

Joseph L. Lyon on Leukemia and Atom Bomb Tests in Southern Utah, 1979

A University of Utah researcher has released findings of a link between leukemia deaths and nuclear fallout in Utah that will open the door to new studies on the hazards of radiation exposure.

Dr. Joseph L. Lyon, assistant professor of family and community medicine and co-director of the Utah Cancer Registry, reported his findings in the New England Journal of Medicine.

Leukemia death rates for children under age 15 born in southern Utah during the intensive period of above-ground nuclear testing in Nevada (1951-58) were about two and a half times that of children born in the same region before and after, Lyon reported. The leukemia death rates for northern Utah children born during that period were about 1.3 times greater.

The study is the first to report an association between fallout and an increased number of childhood leukemia deaths in Utah and comes at a time of growing controversy over what constitutes a safe level of radiation exposure. Two other studies of workers exposed to low levels of radiation in Portsmouth, N.H., and Hanford, Wash., have drawn fire because of the research methods used.

The Department of Health, Education and Welfare is planning an award of a one-year contract to the U for follow-up work to confirm Lyon's findings. The U will also test the feasibility of reconstructing radiation doses received by each community in Utah.

"The average risk of leukemia death for all children born in Utah during that eight-year period increased 40 percent," Lyon says. "Our studies show an excess of 18 and 19 childhood leukemia deaths above what would normally have been expected in southern Utah. Northern Utah, with less exposure but a larger population, experienced 30 to 32 excess deaths.

"We can't say from this study that fallout causes cancer. Studies of this nature don't establish cause and effect. We particularly can't establish a cause-effect relation in any specific death," he notes.

"But I think we can say without question there is an association between fallout exposure and the increased incidence of childhood leukemia deaths in Utah," Lyon says.

The researcher also stresses that the risk to children no longer exists,

"Leukemia and Atom Bomb Tests in Southern Utah, 1979" in *University of Utah Review*, 12 (February 1979). Permission granted by University of Utah Press.

and there is currently no detectable "cancer epidemic" among adults or children in southern Utah.

There were 97 documented above-ground atomic bomb tests in Nevada from 1951 to 1958, when a moratorium took effect. Another 10 tests were set off in 1962. The United States and Russia then signed a test ban treaty in 1963, moving all testing underground.

"We defined 1951 to 1958 as the period of heavy exposure," Lyon says. "We obtained Atomic Energy Commission or Public Health Service maps from 26 of the tests showing fallout bands over Utah. The other tests purportedly did not result in fallout reaching Utah. Because of recent disclosures about government attitudes and actions during that period, we consider this official exposure data conservative at best.

"Although 26 blasts represent only one-fourth of the known tests, in terms of kilotonnage they represent half. It was the most massive blasts that sent fallout over Utah," Lyon notes.