RADIATION AND INFANT MORTALITY—SOME HAZARDS OF METHODOLOGY

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A decade ago, in a paper presented at the 1960 State of California Department of Public Health Air Pollution Research Conference, it was suggested by this speaker that an attempt be made to determine whether the distribution of mortality within a city was related in some meaningful way to the geographic distribution of the air pollution within the same geographic area. I said [9],

It may surprise you to have me suggest that one should start with the youngest age group. For many years infant mortality decreased rapidly; very recently this trend has been altered, and no obvious reasons have been found. Could air pollution be the culprit? Therefore, one highly recommended step is the determination of the geographic distribution of infant mortality. The study preferably should include only the postneonatal period; i.e., deaths during the first year of life but excluding the first month to minimize the effect of birth injuries and the like.

Soon after this simplistic view that an environmental factor, air pollution, was implicated in the leveling off in the decline of the infant mortality rate in the United States was presented, the possible hazards of another etiologic agent, radiation, specifically, radioactive fallout from nuclear weapons were cited by Sternglass. He mentioned the need at this time to study the incidence of childhood leukemia and cancer deaths among children born in areas which had received heavy fallout doses six to nine months earlier [15].

In the meantime, some attempt had been made to assess the hazards of extremely low levels of ionizing radiation in the United States, largely by means of the published vital statistics. Grahn and Kratchman in 1963 [8] summarized the studies as follows. "The results of the (bone) tumor and leukemia incidence studies have all been negative. The malformation studies have been suggestive of a radiation effect, though alternative explanations and hidden biases were not entirely accounted for."

In their article, they examined the relationship between the neonatal death rate for the eight-year period, 1950–57 and estimated natural or background radiation exposure in the United States for the white population, by county of residence. The total population of a county was used in place of the white population