

## HOW DO DRUGS AFFECT OUR ENVIRONMENT?

The environmental concentrations of pharmaceuticals are typically low - less than the recommended therapeutic doses for humans. Studies are emerging that suggest exposure to some medicines, or combinations of medicines, in surface waters is sufficient to impact aquatic organisms or ecosystems.

## HOW DO DRUGS IN THE WATER AFFECT HUMAN HEALTH?

The evidence for the direct consequences of pharmaceuticals in the water on humans is only beginning to be investigated. There is limited information but particular concern about long-term, low-level exposures and exposures to many different pharmaceutical compounds.

## WHY ARE THERE UNUSED MEDICINES?

We rely heavily on pharmaceuticals in our current medical system. Drug consumption in the U.S. has grown 109% from 2000-2004. 4 out of 5 patients leave their doctor's office with at least one prescription. Doctors often discontinue medications, causing others to go unused. Consumers also purchase certain drugs in large quantities that eventually expire.

**A recent take-back program in San Francisco found the average household had 2.7 pounds of unwanted or expired drugs.**

## Pharmaceuticals that commonly end up as household waste\*:

### CNS Agents (23%)

Analgesics, anticonvulsants, antiemetic/antivertigo agent, antiparkinson agents, muscle relaxants

### Nutritional Products (14%)

Vitamins, minerals, naturopathologicals

### Psychotherapeutic Agents (13%)

Antidepressants, antipsychotics, anxiolytics



\*This is based on findings from a Teleosis Institute medicine take-back study in California that did not accept controlled substances. Therefore, many pain medications were excluded from the analysis and this resulting list.

## What prescribers can do:

1. Become more educated on this issue, including through continuing education credits. More information can be found under the Resources section of this brochure.
2. Do not prescribe more medication than can be used.
3. Prescribe starter packs and refill packs.
4. Review and regularly reassess the patient's total consumption of medication.
5. Learn which drugs have the highest eco-toxicity:  
[www.janusinfo.se/environment](http://www.janusinfo.se/environment).
6. Properly dispose of waste pharmaceuticals from your business.
7. Educate your peers and your patients about the importance of proper disposal of pharmaceutical waste. To learn about medicine return programs, go to [www.medicinereturn.com](http://www.medicinereturn.com).
8. Promote disease prevention strategies with your patients.

"There's no doubt about it, pharmaceuticals are being detected in the environment and there is genuine concern that these compounds, in the small concentrations that they're at, could be causing impacts to human health or to aquatic organisms."<sup>1</sup>

-Mary Buzby, director of environmental technology for Merck & Co. Inc



<sup>1</sup>USA Today, March 10, 2008. "AP: Drugs found in drinking water".



**Washington Citizens for  
Resource Conservation**

2021 Third Ave, Seattle, WA 98121  
info@wastenotwashington.org  
(206) 441-1790

### Resources:

The Teleosis Institute is in the process of developing online continuing education programs on topics related to pharmaceutical pollution prevention for doctors and nurses. To find out more, contact Teleosis through [www.teleosis.org](http://www.teleosis.org).

Stockholm County Council in Sweden has begun to catalogue the ecotoxicity of specific drugs. Learn more at [www.janusinfo.se/environment](http://www.janusinfo.se/environment)

PH:ARM (Pharmaceuticals from Households: A Return Mechanism) is a coalition working on household pharmaceutical take back in Washington state. To find medicine return locations, go to [www.medicinereturn.com](http://www.medicinereturn.com).

Washington Citizens for Resource Conservation (WCRC) is working on pharmaceutical pollution prevention. Contact us at (206) 441-1790, [info@wastenotwashington.org](mailto:info@wastenotwashington.org)

For information about disposal of business generated waste, go to [www.ecy.wa.gov/pubs/0704025.pdf](http://www.ecy.wa.gov/pubs/0704025.pdf)

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# Pharmaceutical Pollution Prevention:

## Keeping Drugs Out of the Water



## A Guide for Healthcare Professionals



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Resource Conservation**