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Drinking Water of 41 Million Americans Contaminated with Pharmaceuticals

An investigation by the Associated Press (AP) has revealed that the drinking water of at least 41 million people in the United States is contaminated with pharmaceutical drugs.

It has long been known that drugs are not wholly absorbed or broken down by the human body. Significant amounts of any medication taken eventually pass out of the body, primarily through the urine.

"People think that if they take a medication, their body absorbs it and it disappears, but of course that's not the case," [EPA](#) scientist Christian Daughton said.

While sewage is treated before being released back into [the environment](#), and water from reservoirs or rivers is also treated before being funneled back into the [drinking water](#) supply, these treatments are not able to remove all traces of [medications](#). And so far, the EPA has not regulated the presence of [pharmaceuticals](#) in drinking water, meaning that there are no laws in existence today that protect consumers from this increasingly dangerous chemical contaminant of the [water supply](#).

Medications for animals also contaminating the [water](#) supply

Drugs given to animals are also entering the water supply. One study found that 10 percent of the steroids given to cattle pass directly through their bodies, while another study found that steroid concentrations in the water downstream of a Nebraska feedlot were four times as high as the water upstream. Male fish downstream of the feedlot were found to have depressed levels of testosterone and smaller than normal heads, most likely due to the pharmaceutical contamination in their water.

"It brings a question to people's minds that if the fish were affected ... might there be a potential problem for humans?" said EPA research biologist Vickie Wilson.

While the concentration of drugs in drinking water tends to be low, some medications, such as [hormones](#), are able to operate potently even at concentrations of one part per billion. To make matters worse, there is evidence that the chlorine commonly used to treat drinking water may make some pharmaceutical [chemicals](#) more toxic. Thus, the typical claim that "pharmaceuticals are only present in very low concentrations, and therefore could not be dangerous" holds no water (pardon the pun). Not only are some chemicals potentiated (made more toxic) by other chemicals in the water, but to date, there have been absolutely no studies looking at the increased danger posed by combinations of pharmaceuticals now being found.

In other words, nobody knows the level of risk that may be associated with the chemical cocktail of pharmaceuticals now being found in the water supply. No one can say with any degree of honesty that the drug contamination is safe, meaning that the real risks to human remain entirely unknown.

56 different drug chemicals in the drinking water

To determine the extent of drinking water contamination, an Associated Press investigative team surveyed the water providers of the 50 largest cities in the United States and 52 smaller communities, analyzed federal databases and scientific reports, and interviewed government and corporate officials.

The investigation found widespread evidence of drinking water contaminated with both over-the-counter and prescription drugs, including painkillers, hormones, antibiotics, anti-convulsants, anti-depressants, and drugs for cancer or heart disease. Of the 28 major cities that tested their [water supplies](#) for pharmaceuticals, only two said those tests showed no pharmaceutical contamination. In Philadelphia, 56 different drugs and drug byproducts were found in treated drinking water, and 63 were found in the city's watershed.

Of the 35 watersheds that had been tested, 28 were found to be contaminated. Deep-water aquifers near landfills, feedlots and other contaminant sources in 24 states were also found to contain pharmaceuticals. This means that even in rural areas where people get their water from wells, drinking water might still contain drugs.

According to researcher Anthony Aufdenkampe of the Stroud Water Research Center, watersheds in rural areas can be contaminated when people's septic tanks malfunction. "Septic systems are essentially small treatment plants that are essentially unmanaged and therefore tend to fail," he said.

Cities do not test the water for pharmaceutical pollution

Even these numbers do not give the full scale of the problem, the AP suggests, because many water providers simply do not test for this kind of contamination, which is not regulated by the Environmental Protection Agency (EPA). Of the 52 small water providers surveyed by AP, only one screened its water for pharmaceuticals.

Other providers do screen, but they conceal the results from the public. According to a group that represents California water providers, the public "doesn't know how to interpret the information" from such tests and therefore does not need to hear it! Even companies that test and report their data often screen for only a few chemicals, creating a skewed impression of how contaminated the water actually is.

Water bottling companies also do not screen for pharmaceutical contamination in their water products. It is highly likely, at the same time, that soft drink bottling companies using local tap water supplies to make their beverages are potentially using pharmaceutical-contaminated water.

The EPA sticks its head in the ground over pharmaceutical pollution

According to Shane Snyder, research and development project manager at the Southern Nevada Water Authority, researchers looking into the extent of water contamination are avoiding the important questions.

"I think it's a shame that so much money is going into monitoring to figure out if these things are out there, and so little is being spent on human health," Snyder said. "They need to just accept that these things are everywhere; every chemical and pharmaceutical could be there. It's time for [the EPA](#) to step up to the plate and make a statement about the need to study effects, both human and environmental."

A total of over 100 pharmaceutical products have been detected in water supplies in North America, Europe and Asia, including remote regions such as Swiss lakes and the North Sea. And bottled or filtered water, the AP report notes, is not necessarily safer, as the filters used in homes or bottling plants are rarely designed to remove pharmaceutical residue.

Drug companies, for their part, have done nothing to accept responsibility for the environmental health impact of their polluting chemicals. In fact, Big Pharma hasn't even yet acknowledged the fact that their products are "pollutants" in any way. Like most pharmaceutical consumers, the drug companies hope to just flush this issue down the toilet and pretend it never existed.

The health impact of pharmaceutical contaminants in water

Very little research has been conducted on the specific effects of trace drugs in drinking water, but what evidence is there gives cause for alarm. Contamination of environmental water sources has caused male fish to exhibit female traits and led to damaging effects on other wildlife species. Laboratory research indicates that small levels of drugs can cause cancer cells to proliferate faster, slow kidney cell growth and cause inflammation in blood cells. At a time when the American population is suffering from skyrocketing infertility and hormone imbalances, it seems outrageous that health authorities would not be looking more closely at this issue and working on ways to protect the public from pharmaceutical [pollution](#).

Because water is consumed regularly in large quantities over a lifetime, and because humans are exposed to many combinations of dozens of different drugs, the effects on the human body may be significantly greater than those seen in the lab. And unlike most pollutants, drugs are specifically designed to cause changes in the [human body](#), thus they are far less likely to be "inert" than other chemicals that might be found in the water supply.

"These are chemicals that are designed to have very specific effects at very low concentrations," said zoologist John Sumpter of London's Brunel University. "That's what pharmaceuticals do. So when they get out to the environment, it should not be a shock to people that they have effects."