

## Waste pharmaceuticals pose no threat

**By Patrick Moore**  
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As a lifelong environmentalist with nearly four decades of activism under my belt since I helped found Greenpeace in 1971, I've thought a great deal about environmental health and human safety.

One issue that has received a lot of attention recently is the presence of trace amounts of pharmaceuticals in the environment. Some activist groups have raised concerns this represents a threat even though the medicines are found at extremely low levels.

As with many other issues, in the case of pharmaceuticals in the environment, it comes down to this: We must weigh the significant benefits of a healthier population against potential environmental risks across the landscape.

The lives of millions of people around the world have been vastly improved thanks to the prescribed use of pharmaceuticals. And research is continuing daily for new cures, at a cost of tens of billions of dollars annually in the U.S. alone.

It is also inevitable that a small amount of ingested pharmaceuticals will eventually show up at trace levels in wastewater, given the human body seldom metabolizes the entire medicine, and given the improved analytical testing technologies that have developed over time.

An even smaller portion — 10 percent — of detectable trace elements in wastewater are the result of consumers flushing unused prescriptions down the toilet.

The Pharmaceutical Assessment and Transport Evaluation (PhATE) model has been developed by industry as a tool to estimate concentrations of pharmaceutical residues in surface waters that result from consumer pharmaceutical use. The PhATE tool is being used to track compounds in 11 representative watersheds across the U.S. to model concentrations into the future.

This science-based approach is working to continually improve our understanding of environmental risk from pharmaceuticals. It's important to note that, to date, no risk to human health from exposure to trace pharmaceutical compounds found in drinking water has been demonstrated in the scientific literature.

But some activist organizations still push for costly and unnecessary controls. In Washington, Oregon and Illinois, for example, interest groups who believe that any trace amount of any compound in wastewater must be stopped at all cost are proposing an elaborate take-back plan.

This is wrong for a number of reasons.

First, detecting minute trace pharmaceutical compounds in wastewater does not mean you've identified a problem — or even the risk of a problem. Obviously, we should not indiscriminately send toxic waste into the environment, yet our detection methods have become so sophisticated that low levels of nearly everything are going to be found nearly everywhere. A take-back approach to eliminate such low levels will be enormously costly, difficult to manage, and offer no added benefit to human health or safety.

Second, a take-back program will likely result in increased greenhouse-gas emissions from the additional infrastructure and transportation needs the program will require — all for a new program that, if past take-back subscription rates are any indicator, will be used by only a small fraction of the public.

Earlier this year, industry joined with the American Pharmacists Association and the U.S. Fish and Wildlife Service in launching the SMARxT disposal program. The goal of the program is to educate the public about not flushing or pouring unused medicines down the drain, but instead to use the household trash disposal or local collection programs as alternatives.

I believe a simple education program like SMARxT is far more likely to result in reduced amounts of pharmaceuticals going into wastewater than the costly approaches being proposed by some activists.

I subscribe to the old scientific maxim that the difference between a medicine and a poison is in the dose. While in recent years we have drastically increased — from parts per thousands to parts per million, and currently parts per trillion — our ability to detect human-introduced compounds in the environment, it is still important to place things in perspective, recognizing that the poison is in the dose.

In most cases, the best approach an individual can take to reduce consumer-discarded pharmaceuticals from wastewater is to ensure the substance is *never* flushed, unused, down the drain.

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