



Dose Management: Radiologists Don't Face Cancer Risk



Thanks to improved dose management protocols, present-day radiologists who graduated from medical school after 1940 do not face an increased risk of dying from radiation-related causes like cancer, according to a new study appearing online in the Radiological Society of North America journal [Radiology](#).

The study compared cancer incidence and mortality rates among 43,763 radiologists and 64,990 psychiatrists who graduated from medical school between 1916 and 2006. Psychiatrists were chosen as a comparison group because they are unlikely to have had occupational radiation exposure.

Radiologists were also found to have lower death rates from all causes of death combined, compared to psychiatrists, and had similar risks of cancer deaths overall.

Studies of mortality among radiologists are important for evaluating radiation protection measures and understanding the long-term effects of protracted exposure to low level radiation. Previous U.S. studies have been limited by smaller data sets and reflect only earlier time periods. In the United States, the last follow-up of radiologists ended in 1975, leaving a large gap in understanding the risks today.

Study leader Amy Berrington de González, D.Phil., chief of the Radiation Epidemiology Branch at the National Cancer Institute (NCI), in Bethesda, Md., and her colleagues based the new study on records from the American Medical Association (AMA) Physician Masterfile, a database established in 1906 that has grown to include current and historical data for more than 1.4 million physicians, residents and medical students.

In recent decades, more doctors have performed fluoroscopically-guided procedures, making it even more difficult to find a physician comparison group that did not have exposure to radiation, according to study co-author and senior investigator at the NCI Radiation Epidemiology Branch Martha Linet, M.D.

Radiologists who graduated before 1940 faced increased death rates from certain conditions, including acute myeloid leukemia and myelodysplastic syndrome, which are known to be related to occupational radiation exposure. In these earliest workers, there were also increased death rates from melanoma and non-Hodgkin's lymphoma.

The older radiologists also had a higher risk of cerebrovascular disease, as research in recent years has found evidence that low to moderate doses of radiation may be associated with circulatory diseases and stroke.

The reduced health risks for more recent radiology graduates are likely due to developments and improvements in radiation protection and monitoring, according to the researchers, along with improvements in equipment safety.

Journal Reference:

1. Berrington de González, Martha Linet, Estelle Ntowe, Cari M. Kitahara, Ethel Gilbert, Donald L. Miller, and Ruth A. Kleinerman. **Long-term Mortality in 43,763 U.S. Radiologists Compared with 64,990 U.S. Psychiatrists.** *Radiology*, 2016

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