

Extra Feature Story

Dozens of Pharmaceuticals Detected in Drinking Water

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Low concentrations of a range of drugs, including antibiotics, birth control and anti-convulsants, are present in the drinking water supplies of 24 major cities.

The water that tested positive for traces of drugs serves at least 41 million people, according to an Associated Press investigation.

The concentration levels of the pharmaceuticals found in the water were much lower than a medical dose, akin to "a teaspoon in three or four Olympic-sized swimming pools," AP reporter Jeff Donn, who worked on the article, told the NewsHour.

Still, the five month study raised many questions about the source of the drugs and the potential effects of low exposure to the drugs over many years.

Getting into the water

The drugs enter the water supply through several routes, including the improper disposal of unused drugs.

But the majority comes from regular use of medications. When people take a pill, their body absorbs some of it, but the rest is passed through the body into waste and flushed down the toilet.

Drugs can also end up in the water cycle when farm animals are given drugs, hormones or steroids.

Wastewater is treated, then released into rivers and lakes, where it can get back into the drinking water cycle. Drinking water plants treat water before it goes into our taps, but traces of the drugs make it through the whole process.

Testing

The U.S. government doesn't require drug testing of tap water or bottled water – which is often simply filtered tap water.

Getting rid of the drugs is also difficult for the consumer, as most at-home water filters do not remove pharmaceuticals.

The effects on humans and animals

The effect of low level exposure in humans is still up for debate. Pharmaceutical industry representatives argue that the trace amounts will not have a negative effect.

"Based on what we now know, I would say we find there's little or no risk from pharmaceuticals in the environment to human health," microbiologist Thomas White, a consultant for the Pharmaceutical Research and Manufacturers of America, told the AP.

But recent studies show that small amounts of medication can affect human embryonic kidney cells, human blood cells and human breast cancer cells.

"These are lab studies where cells, human cells are subjected to very slight amounts of pharmaceuticals, the kind that are found in water," the AP's Donn told the NewsHour.

"These experiments show that even these slight amounts appear to be capable of impairing the functioning of human cells."

One of the problems specific to this kind of pollutant is that they are made to interact with the human body.

"These are chemicals that are designed to have very specific effects at very low concentrations," zoologist John Sumpter from Brunel University in London, who has studied trace hormones, heart medicine and other drugs, told the AP. "So when they get out to the environment, it should not be a shock to people that they have effects."

Some of the most disconcerting information has come from the animal kingdom. Male fish in several parts of the country have developed female sexual traits, potentially from estrogen in birth control pills.

The sex ratios in some aquatic populations have shifted dramatically, and sexually abnormal bass that produce cells for both sperm and eggs have also been found.

Government response

In response to the AP report, two U.S. senators called for hearings to address public safety.

New Jersey Democrat Frank Lautenberg, chairman of the Transportation, Safety, Infrastructure Security and Water Quality Subcommittee, said hearings would be held in April.

"Our families deserve water that is clean and safe. Our hearing will examine these problems and help ensure the EPA and Congress take the steps necessary to protect our residents and clean up our water supply," Lautenberg said.

Benjamin Grumbles, the U.S. Environmental Protection Agency's assistant administrator for water, told the AP, "Our position is there needs to be more searching, more analysis."

U.S. Geological Survey scientist Steven Goodbred, who has studied carp in drug-tainted waters, said it is time for the government to do more.

"The onus has been on the scientific community to provide the research, but at this point the evidence is conclusive... Now it's up to the public and policy makers to decide what they want to do about it."

-- Compiled by Talea Miller for NewsHour Extra

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