

# Chernobyl, 25 Years Later: Lessons for Japan?

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On the 25th anniversary of the Chernobyl nuclear disaster, a comment published by *Lancet Oncology* describes the known health consequences of the 1986 event. The authors are Kirsten B. Moysich, PhD, MS, and Philip McCarthy, Jr., MD, both of Roswell Park Cancer Institute (RPCI), and Per Hall, PhD, of Karolinska Institute, Stockholm, Sweden — who have contributed to numerous scholarly articles on this topic, including the first major United Nations Report into the effects of the Chernobyl accident in 2000.

Dr. Moysich is Professor of Oncology in the Department of [Cancer Prevention and Control](#) and Professor and Academic Program Chair of the Department of Cancer Pathology and Prevention at RPCI, and Dr. McCarthy is a Professor of Oncology and Director of the Institute's Blood & Marrow Transplant Program.

The authors point out that there were many obstacles in studying the aftermath of the Chernobyl accident and that the Fukushima incident might offer a new, albeit sad, opportunity to more accurately study the [health consequences](#) of a major nuclear-power-plant accident. The authors attribute this to the greater scientific expertise in Japan, as well as the greater economic and political stability.

Radioactive elements with a long half-life (the time it takes for half the sample to decay), especially caesium and strontium, will be prevalent in the environment for decades to come. Radioactive iodine, despite having a half-life of just eight days, can cause damage by being absorbed into

the body through food, where it is stored in the thyroid gland. An increased risk of childhood thyroid cancer (3 to 8 times higher) among those with the highest exposures was seen post-Chernobyl in affected areas. This has led to recommendations to distribute potassium iodine tablets to children and adolescents in the most contaminated areas following a nuclear-power-plant accident. Unfortunately, no chemoprotective interventions are available for radiation exposure from caesium or strontium. The authors say: “Aggressive efforts will be needed to limit exposure to radioactive iodine and caesium, and to isolate contaminated areas. In particular, children and young adults are at highest risk because of past data showing that exposure at young ages increases the risk of adverse health effects such as thyroid cancer.”

They also discuss the potential harmful effect of radiation for girls in puberty. Evidence from the Japanese Life Span Study (which looked at radiation related risk factors following detonation of atomic bombs in World War II) suggested that the highest excess risk for breast cancer was for women who were in puberty at the time of the atomic bombing. The authors say: “Another sensitive time-point is lactation at the time of the accident, when the likelihood of radionuclide absorption to the mammary tissue is high.”

Dr. Moysich and colleagues conclude that the documented cancer consequences of the Chernobyl accident were restricted to thyroid cancer in children and were much lower than first expected. Due to the many issues associated with studying Chernobyl health effects, results from new studies focusing on the Fukushima incident might uncover more accurate estimates of the aftermath of nuclear power plant accidents in the past and present, as well as provide useful information for the public health management of future events.

**More information:** For more information, visit [www.thelancet.com/journals/lan ... \(11\)70095-X/abstract](http://www.thelancet.com/journals/lan... (11)70095-X/abstract)

Provided by Roswell Park Cancer Institute

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