

**Lightning Data Center  
St. Anthony Hospitals  
January 14, 2000  
Minutes**

Quote of the Month:

"...storms up to 100 miles away can be detected by using a radio receiver. Tune the receiver into an area on the dial where no transmissions are taking place, and then turn up the volume. If there is an active thunderstorm around, you will hear distinctive bursts of static, produced by the storm's lightning. An increase in the volume of the static indicates that the storms is getting closer."

Burroughs WJ, Crower B, Robertson T, Vallier-Talbot E, Whitaker R.  
In The Nature Company Guides Weather, 1996

1. The meeting started at 11:30 am and adjourned at 1:30 pm.
2. Members present: Breed, Cherington, Collier, Foley, Hawkes, Kamin, Keen, Kithil, M Kummerfeldt, P Kummerfeldt, Lines, Sellon, T Wachtel, Yarnell.
3. I brought the following articles (partly abstracted and summarized):

Commentary Lancet 1999;354:1918-9. Link between electromagnetic fields and childhood cancer unresolved.

"The long-awaited UK Childhood Cancer Study on exposure to power-frequency magnetic fields and risk of childhood cancer published in today's Lancet does not support the hypothesis that exposure to magnetic fields, associated with the use or transmission of electricity in the UK, increases the risk of childhood leukaemia, central nervous system tumours, or any other childhood cancer."

The commentary , however, suggests that the UK study was not definitive because:

exposure assessment relies on the time-weighted average (TWA) fields. Low number. Line Voltage in North America is 110 V (Europe 220 V). Thus North Americans use twice as much current as Europeans, and therefore are exposed to double the magnetic field strength.

There are small numbers of cases and controls in the higher exposure categories.

Dockerty JD, Elwood M, Skegg DCG, Herbison GP. Electromagnetic field exposures and childhood leukaemia in New Zealand. Lancet 1999;354: 1967-8.

"There was no significant association between leukaemia and the time-weighted average of the 50 Hz magnetic or electric fields in the bedroom and living (or daytime) room combined."

- - - - -

Mike Foley and Jeff Sellon spoke about health risks, if any, of cellular phones versus cordless phones. They both agreed that the data available at this time suggest there is very little, if any, risk from these phones. However, cell

phones, carry a high frequency (about 800 megahertz) as compared to the 60 Hertz frequency of power lines. They stated that more data is needed, however, with regard to these types of phones. All agreed that Howard Wachtel is the LDC authority on these subjects, and hopefully, he will be present next time to address this subject.

- - - - -

4. Rich Kithil spoke about lightning injuries to animals. He had slides showing herds of animals that were hit by lightning. He believes all of the cases were the result of stepped voltage. He investigated a situation in Maine where 84 deer were killed on a "venison farm." He also spoke about 504 sheep killed in Utah, and thoroughbred horses were killed in Florida. National Lightning Detection Network (NLDN) could not confirm a lightning strike for the event in Maine. Gary Hasty told us that he learned from the National Parks System morning report that 7 big horn sheep were recently struck in Yellowstone Park.

Rich Kithil stated that lightning detection systems are ground based (NLDN) and satellite based.

Members inquired about the accuracy of NLDN. Rich and Mike Foley stated that NLDN data are very useful but not infallible. They stated that Global Atmospheric, Inc. (GAI) reports that the accuracy rate is about 85%. The accuracy varies with terrain (e.g. less accurate in Rocky Mountains than some flat areas). They said there are over 100 sensors in the USA, and that if two strikes occur simultaneously, the nearby sensors may record only one of the strikes. They suggested that interested people check GAI web page ([www.glatmos.com](http://www.glatmos.com)) to obtain their data and reports.

Rich distributed handouts on several subjects including: "Little-known lightning information," and internet site information about lightning and about Benjamin Franklin. Much of this information can be found on the National Lightning Safety Institute website ([www.lightningsafety.com](http://www.lightningsafety.com)). Rich reminded us that this is the month of Benjamin Franklin's birthday: January 17, 1706.

5. Gene Lines brought a book entitled: Ball Lightning by Mark Stenhoff, published in 1999 by Kluwer Academic Publisher. He gave a positive review of the book. He recommended it to those interested in the subject. This subject is timely because of the clinical case that was discussed here last month.

Gene stated that ball lightning does contain energy and can cause damage. This statement is in contrast to some of the comments that were expressed at our last meeting that ball lightning was a low energy phenomenon. Stay tuned for more research.

6. Phil Yarnell reported that he has a patient with multiple sclerosis who has a past medical history of receiving an electrical shock when she was 10 years old. We now have 4 cases where "demyelination" on imaging studies has been seen in lightning and electric shock patients.

Phil reported 2 coroner's cases from last summer's lightning season.

a.) A 35 year old man was struck at 2pm on July 21, 1999 at 11,000 ft elevation on Trail Ridge Road. There were burns on his head and feet. A ferning pattern was also present.

b.) A hiker was struck at 8799 feet in a forested area of a valley at 2:46 pm. He and his friends moved to this lower altitude when the storm approached. They also moved away from each other. Even though they took

recommended actions to reduce the risks of being struck by lightning, the patient was still in harm's way.

Phil Yarnell was quoted in the Sunday, January 9, 2000 issues of the Denver Rocky Mountain News. He was quoted on the subject of prolonged symptoms in lightning survivors.

7. Dr. Allison Hawkes was introduced to the group. Her training is in Preventive Medicine and Public Health. Dr. Thomas Wachtel said the addition of Dr. Hawkes has strengthened the research part of the Trauma Center.

8. Peter Kummerfeldt reported that he recently spoke to 60 docents at the Cheyenne Mountain Zoo on the subject of lightning safety. The Zoo is located just south of Colorado Springs.

9. Barry Kamin just received a phone call from Ken Langford who sends his regards from Vermont where the Wind Chill temperature is minus 25 degrees Fahrenheit. (Denver's temperature today is 62oF.) Ken hopes to be here for the February meeting.

10. Announcement of a future half-day seminar that may be of interest to our members:

April 6, 2000 Thursday at Hotel Inverness, south of Denver.

Sponsoring organization: Colorado Rehabilitation & Insurance Nurses Group (CRING) and Centura Health. CME credits available

Topic: Medical Aspects of Lightning and Electrical Trauma

Faculty are all members of LDC: Cherington, Kithil, Lammertse, H Wachtel T Wachtel. {To our knowledge, this is the first time in history that a seminar on this subject included two faculty members whose last names are Wachtel.}

11. These minutes reflect the comments of members present and do not represent official positions of LDC.

12. Guest speakers on our schedule as of this date:

February (probably): Jeff Sellon and Leland Anderson -- slide presentation and talk on Nicola Tesla March: Ron Holle will discuss 100 years of Lightning Casualties in USA

13. Next meeting: Friday, February 11, 2000 at 11:30 am in the Main Auditorium of St. Anthony Central Hospital.

Respectfully submitted,

Michael Cherington, MD  
Chair, Scientific Committee