

New report sparks questions and controversy over possible causes for Iowa “cancer crisis”

From [Keith Schneider, The New Lede](#)

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Photo by Kent Becker, US Geological Survey

Amid increasing scrutiny of a potential link between Iowa farm chemicals and cancer, a new report is generating controversy as it blames rising cancer rates not on the toxins used widely throughout the state, but on something else entirely: binge alcohol consumption.

The Iowa Cancer Registry, a health research group housed at the University of Iowa, [reported on February 20 that](#) Iowa has the second-highest and fastest-rising incidence of cancer among all states. An estimated 21,000 new cancer cases are expected to develop this year and 6,100 Iowans will die from cancer, Iowa Cancer Registry Director Mary Charlton said in announcing the new report. Iowa, she said, has the highest rate of binge drinking in the Midwest with 22% of residents reporting binge drinking, more than the national average of 17%. Overall, Iowa has the 4th highest incidence of alcohol-related cancers in the US, according to the report.

“Alcohol is a known carcinogen and a risk factor for several cancers including oral cavity, pharynx, larynx, esophagus, rectum, liver, and female breast cancers,” Charlton said in a news conference.

The assessment has drawn questions and sparked doubts, however, from state leaders and health and environment researchers who have been calling for a probe into just how much the state’s agricultural industry may be contributing to the spread of disease.

“Is alcohol responsible for the increase in cancer incidence here since 2014? I personally doubt that,” said James Merchant, a retired professor of occupational and environmental health, and former dean of the University of Iowa College of Public Health.

“What needs to be looked at are things that are probable or possible carcinogens that have increased beginning about 1990, because of the well-recognized latency of environmental cancers,” Merchant said. “Those carcinogens associated with industrial agriculture are the ones that really need to be looked at very closely.”

Pesticides and fertilizers

Iowa is the leading US corn and soybean growing state, with millions of acres devoted to the crops. Corn and soybean farmers typically make heavy use of pesticides and fertilizers on their fields. Iowa farms use more weed killers (237 million pounds) and apply more commercial fertilizer (11.6 billion pounds) every year than any other state, according to state and federal data. The chemicals are known to contaminate both soil and water and leave pesticide residue in the harvested grains.

Researchers have long suspected that exposure to a number of the most popular pesticides, particularly glyphosate (the active ingredient in the Roundup brand of herbicide), may cause human cancers. In 2015, the International Agency for Research on Cancer (IARC) [classified glyphosate as](#) “probably carcinogenic” to humans. Other studies have found that [exposure to other common pesticides are associated](#) with cases of non-Hodgkin lymphoma, leukemia, brain, and prostate cancer.

Iowa’s sprawling livestock and poultry sector is also a concern. The Iowa operations produce more animal manure (54.5 million tons) every year than any other state, according to federal and state data. Since 1992, for instance, the state’s hog population has grown to 24 million hogs, up more than 70%. Iowa’s manure production in total has increased almost 80% since 2002, according to the latest US Agriculture Census.

The manure from the animals contributes to the creation of nitrates, which form when nitrogen from fertilizer and manure combine with oxygen. The waste streams routinely drain from farm fields into groundwater, streams, and rivers, contaminating water sources. Babies can suffer severe health problems when consuming nitrates in drinking water, and a growing body of literature [indicates potential associations](#) that include an [increased risk of cancer](#). And exposure to elevated levels of nitrates in drinking water from commercial fertilizer and manure has been linked by numerous researchers to cancers of the blood, brain, breast, bladder and ovaries.

David Cwiertyny, professor of civil and environmental engineering and director of the Center for Health Effects of Environmental Contamination at the University of Iowa, recently started working with the Cancer Registry to explore potential environmental factors contributing to Iowa’s cancer rates. He noted that multiple risk factors could be contributing to the problem in Iowa, including nitrate exposure. Research studies show that’s especially the case with [colorectal cancer](#) — ranked 8th in incidence among all states — and [breast cancer, ranked 9th](#).

