

LIGHTNING DATA CENTER

Minutes

May 8, 2003

St. Anthony Hospital, Denver, Co

www.stanthonyldc.org

Quote of the Month:

"In this article, the authors surveyed original articles and meta-analyses published from 1945 to 1999...and assessed how many of their findings were still true in 2000. Whatever the half-life of truth was in this series, an important point is that negative conclusions had a significant survival advantage. Only 2% of negative results were rated obsolete, compared with 25% of positive conclusions. Hurrah for the negatives."

Sergi Erill, Just Say No, Lancet 2002

1. Meeting began at 11:30 am and adjourned at 1:20 pm.
2. Members present: Boyle, Bradley, Cherington, Collier, Doyle, Foley, Gartling, Gift, Glancy, Hodge, Keen, Krier, Langford, Lines, Maas, McDonough, Middleton, Sanders, Wachtel, Wallin.
3. I brought the following articles from the literature (abstracted in part here):
 - a. Lee JH, Lee HC, Kim HD, et al. How much are anesthesiologists exposed to electromagnetic fields in operating rooms? *Yonsei Med J* 2003;44:133-137.

"EMF is a form of electromagnetic energy that has a wide range of frequencies from 0 Hz of direct current (DC) to 1015 Hz of ultraviolet radiation. In this report, when we say EMF, we mean the power-frequency of EMF that is in the extremely low frequency (ELF) range because electricity in operating rooms has a frequency of 50 to 60 Hz. The EMF has both thermal and non-thermal effects on living organisms. Microwaves are examples of electromagnetic energy having frequencies ranging from 300 MHz to 300 GHz which produce heat upon tissue absorption. Adey reported occurrences of cataracts in eyes exposed to high frequency EMF. However, ELF carries very little energy and has no ionizing effects. It may produce a non-thermal effect such as blood brain barrier permeability change deranged calcium metabolism and or a neurotransmitter effect. In some operating rooms, the measured EMF density exceeded our cutoff value. Although the health hazards related to EMF exposure are still equivocal, anesthesiologists should consider making an effort to reduce their exposure to EMF."

- b. The following article on lightning safety is of particular interest because it was written over 60 years ago, and the advice holds up well in the 21st Century.

Bellashchi PL. How to dodge lightning. *Clinical Med* 1942;49:167.

"The moment a thunderstorm threatens, get into the house, preferably into a large house. Stay away from windows, open doors, stoves, pipes, chimney, and fireplace. The most dangerous place to be is out in the open. Keep away from tall, isolated trees, wire fences, poles. Get away from beaches, swimming pools, and fishing ponds. Make for depressions, valleys, or dense woods. If you are in your car, it is the safest place."

4. Robert Gift brought an artificial fulgarite sample that was found by Fire Department members on sandy ground near a downed energized power line.
5. Ken Langford brought a poster with information about his presentation next week. Title: The Joy of Natural Phenomena. Place: UCAR/NCAR Center Green Auditorium 3080 Center Green Drive, Boulder. May 15 at 7 pm. For information: 303 497 1174.
6. Gene Lines brought a fiberglass rebar grounding rod that may find use in newly constructed homes and buildings. Gene suggests that codes will need to be changed if these rods replace steel that now is useful in lightning protection. Gene

states that this material is being used in building bridges. It is less corrosive and that is one advantage of this new strong material in bridges.

Gene brought the following newspaper article: Skopinski, BB. Lightning sends stone flying. The Canyon Courier. April 30, 2003. "A lightning strike smashed a stone chimney on an Evergreen home and sent stones and debris flying as far as 150 feet. Firefighters used a thermal imaging camera to assess heat in the walls."

Gene brought the following article: Lightning protection for transmission lines virtually eliminates lightning related breaker operation. Hubbell Tips & News April 2003. "The system uses metal-oxide varistor (MOV) technology. The concept of placing arresters on transmission lines is not new."

7. Vicki Middleton thanked those members who responded with suggestions for the future international meeting. She and Bob Wallace will report to LDC at the July meeting. In the meantime she and Bob will be available for your suggestions. Their email addresses are: VickiMiddleton@centura.org <<mailto:VickieMiddleton@centura.org>> and BobWallace@centura.org <<mailto:BobWallace@centura.org>>.

8. Our speaker today was Robert Glancy, Warning Coordination Meteorologist with the National Weather Service in Denver. His topic: "A look at the other thunderstorm hazards, & how to stay informed when severe thunderstorms threaten."

Bob gave an outstanding presentation. It was especially well timed because of all the tornado activity in the past week. As usual, I cannot give a verbatim account of his talk. I will record notes that I took during the presentation:

- a. Congress established the National Weather Service as the agency to provide warnings about weather.
- b. Tornadoes are detected by Doppler Radar and Spotters. Radar does not always detect tornadoes. There are hundreds of people working as spotters in Colorado.
- c. What are the weather hazards?
 1. Lightning is the number 1 hazard in Colorado. The Palmer Divide, north of Colorado Springs, is known for lightning density.
 2. Floods. Other hazards that accompany flooding: fires from hazard materials. Poor judgment driving across flooded areas. One should leave the car and seek high ground.
 3. Tornadoes. Avoid windows, exterior walls, and large rooms.
 4. Hail
 5. Downbursts
- d. Website for Storm Prediction Center: www.spc.noaa.gov <<http://www.spc.noaa.gov>>
- e. Mesocyclone = rotating updraft. Associated with severe storm.
- f. States with the largest numbers of tornadoes: Florida and Colorado.

9. These minutes do not represent official positions of LDC members. They simply reflect the comments of members present as listed in my notes.

10. Next meeting: Friday, June 13, 2003 at 11:30 am in the Main Auditorium of St. Anthony Central Hospital.

Scheduled speaker: Howard Wachtel, PhD, Professor, Electrical Engineering and Neurosciences, University of Colorado at Boulder.

Topic: "Can lightning kill without leaving a trace?"

Respectfully submitted,

Michael Cherington, MD