

Chernobyl soil blamed for lung problems in children

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A Ukrainian family with some of its harvested crops.

(PhysOrg.com) -- Children living downwind of the Chernobyl Nuclear Power Plant in the Ukraine may have long-term problems affecting their lungs, according to a University of South Carolina study.

The results of the study, led by Dr. Erik Svendsen of the Arnold School of Public Health, are published in the May issue of the journal, [Environmental Health Perspectives](#). The study shows that the source of the children's problems is radioactive [cesium](#), a chemical element that contaminated the soil and air after the world's most serious nuclear accident.

The health consequences of the Chernobyl nuclear disaster on April 26, 1986, have never been fully reported, in part because of disagreement

among health and medical officials about their impact and a lack of epidemiological studies.

Although the disaster occurred more than 24 years ago, the soil in many areas of the Ukraine remains “profoundly contaminated” with radioactive cesium, said Svendsen, who collaborated with Dr. Wilfried J.J. Karmaus of the Arnold School’s department of epidemiology and biostatistics and Dr. Timothy Mousseau, a University of South Carolina researcher who has studied the impact of the Chernobyl disaster since 1999 and will head back to the area this summer to conduct further research.

“Thousands of children live in and consume locally grown foods from areas in the Ukraine where the soil is still contaminated with radioactive cesium,” said Svendsen, a research assistant professor in the department of epidemiology and biostatistics.

“Hundreds of these children may grow up with lungs that have been damaged by chronic exposure to radioactive cesium,” he said. “The long-term prognosis of these children is poor, and many will likely develop significant respiratory problems as they age.”

The study was conducted in a farming area of the Ukraine, known as the Narodichesky district (about 50 miles from Chernobyl). The area, which received considerable fallout from the incident, became very poor, and soil studies found that the radioactive cesium levels were 1.5 - 44 times above what is considered normal in the United States, Svendsen said.

Because of their exposure to cesium in food and water, children from the Narodichesky district have been required since December 1986 to participate in a public-health intervention that includes a yearly medical screening. The goal of the Narodichi Children’s Cohort (NCC), as the participants are known, is to provide health screenings and treatment to

children living in the Narodichesky district.

Only in recent years have the data collected from the NCC been available to healthcare providers and scientists who are studying the risks of long-term exposure to low levels of radiation, Svendsen said. This is the first data set that has been analyzed by Arnold School and USC researchers.

The data for the Arnold School study came from 1993-98 and represented 415 children from 29 Narodichesky villages - most born after the 1986 Chernobyl accident. Among the most frequent diagnoses were goiter, dental problems, chronic diseases of tonsils and adenoids, fatigue, enlargement of lymph nodes, acute colds, and inflammation of the bile duct.

“This is one of the most comprehensive studies to date to examine the specific non-cancer health problems of people living in areas affected by the meltdown of the nuclear reactor at the Chernobyl [Nuclear Power Plant](#),” Svendsen said. “These findings are an important step in our understanding the health risks that are part of Chernobyl’s aftermath.”

The study points to the need for further public-health surveillance, continued environmental remediation, dietary intervention and better risk communication among those living in the affected areas, he said.

“Future studies are needed to help us understand the full spectrum of respiratory problems and other health consequences among [children](#) who have been - and continue to be - chronically exposed to cesium after the Chernobyl disaster,” Svendsen said.

Scientists from the Medical University of South Carolina in Charleston and research centers in the Ukraine also collaborated on the Arnold School study.

Provided by University of South Carolina

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