

## BIOMEDICINE

# Thyroid cancer rose after Chernobyl

The 1986 nuclear accident at Chernobyl in Ukraine unleashed radioactive pollution, including iodine, over a vast area now encompassing parts of Russia, Belarus, and Ukraine. The amounts far exceeded releases from any previous nuclear power station accident. Millions of people were exposed.

Since the accident, anecdotal evidence of increased cancer rates near Chernobyl has mushroomed like a radioactive cloud. Researchers now have hard proof that thyroid-cancer cases in children, while still rare, have multiplied in northern Ukraine during the post-accident years.

On average, doctors in northern Ukraine diagnosed 12 cases of childhood thyroid cancer annually in the 5-year period before Chernobyl. Between 1986 and 1990, they found 22 new cases per year. Between 1991 and 1995, the rate soared to 63 cases, and during the next 2 years, it climbed to 73 cases per year, the researchers report in the July 1 *CANCER*.

Children who were 5 years old or younger in 1986 were most likely to develop the cancer. Also, four children who were still in the womb at the time of the accident subsequently contracted thyroid cancer.

All but a few of the children have survived. Thyroid cancer is treated by removal of the thyroid gland. Patients must then take thyroid-hormone replacements for the rest of their lives.

While previous reports indicated thyroid-cancer incidence was up in the region, they lacked the statistical rigor of this comparison, says study coauthor Virginia A. LiVolsi, a pathologist at the University of Pennsylvania Medical Center in Philadelphia.

The thyroid gland needs iodine to manufacture thyroid hormone, which is essential to body metabolism and growth. The children in the Ukraine might have been slightly deficient in iodine before the accident, LiVolsi says, causing their thyroids to readily accept iodine—radioactive or not. Radioactive iodine kills cells or retards their development. The radiation also causes DNA damage, genetic mutations, and sometimes cancer.

Data for the new study came from a registry compiled by the Academy of Medical Sciences of Ukraine in Kiev. Scientists suspect that exposed adults might also have a higher thyroid-cancer incidence since the accident, but the researchers are only now collecting data on adults. Because children have smaller thyroid glands, their radioactive dose of iodine is proportionately larger and so has a greater impact, LiVolsi says.

—N.S.