

Against the grain

Arsenic is one of several heavy metals commonly found in rice. But cooking it correctly reduces risk, experts tell **Alice Callahan**

Some recent alarming headlines have been warning that rice sold in the United States contains dangerous levels of arsenic.

The news was based on a report — published in May by Healthy Babies Bright Futures, a nonprofit focussed on reducing children's exposures to toxic chemicals — that highlighted real concerns, experts say. Arsenic is one of several heavy metals commonly found in rice, and it has been linked with impaired brain development in children as well as cancer, diabetes and heart disease in adults.

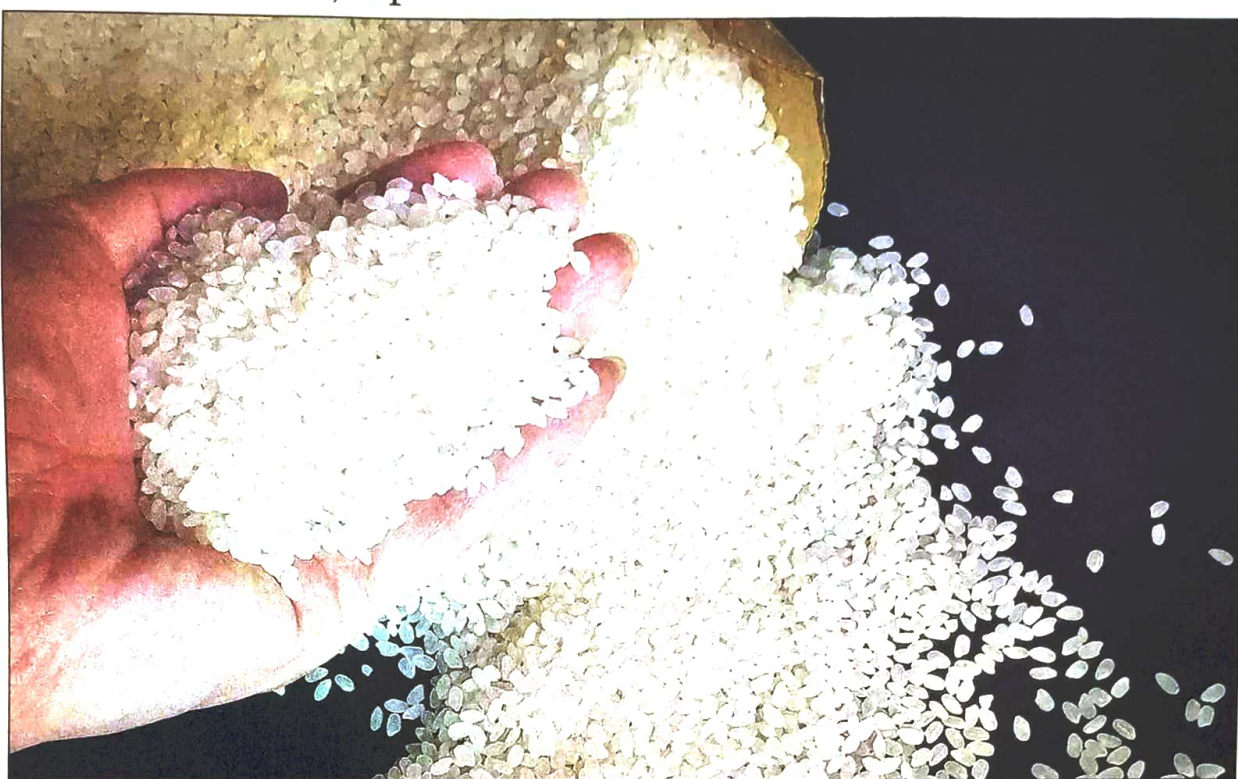
The findings are most troubling for pregnant women, young children and those who eat rice regularly, said Margaret Karagas, a professor of epidemiology at the Dartmouth Geisel School of Medicine in the US. The good news, she said, is that there are ways to reduce your exposure.

Brown vs white

The investigators collected 145 rice samples sold on Amazon and in stores across the US, including Trader Joe's, Safeway, Costco and Target. The rice was either grown in the American countryside or imported from other countries. The team also purchased grains like couscous, farro, quinoa and spelt — and sent everything to a lab for heavy metal testing.

That testing revealed that all of the rice samples contained a form of arsenic called inorganic arsenic, which is the most toxic and concerning to health. About a third of those samples exceeded the US Food and Drug Administration's (FDA) recommended limit for inorganic arsenic in rice cereals for infants. And on average, the samples contained 28 times as much arsenic as the other grains tested.

The analysis also showed that brown rice contained more arsenic than white rice. And the levels varied depending on where the rice was grown. The highest concentrations were found in arborio rice from Italy and white and brown rices from the southeastern areas of the US. Sushi, jasmine and other



types of white rice from California in the US, as well as jasmine rice from Thailand and basmati rice from India, had the lowest levels of arsenic.

Though the findings were not published in a peer-reviewed journal, they jibe with past research, said Dojin Ryu, a professor of food toxicology at the University of Missouri in the US. Rice and rice products are typically the most concentrated food sources of inorganic arsenic, according to the FDA.

Brown rice tends to have higher levels of arsenic than white rice because the two outer components of its grain, the bran and the germ — where the heavy metal is concentrated — are intact, said Felicia Wu, a professor of food safety and risk assessment at Michigan State University in the US.

The differences by region are mainly because of varying amounts of arsenic in the soil and water, Wu said. Rice plants take up more arsenic than other crops, in part because

they are usually grown in flooded fields, making it easier for their roots to absorb the heavy metal, she said.

The vulnerable

How concerning is this? There is no known safe level of arsenic exposure, Karagas said, but it is most worrisome for fetuses, babies and young children because the heavy metal seems to affect growth and brain development. Babies and young children tend to consume a lot of rice and rice-based products, like rice cereals, in part because they are easy to eat. Because their bodies are so small, they are more affected by arsenic exposure than adults.

Yet, the heavy metal can be unsafe for older people too. Adults who ingest low levels of arsenic over years can have higher risks of health conditions like cardiovascular disease, type 2 diabetes and certain types of cancer, Karagas said.

It's difficult to estimate how arsenic exposure from rice spe-

Analysis shows brown rice contains more arsenic than white rice. And levels vary depending on where it was grown

cifically translates to health risks, Ryu said. There isn't adequate research to show how much is safe to eat, he said. But if you or your family eat rice regularly and you're concerned about the exposure, there are ways to reduce it.

Lower the risk

How can you lower the risk? Arsenic is all around us — in the soil, in drinking water, in the air. "There is no such thing as zero exposure," Ryu said. Here are some ways to minimise it.

Vary your grains. Those like quinoa, millet and farro are nutritious and contain far lower

levels of arsenic than rice. For baby cereals, try products made from grains such as oats or barley.

Prepare it differently. Cooking rice like pasta — by boiling it in a lot of water and then straining it — can reduce arsenic levels by 40 per cent to 60 per cent, according to the FDA. Research also suggests that boiling rice in lots of water for five minutes, then straining it and adding more water to finish cooking it, is similarly effective.

Test your tap water. Public water systems must meet federal or state limits for arsenic, but water that comes from a private well should be tested, Karagas recommended. If arsenic levels are high, installing a water filtration system like a reverse osmosis filter can lower them, she said. Keep in mind that common water filter pitchers and dispensers, like those from Brita and Pur, aren't certified to remove arsenic.