Harvard Center for Risk Analysis

March 1996

Volume 4
Number 2

Risk in Perspective

EMFs and Childhood Cancer: Are You Convinced?

Despite — or maybe because of — the inconclusiveness of the literature on EMFs and pediatric cancer, the issue continues to loom large with both the scientific community and segments of the public.

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In a 1979 study of greater Denver, Colorado, Nancy Wertheimer and Ed Leeper reported a higher occurrence of childhood cancer in residences located near electrical lines capable of carrying high currents as compared to homes located either near low-current capacity lines or far from electrical lines. While there had been a few earlier studies exploring the health effects of electric and magnetic fields (EMFs), the Wertheimer and Leeper report was the first to suggest 50–60 Hertz EMFs as a potential health hazard in residential settings. Not surprisingly, the findings of Wertheimer and Leeper sparked a swell of public concern.

While any potentially dangerous exposure is serious, hazardous exposures found in the home are particularly worrisome. Citizens tend to be less tolerant of residential risks than they are of risks on the job or in external environments (e.g., on the highway or the ski slopes). The Wertheimer and Leeper study implicated a ubiquitous everyday exposure, as nearly every household in this country not only uses but depends upon electricity to carry out commonplace activities. Furthermore, the report focused on childhood cancer, a rare but frightening disease. The vulnerability of the pediatric population, coupled with the widespread nature of the EMF exposure, ignited concern about the potential health effects of residential EMFs.

In response to the Wertheimer and Leeper results, the scientific community conducted additional studies to examine the potential health effects of exposure to EMFs in the home. Since 1979, there have been numerous epidemiologic studies performed in an effort to clarify the issue. The results have been mixed, with much continued debate over whether or not there is a significant association between residential EMFs and childhood cancer.

This issue of RISK IN PERSPECTIVE examines the literature on residential exposure to EMFs and childhood cancer and explores some of the critical questions involved in the debate over the potential health effects associated with that exposure. It also continues the epidemiologic discussion begun in last year's RISK IN PERSPECTIVE on *Workers, EMFs, and Cancer* (Vol. 3, No. 2, April, 1995). We close with some recent survey findings suggesting that the public is not yet convinced that EMFs from power lines are hazardous to health, especially in comparison to other hazards receiving coverage in the media.

Childhood Cancer

The term, "childhood cancer," encompasses a variety of diseases. Leukemia is the most common childhood malignancy, accounting for approximately one third of childhood cancers. Brain tumors are the second most common, comprising about 20% of pediatric cancers.

Pediatric leukemia, or cancer of the bone marrow, strikes approximately 2,500 children in this country each year. The most common form of childhood leukemia (80% of such leukemias) is acute lymphocytic leukemia (ALL). Acute myelogenous leukemia (AML), makes up another 15% of pediatric leukemia. The incidence of ALL peaks in young children (2–4 years old), whereas AML has a more even age distribution across children. While leukemia is often fatal, the treatments and prognosis for pediatric leukemia have been steadily improving over the past several decades. The current five-year survival rate for children with ALL is about 70–80%; the five-year survival rate for children with AML approximates 40–50%.