

End Times Alert: Toxic Chemicals Found in Water Supplies of 6-Plus Million Americans

Drinking water supplies for more than six million Americans contain unsafe levels of industrial chemicals that have been linked to cancer and other serious health problems, a U.S. study suggests.

The chemicals – known as PFASs (for polyfluoroalkyl and perfluoroalkyl substances) – are used in products ranging from food wrappers to clothing to nonstick cookware to fire-fighting foams. They have been linked with an increased risk of kidney and testicular cancers, hormone disruption, high cholesterol, and obesity.

“PFASs are a group of persistent manmade chemicals that have been in use since 60 years ago,” said lead study author Xindi Hu, a public health and engineering researcher at Harvard T.H. Chan School of Public Health in Boston and Harvard University in Cambridge, Massachusetts.

Once these chemicals get into the water, they’re hard to get out, Hu added by email.

“Most current wastewater treatment processes do not effectively remove PFASs,” Hu said.

The problem may be much more widespread than the current study findings suggest because researchers lacked data on drinking water from smaller public water systems and private wells that serve about one-third of the U.S. population – about 100 million people, Hu noted.

To assess how many people may be exposed to PFASs in drinking water supplies, researchers looked at concentrations of six types of these chemicals in more than 36,000 water samples collected nationwide by the U.S. Environmental Protection Agency (EPA) from 2013-2015.

They also looked at industrial sites that manufacture or use PFASs, military training sites and civilian airports where fire-fighting foam containing PFASs is used; and at wastewater treatment plants.

Discharges from these plants—which are unable to remove PFASs from wastewater by standard treatment methods—could contaminate groundwater, researchers note in the journal *Environmental Science and Technology Letters*. So could the sludge that the plants generate and which is frequently used as fertilizer.

The study found that PFASs were detectable at the minimum reporting levels required by the EPA in 194 out of 4,864 water supplies in 33 states across the U.S.

Drinking water from 13 states accounted for 75 percent of the unsafe supply, led by California, New Jersey, North Carolina, Alabama, Florida, Pennsylvania, Ohio, New York, Georgia, Minnesota, Arizona, Massachusetts, and Illinois.

Sixty-six of the public water supplies examined, serving six million people, had at least one water sample that measured at or above what the EPA considers safe for human consumption.

The highest levels of PFASs were detected near industrial sites, military bases, and wastewater treatment plants—all places where these chemicals may be used or found.

One limitation of the study is that researchers lacked data on how long people lived in areas supplied by contaminated water or how much of this water people actually drank, the authors note. The risk of many health problems linked to the chemicals

is associated with long-term exposure.

A second Harvard study from one of the co-authors on the paper, Philippe Grandjean, focused on a new potential health problem tied to PFASs.

Grandjean and colleagues studied nearly 600 adolescents from the Faroe Islands, an island country off the coast of Denmark, who received vaccines to protect against diphtheria and tetanus.

The subset of these teens exposed to PFASs at a young age had lower-than-expected levels of antibodies against diphtheria and tetanus despite receiving vaccinations, according to the study in the journal *Environmental Health Perspectives*.

This suggests that PFASs, which are known to interfere with immune function, may be involved in reducing the effectiveness of vaccines in children, the authors conclude.

Previous research has found lower responses to vaccinations at ages 5 and 7 with exposure to the chemicals, Grandjean said by email. The current study in teens suggests that the problem persists as children get older.

“So the negative effects on immune functions appear to be lasting,” Grandjean said. “Sadly, there is very little that an exposed resident can do, once the exposure has led to an increased amount of PFASs in the body.” {eoa}

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