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Electromagnetic Fields linked to Childhood Cancer According to Two New Studies

by Magda Havas

Do electromagnetic fields affect human health?

This question has been the center of a debate that has been raging among the scientific community ever since Nancy Wertheimer and her colleague Ed Leeper reported an increased incidence of childhood leukemia, lymphomas, and nervous system tumors in Denver Colorado in 1979. The scientific community didn't pay much attention to this report until a journalist, Paul Brodeur, brought it to the public's attention. Ever since then scientists have been trying to determine whether electromagnetic fields from power lines are harmful to human health.

To date there have been more than a dozen studies from Canada, the United States, England, Sweden, Finland, Germany addressing this important issue and more than half of them have found an increased association of magnetic fields with childhood leukemia.

What this means is that children, under the age of 14, who live near high voltage power lines and are exposed to magnetic fields above 2.5 milli Gauss, have a greater risk of dying from leukemia than children who are not exposed to high electromagnetic fields. This increased risk is smaller than the risk of getting lung cancer from tobacco but is statistically significant and very few scientists still question this association.

If this is the case then why would two scientific studies, coming out in Europe this week, be so important?

One of the studies, conducted by the eminent epidemiologist Sir Richard Doll, who was the epidemiologist linking lung cancer with cigarette smoking in the 1960s and who has been critical of the findings of power line studies, now admits an association of increased risk of childhood leukemia with elevated magnetic fields. This study is important because it is the first official statement from a major health organization in the UK, the National Radiation Protection Board, associating childhood cancer and magnetic fields. The report is carefully worded and is intended to minimize concern. It down plays the number of children who are likely to die from leukemia because of their exposure to power lines.

The second study, from Germany by Joachim Schuz and colleagues, has gone even further. In this study they report a statistically significant association, with an odds ratio of 3.2, (3.2 fold increased risk) between childhood leukemia and magnetic field exposure during the night. Since children spend 8 or more hours each day sleeping, the bedroom becomes a very important environment in terms of electromagnetic hygiene. Reducing

electromagnetic fields in the bedroom reduces the overall exposure and thus the risk of leukemia.

Bedroom electromagnetic fields can be reduced in a number of ways. Electric alarm clocks and baby monitors can be moved away from the bed, electric blankets can be unplugged once they warm up a bed. Beds can be moved away from panel or fuse boxes and electric heaters. Electric heating coils in ceilings and floors generate high magnetic fields. These fields can be reduced by turning down the night-time thermostat. Some older homes have knob and tube wiring that can also generate high magnetic fields. Although costly, an electrician can update the wiring to current wire codes and thus reduce magnetic fields in individual rooms. So there is much that individuals can do to reduce their exposure.

The problem is that individuals have no way of reducing electromagnetic fields in a home if the primary source is from power lines run by public utilities.

Recently the Peterborough Utility Commission installed higher voltage power lines on London Street in Peterborough, against the wishes of the residents who were concerned about their health and reduced property values. The houses are within a few meters of the power lines and exposure in these neighbourhoods is likely to exceed the 2.5 mG limit associated with childhood leukemia. So the residents' concerns are warranted.

Peterborough is not unique. This conflict between residents and utility companies is being waged in many communities that are moving to higher voltages power lines in residential neighbourhoods.

The health risk from electromagnetic fields is small but significant, small in terms of the population but not small for the parents who lose a child to leukemia. My concern is that since electromagnetic fields are ubiquitous in urban centres very large populations are exposed and unlike cigarette smoking, where you have a choice of smoking or not, you do not have a choice regarding your exposure to magnetic fields if they are coming from the power line outside your home.

The two studies released this week may help to convince the power utilities to take the health concerns of citizens into account in their planning of future power delivery.

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