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Contact:
[NCI Office of Media Relations](#)
301-496-6641

Higher cancer risk continues after Chernobyl

NIH study finds that thyroid cancer risk for those who were children and adolescents when they were exposed to fallout has not yet begun to decline

Nearly 25 years after the accident at the Chernobyl nuclear power plant in Ukraine, exposure to radioactive iodine-131 (I-131, a radioactive isotope) from fallout may be responsible for thyroid cancers that are still occurring among people who lived in the Chernobyl area and were children or adolescents at the time of the accident, researchers say.

An international team of researchers led by the National Cancer Institute (NCI), part of the National Institutes of Health found a clear dose-response relationship, in which higher absorption of radiation from I-131 led to an increased risk for thyroid cancer that has not seemed to diminish over time.

The study, which represents the first prospective examination of thyroid cancer risk in relation to the I-131 doses received by Chernobyl-area children and adolescents, appeared March 17, 2011, in the journal *Environmental Health Perspectives*.

"This study is different from previous Chernobyl efforts in a number of important ways. First, we based radiation doses from I-131 on

measurements of radioactivity in each individual's thyroid within two months of the accident," explained study author Alina Brenner, M.D., Ph.D., from NCI's Radiation Epidemiology Branch. "Second, we identified thyroid cancers using standardized examination methods. Everyone in the cohort was screened, irrespective of dose."

The study included over 12,500 participants who were under 18 years of age at the time of the Chernobyl accident on April 26, 1986, and lived in one of three Ukrainian oblasts, or provinces, near the accident site: Chernigov, Zhytomyr, and Kiev. Thyroid radioactivity levels were measured for each participant within two months of the accident, and were used to estimate each individual's I-131 dose. The participants were screened for thyroid cancer up to four times over 10 years, with the first screening occurring 12 to 14 years after the accident.

Standard screenings included feeling for growths in the thyroid glands and an ultrasonographic examination (a procedure that uses sound waves to image the thyroid gland within the body), and an independent clinical examination and thyroid exam by an endocrinologist. Participants were asked to complete a series of questionnaires including items specifically relevant to thyroid dose estimation. These items included residential history, milk consumption, and whether they were



[Recent photo of the Chernobyl nuclear power plant in Ukraine](#)