

Risk of subsequent malignancies reduced among childhood cancer survivors

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Although the risk of subsequent malignancies for survivors of childhood cancer diagnosed in the 1990s remains increased, the risk is lower compared with those diagnosed in the 1970s, a decrease that is associated with a reduction in therapeutic radiation dose, according to a study appearing in the February 28 issue of *JAMA*.

The Childhood Cancer Survivor Study and other groups of [childhood cancer survivors](#) have reported extensively on the incidence of and risk factors for subsequent neoplasms (tumors). Therapeutic radiation has been strongly associated with development of subsequent tumors; however, links have also been identified between specific chemotherapeutic agents and the development of tumors. With this information, childhood cancer treatment has been modified over time with the hope of reducing subsequent tumor risk, while maintaining or improving 5-year survival.

Lucie M. Turcotte, M.D., M.P.H., M.S., of the University of Minnesota Medical School, Minneapolis, and colleagues conducted a study that included 23,603 five-year cancer [survivors](#) (average age at diagnosis, 7.7 years) from pediatric hospitals in the United States and Canada between 1970-1999, with follow-up through December 2015.

During an average follow-up of 20.5 years, 1,639 survivors experienced 3,115 subsequent neoplasms. The most common subsequent malignancies were breast and thyroid cancers. Proportions of individuals receiving radiation decreased (77 percent for 1970s vs 33 percent for

1990s), as did median dose. Fifteen-year cumulative incidence of subsequent malignancies decreased by decade of diagnosis (2.1 percent for 1970s, 1.7 percent for 1980s, 1.3 percent for 1990s). Relative rates declined with each 5-year increment for subsequent malignancies.

Radiation dose changes were associated with reduced risk for subsequent malignancies, meningiomas (a tumor that arises from the membranes that surround the brain and spinal cord), and nonmelanoma skin cancers.

"The current analysis, including more than 23,000 survivors of [childhood cancer](#) treated over 3 decades, demonstrated that the cumulative incidence rates of subsequent neoplasms, subsequent malignant neoplasms, meningiomas, and [nonmelanoma skin cancers](#) were lower among survivors treated in more recent treatment eras and that modifications of primary cancer therapy were associated with these declines," the authors write.

More information: *JAMA*, [DOI: 10.1001/jama.2017.0693](https://doi.org/10.1001/jama.2017.0693)

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