thomas Edison of direct current fame. Rick Smith pointed out that 60 Hertz A.C. is especially dangerous to people because of the chances of evoking tetany of skeletal muscles. Howard explained that 60 Hz was chosen because it is the frequency that meets the demand of use by transformers as well as rotating machinery.
5. Phil Yarnell defined the terms: cardiac arrest, ventricular fibrillation, and asystole. Cardiac arrest refers to a failure of perfusion due either to asystole or ventricular fibrillation. In either case there is a failure of the heart to pump blood to meet the demands of various organs. Howard said that asystole is often caused by a greater shock than the shock that results in ventricular fibrillation. Survival can occur after asystole, if the heart rhythm starts again spontaneously. Howard wondered about the feasibility of hikers carrying portable inexpensive defibrillators with them when on hikes in the mountains during lightning season. Carl Swanson said he recently spoke with Raul Lopez on a similar topic regarding carrying safety equipment on outdoor trips. Carl said that Raul warns people that if they are not going to take proactive measures and are likely to be found in harm's way, they should have emergency equipment with them.
6. The group discussed 'how much time should one wait after hearing thunder before seeking shelter.' Carl suggested that using the 'flash to bang' method, one might take shelter if the lightning is 6 to 8 miles away. Others stated that many may not hear thunder that far away. Furthermore, although the safest course would be to go inside anytime one sees lightning no matter how faraway, one might not succeed in persuading others who are engaged in outdoor sports (golf, baseball, etc.). Some

stated that there is a danger of "crying wolf" too often, and therefore others may fail to take your advice after too many "false alarms." This is a most difficult problem and we solicit the opinions of other members on how to deal with this situation.

7. Phil Yarnell brought case reports on 2 patients with posttraumatic syndrome. The first is a veterinary technician who was walking in a dog run, near a chain-link fence. For the 2 years since then, she has had easy fatigue, muscle aches and pains, and depression. The second patient is a school bus driver who suffered a shock while working with equipment in the garage.
8. Barry Kamin reported that LDC might soon have our own email address.
9. Bob Glancy reported that all the electrical appliances in a friend's house were damaged when lightning struck a lamp post in the front yard. He asked what could have been done to reduce the damage to electrical equipment. Warren Simmons stated that surge protectors can often protect indoor equipment. Even more protection would be achieved by unplugging your equipment if you believe a storm is approaching. Warren and Howard stated that surge protectors are likely to fail if there is a superflash. Superflash is defined as having over 100,000 amps and a temperature of over 60,000°F. A lightning strike of this magnitude is likely to be a positive strike. Finally, the group suggested that the homeowner get a professional evaluation of his lamp post.
10. Greg Deem brought a videotape taken by one of his friends during their skiing adventures 3 weeks ago. Greg was skiing with his friends on Stanley Peak near Berthoud Pass. Captured on video was a scene of acrobatic skiing and an avalanche that was set off when he landed on a shelf of snow. Greg, fortunately and skillfully, skied at a fast speed away from the sliding shelf of snow. Bob Glancy suggested that Greg send this footage to the Colorado Avalanche Center.
11. Carl Swanson brought a videotape of intracloud lightning taken in Aurora, Colorado. Carl believes that intracloud lightning is more common than cloud-to-ground lightning during the spring and autumn months. The ratio of cloud-to-ground lightning to intracloud and intercloud lightning is higher in the summer months. Carl believes that warm temperature drives cloud-to-ground lightning.
12. Warren Simmons brought a New Jersey newspaper account of a lightning event at Fort Dix where 5 soldiers were injured and one killed when lightning struck their tents. This happened at just after 5 am. The thunderstorm developed between 4:30 am and 5 am. By coincidence, this storm was witnessed from an airplane by Rich and Helen Keen who were returning home that morning from a trip to Israel.
13. These minutes reflect the wide ranging, often lively, occasionally controversial comments of the members present. They do not represent stated positions of LDC.
14. The next meeting will be held at 11:30 am, Friday June 12, 1998 in the Main Auditorium of Centura St. Anthony Hospital Central.

Respectfully submitted,

M.C.

Michael Cherington, MD
Chair, Scientific Committee LDC