

## Even if you're careful, drugs can end up in water

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A man dumps a bag of trash at the town landfill, Wednesday, Feb. 3, 2010, in Bath, Maine. The Kennebec River can be seen in the background. Discarded drugs have been found in water at this landfill and two others in Maine, confirming suspicions that medications thrown into household trash are ending up in water that drains through waste, according to the state's environmental agency. (AP Photo/Robert F. Bukaty)

(AP) -- The federal government advises throwing most unused or expired medications into the trash instead of down the drain, but they can end up in the water anyway, a study from Maine suggests.

Tiny amounts of discarded drugs have been found in water at three landfills in the state, confirming suspicions that pharmaceuticals thrown into household trash are ending up in water that drains through waste, according to a survey by the state's environmental agency that's one of

only a handful to have looked at the presence of drugs in landfills.

That landfill water - known as leachate - eventually ends up in rivers. Most of Maine doesn't draw its [drinking water](#) from rivers where the leachate ends up, but in other states that do, [water supplies](#) that come from rivers could potentially be contaminated.

The results of the survey are being made known as lawmakers in Maine consider a bill, among the first of its kind in the nation, that would require [drug manufacturers](#) to develop and pay for a program to collect unused prescription and over-the-counter drugs from residents and dispose of them.

Scientists and environmentalists have long known of the common presence of minute concentrations of pharmaceuticals in drinking water, either through human excretion flushed into sewers or leftover medicine thrown down the drain. Research shows that pharmaceuticals sometimes harm fish and other [aquatic species](#), and that human cells can fail to grow normally in the laboratory when exposed to trace concentrations of certain drugs.

The Maine Department of Environmental Protection found tiny amounts - measured in parts per trillion - of medications ranging from antidepressants and birth control pills to blood pressure and cholesterol prescriptions. The most prevalent drugs were over-the-counter [pain relievers](#), including ibuprofen and acetaminophen.

"People need a way to properly dispose of their drugs, and they're not getting it right now," said Mark Hyland, director of the state Department of Environmental Quality's Bureau of Remediation and Waste Management.

The bill is one of many "take-back" programs under consideration in

more than half a dozen states and would be the first of its kind if enacted; it has won committee support and awaits further action.

The bill is opposed by the Pharmaceutical Research and Manufacturers of America, a Washington-based organization that represents pharmaceutical and biotechnology companies and has partnered with other groups to pay for advertising against the proposal.

The lobby acknowledges that previous testing shows trace levels of pharmaceuticals can be found in water supplies and landfills, but says the levels are so small that they pose little risk.

"The amounts of pharmaceuticals (in the environment) are infinitesimally small," said Marjorie Powell, senior assistant general counsel. "We're talking about two drops in an Olympic-size swimming pool. Those two drops are much lower than any doses that would have an effect on humans."

The state last October tested leachate at landfills in Augusta, Brunswick and Bath. Hyland ordered up the study after members of the pharmaceutical industry expressed skepticism about the presence of pharmaceuticals in landfill water.

Leachate at Maine landfills typically is piped or trucked to municipal wastewater treatment plants. Those plants are not equipped to remove drugs from the water before it is discharged into rivers and the ocean.

The pharmaceuticals found in the landfills don't pose a direct threat to drinking water, Hyland said. The landfills are lined to protect groundwater supplies, and in Maine there aren't any wastewater plants that treat leachate and discharge into rivers that ultimately supply drinking water.

But the leachate - in high enough concentrations - can pose a threat to fish and shellfish. Research suggests that hormonal drugs, such as birth control pills, tend to feminize fish. If the trend continues, Hyland said, there could be too few male fish to continue reproduction.

"What you find are greater concentrations of females downstream from where they've seen a dose of hormones, so you find a feminization of the fish population where there are fewer males around," he said.

Hyland said he has questions about the effect on commercial seafood - one of Maine's biggest industries - in ocean waters downstream from the rivers, particularly bivalves such as clams or mussels, which filter water constantly and live near the shore.

"But obviously we need to know a lot more before we can draw a lot of conclusions," Hyland said.

Although [landfill](#) leachate doesn't get into drinking water supplies in Maine, it probably does elsewhere, said Andy Tolman, a geologist with the Maine Center for Disease Control and Prevention. And some scientists urge caution about the dangers of drinking such water over several decades.

"Many larger states have big rivers that are used for both waste disposal and drinking water supplies, places like Ohio and Pennsylvania," Tolman said. "The same river gets used a number of times, and they're very concerned about treatment of sewage and leachate."

Powell, from the pharmaceutical lobby, argued that people can properly dispose of their drugs in their household trash. In Maine, much of the trash is burned, she said, and pollution control experts agree that incinerating unwanted drugs is the safest solution.

She argued that if the bill does pass, it will only make drugs more expensive, she said.

Concerns have grown in recent years over pharmaceuticals reaching drinking water supplies. An Associated Press investigation in 2008 reported that the drinking water of at least 51 million Americans contains minute concentrations of a multitude of drugs.

It's commonly believed that the vast majority of drugs that get into water supplies come from human and animal excretion and that smaller amounts come from flushing them down the toilet or drain, a practice the Food and Drug Administration says is not recommended for most medications.

Federal guidelines recommend using community drug take-back programs to dispose of medications. If those aren't available, people should mix their unwanted drugs with cat litter or some other undesirable substance, put them into a sealed container and put it in the trash, according to the Office of National Drug Control Policy.

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