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Sunday, November 6, 2005

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Disposal of drugs poses a dilemma

By JOHN RICHARDSON,
Portland Press Herald Writer

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It's a regular ritual at nursing homes and a common practice at home: Unused medications are dumped down the drain or flushed down the toilet where they can't be misused and do any harm.

Or so we thought.

Pharmaceuticals and personal-care products are making their way through the pipes and accumulating in streams and rivers, according to mounting evidence from around the country.

Water samples taken from rivers and sewer drains in Maine confirmed that at least some drug-related compounds - including two associated with hormone therapies - can be measured here, as well.

Exactly what's in the water and what harm it's doing is not yet clear. Researchers

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have started to focus on pharmaceutical pollution only in the past five years.

Contamination levels in Maine and around the country are believed to be too low to pose a threat to human health, at least in the short term. It seems to be a different story for fish and other aquatic life. Around some cities, researchers have reported lethargic fish swimming in water containing Prozac, and fish with both male and female sex organs in waterways that contain human hormones and related drugs.

"All of these things potentially have impacts on the biotic environment," said Ann Pistell with the Maine Department of Environmental Protection.

The severity of contamination in Maine remains a big mystery.

The U.S. Environmental Protection Agency tested 21 water samples collected where treated sewage flows into rivers and streams around the state. The agency focused on endocrine disrupters, compounds that act like natural hormones and interfere with an organism's development. It tested for six compounds, including two hormone drugs used to treat estrogen deficiency, a main ingredient in birth control pills, a common disinfectant and two ingredients in plastic packaging.

The EPA's raw data, provided to the Portland Press Herald/Maine Sunday Telegram by the Natural Resources News Service, found that 15 of the 16 water samples revealed the presence of at least one of the compounds. Two chemicals associated with plastics packaging and the disinfectant were found in most of the samples, while the estrogen compounds were found in just a few. The birth control compound was not detected at all.

Maine environmental officials are waiting for more test results and say the data provided so far is limited. The effects of such low levels of contamination are unknown, and the compounds



Staff photo by Gordon Chibroski

Bottles and packages of expired or leftover prescription drugs were collected at Midcoast Hospital in Brunswick last week for safe disposal.

WHAT TO DO with unwanted medications?

SPECIAL COLLECTIONS for unused and expired drugs are the best option. They have been infrequent in Maine but are expected to become more common in the next several years.

IN THE MEANTIME, according to state officials and other experts:

Do not flush. Trash is the better alternative, and capsules should be emptied, tablets crushed and pill bottles taped up and bagged so that the drugs are not taken out of the trash by children or others.

Keep medications secure from misuse and store them for a future unused medication collection.

Check with towns that hold household hazardous waste collections. Some medications can't be accepted because of drug laws.

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tested for represent a tiny fraction of the thousands of pharmaceuticals that can find their way into the environment.

"It would be an area that would need a lot more study. On the flip side, we're not happy they found them there," Pistell said. "What the Maine data shows us is that pharmaceuticals are in our aquatic environments. We have not looked extensively for them, but we are no different than any other place in the country or in the world."

Other states that have done more extensive research in the past several years have found more cause for concern. Some have found a soup of such compounds as the antidepressant Prozac, human hormones, antibiotics, hypertension drugs and lots of caffeine.

Researchers also have found a variety of personal care products, including antibacterial soaps, body lotions and insect repellent.

While so far not linked to human health problems, the chemicals are affecting aquatic life in some urban parts of the country, scientists say.

Fish downstream of Denver's sewage treatment plant were found to have both male and female sex organs, a mutation scientists linked to the presence of estrogen drugs spilling out of the sewer system. Male fish in the Potomac River in Maryland were recently found carrying eggs, and similar hormonal changes have been reported in fish around the world.

Prozac in some waterways has been linked to unusually small frogs and has been blamed for making some Texas bluegills lethargic, making them easy prey for larger fish. Some researchers are focusing on whether antibiotics and antibacterial soaps may be creating resistant organisms in the environment.

Barry Mower, an environmental specialist at Maine's DEP, has been checking fish in Maine rivers looking for impacts of endocrine disrupters. He has found some evidence - changes in sex organs or hormone levels - in fish in northern Maine, but attributes those findings to pesticides from nearby potato fields, he said. Mower has not been able to link sewage outfalls with such impacts, but he has only begun looking.

"It's really a huge field," he said. "There are thousands and thousands of chemicals in the products we use."

Flushing old or unused drugs isn't the only way, and may not be the primary way, for the chemicals get into the sewers. The human body can't completely break down and absorb pharmaceuticals, so ingredients are excreted into the system all the time. Lotions, soaps and bug sprays are simply washed off in the sink or the shower.

The compounds can't be removed by existing sewage or water treatment systems.

While the levels of contamination are not believed to threaten human health in the short term, scientists do not yet know what

the impacts could be over the long term.

"We don't know how much is out there," Pistell said. "There is so much we don't know."

Maine is slowly beginning to address the problem despite the unknowns.

The Legislature passed a first-in-the-nation law last year to enable mail-in collection programs that would gather unused medications for disposal in secure incinerators. The law did not provide any financing to begin the collections, however, and there is still no statewide program or solution. A study panel has recommended that the state find alternative sources of money to implement the law.

The EPA, which continues to research the issue, also is supporting the idea of collections but lacks the funding to create programs.

Maine lawmakers originally supported the collection idea because of a different drug-related danger: the abuse of prescription painkillers and other medications.

"As a policy we can't say throw your unused medication in the trash because then people know they're in the trash," said Sen. Lynn Bromley, D-South Portland, a sponsor of the law.

The collection idea has many benefits, from reducing accidental overdoses to cutting crime, said Dr. Stevan Gressitt, director of the Northeast Occupational Exchange in Bangor and a leader of the state's take-back-the-drugs effort.

"Take-backs in general remove the risk to kids, the risk of theft and the risk of the elderly accumulating (medications and possibly taking the wrong one) and the risk of it showing up in the environment," Gressitt said.

The fact that many of the pills in Mainers' medicine cabinets are narcotics or controlled substances such as painkillers has complicated the issue, especially the idea of mail-in collections. Federal rules require law enforcement agencies to take possession of many of the drugs and dispose of them through a secure process, and the Maine Drug Enforcement Agency is working on rules for a future state program.

Collections have already begun on a small scale, however. A few agencies around the state have pulled together the resources to hold local drop-off collections of unused or expired medications. Mid Coast Hospital in Brunswick hosted one on Wednesday, and 125 area residents brought in all kinds of prescription and non-prescription drugs.

"People came in with a few vials, and people came in with bags full of vials," said Betsy Cantrell, who helped organize the event. "People said, 'I had all this stuff and did not know what to do with it.' "

The drugs brought in last week were either destroyed by law

enforcement agencies or incinerated at an out-of-state medical waste facility, Cantrell said.

Faith Stilphen said she would love to have an alternative to flushing. She is director of nurses at St. Joseph's Manor, a 165-bed nursing home in Portland that keeps close track of its patients' unused or expired medications. Each month she flushes many of them down a toilet under the supervision of a pharmacist.

"There really is no other way that I'm aware of," she said. "Given the regulations for a facility like this, I can't imagine handing over medications. . . . Anything that's in the building right now has to be destroyed in the building."

That doesn't mean Stilphen and the other nurses don't wonder or talk about what becomes of all those powerful drugs that get flushed away.

"You can see that, environmentally, there's a an big question mark there," she said.

- Staff Researcher Susan Butler contributed to this report.

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