“We’re unique in terms of our production system here. Unrivaled anywhere in the world, right?” said Cwiertyny. “We’re proud to boast about that. But we shouldn’t be so foolish as to think that the unrivaled scale of production doesn’t come with very unique consequences or challenges for our state, right?”

The new registry findings focusing on alcohol consumption and not agricultural chemicals come as public [interest in cancer has swelled](#) across the Corn Belt. Legislation to invest more state funds in research that identifies environmental sources of cancer has been introduced in Iowa, as well as Nebraska. In Minnesota, legislators are proposing to introduce a sales tax on commercial fertilizer to pay for closing drinking wells contaminated with nitrates and supplying thousands of southeast Minnesota residents with clean sources of water. The US Environmental Protection Agency (EPA) ordered Minnesota to halt nitrate contamination in groundwater last November.

Drinking and disease

Alcohol consumption is a known risk factor for certain cancers. Nearly 4% of cancers diagnosed worldwide in 2020 can be attributed to alcohol consumption, according to the World Health Organization. In the United States alone, about 75,000 cancer cases and 19,000 cancer deaths are estimated to be linked to alcohol each year. Alcoholic drinks contain ethanol, [which is a known carcinogen](#), according to the National Cancer Institute.

And yet, linking alcohol to rising cancer rates in Iowa seems questionable given some of the data points. Iowa's [per capita consumption of alcohol ranks 24th](#) in the nation, according to Statista, a data research service. Drinking habits in Iowa do not appear to have changed dramatically in the last few decades. Though about a fifth of those who drink alcohol in Iowa identify as binge drinkers — five drinks at a sitting for men, four for women — Iowa's binge drinkers don't appear to be drinking more heavily now than years ago. On average, Iowa's binge drinkers consumed 586 drinks a year in 2017, the latest year for data, six more than in 2011. Iowa was [one of the 39 states where binge drinking](#) “did not change significantly during that period,” according to the Centers for Disease Control and Prevention (CDC).

Nationally, rates of alcohol consumption and cancer have diverged. Per capita consumption of alcohol in the US increased to 2.51 gallons annually in 2021, 17% more than in 1999, according to federal figures. But the national rate of cancer incidence [declined 16% during that period](#), according to the CDC. Iowa's increase in cancer incidence appears to have started around 2012, according to the CDC and the Iowa Cancer Registry. That rise in incidence occurs about 20 years — the scientifically accepted cancer latency period — after the start of Iowa's rapid industrialization in farming.

“Having a high cancer rate doesn't immediately translate to its being caused by industrial agriculture. Although I think there is just a strong reason to look very hard in that direction,” said Merchant. “They want to be very, very sure of the ground they stand on given the power politics in this state. Everybody understands that. My view is that shouldn't keep you from asking the question. And those questions need to be asked.”

A “cancer crisis”

Public confirmation last year of Iowa's high cancer incidence also converged with what most adult Iowans already knew in private. Cancer is everywhere in Iowa. Among the 25 counties in the US with the highest incidence of cancer, Iowa's Palo Alto County ranks second. Roughly 21,000 Iowans now develop cancer in Iowa annually, according to the Iowa Cancer Registry. That's more than twice as many cancers as occurred in 1973 in a state where the current population — 3.2 million — is a mere 11% higher than it was 50 years ago.

Democrats in the state House and Senate proposed legislation this year to increase funding for health studies aimed at definitively identifying the sources of malignancies.

“We need to make this statement, given the rising cancer rates here and our number two rate in the country,” said State Sen. Janice Weiner, who proposed a bill in January to invest \$5.25 million for research on pediatric and other cancers to stem what she called “Iowa’s cancer crisis.”

“I have colleagues on the House side who have filed similar legislation that has bipartisan support,” she said. “So I’m hoping it will move forward. We have a serious problem in Iowa. We owe it to Iowans not to whitewash anything – but to approach it scientifically and get to the bottom of this, wherever research and clinical tests lead us.”

Charlton did not respond to an interview request for this article.

(This report, co-published with Circle of Blue, is part of an ongoing series looking at how agricultural policies are affecting human and environmental health.)

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