

Protecting Our Water Environment

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FOR IMMEDIATE RELEASE

COMMENTARY

THE TRUE NATURE OF MEDS IN WASTEWATER

Whether you are feeling ill or wanting to stay healthy, general advice usually includes “Drink lots of water, don’t get dehydrated.” The recent media coverage regarding pharmaceuticals in the water supply has raised at least four topics for public discussion: what are the critical parameters and indicators; are current concentrations in the water putting our personal state of health at risk; what is being done; and what can the public do.

The Associated Press recently reported its investigation on the presence of trace amounts of pharmaceuticals detected in the drinking water supplies of 24 major metropolitan areas. Chicago was not one of those tested. While the Metropolitan Water Reclamation District of Greater Chicago (District) is not responsible for treating and delivering drinking water to homes and businesses, the District is statutorily responsible to protect Lake Michigan, the source of drinking water in Cook County. The District is also responsible for wastewater treatment and stormwater management. Beyond the jurisdiction of the District, some municipalities do discharge treated wastewater (effluent) to Lake Michigan; however, all treated effluent from District water reclamation plants is discharged to the inland waterway system, tributary to the Des Plaines River which runs into the Illinois River and ultimately to the Mississippi River. Admittedly, this could be a problem for Memphis or New Orleans, but for these cities, most of the Mississippi River watershed is the source of their water.

The report also indicated that pharmaceuticals were detected in 28 of the nation’s watersheds, partly the result of medication passing through the bodies of people and unused medication being flushed down the toilet and also due to the use of medications and growth hormones used in livestock production. While the District is not the source of the pharmaceuticals, the District has been evaluating the issue of pharmaceuticals and other microconstituents in the water environment in recent years. Microconstituents, sometimes known as “emerging pollutants of concern,” are chemicals found in a wide array of consumer goods, including pharmaceuticals and personal care products.

What parameters or indicators are considered to be harmful or have unhealthy concentration levels? While detection methodologies are advancing, there truly is no simple measure identified or agreed upon by the scientific or regulatory communities that serves as an indicator of pharmaceuticals/personal care products in drinking water, wastewater or environmental matrices. Even where they are currently not detected they ultimately will be as analytical methods become more and more sensitive.

Additionally, the general public may have the mistaken impression that pharmaceuticals have just recently started appearing in surface water. Microconstituents may be found in very low concentrations in surface water, ground water, domestic wastewater, industrial wastewater, agricultural runoff, reclaimed water, and other waters. Many of these compounds also may be found in soils and in the air. They are a fact of modern, industrialized living. It is very likely that they have been present in these waters since their introduction into the commercial marketplace, in some cases many decades ago. Technology then wasn't sophisticated enough to detect them.

Do we know if the concentrations of these microconstituents in our water are a threat to our personal state of health? While this may sound like an ominous problem, with respect to pharmaceuticals we do not see a cause for panic or alarm. With the advancement of scientific laboratory methods, it is now possible to identify and measure many more compounds in very low concentrations. We now detect compounds in the environment even as their concentrations may be declining with improved waste management practices. The pharmaceuticals occur in the parts per billion and parts per trillion ranges, which is dramatically below any level of medical doses. While surface waters may contain a number of such pharmaceutical compounds there is currently no evidence that they adversely affect human health. This is not surprising.

When the U.S. Geological Survey conducted a survey of 39 streams in 1999–2000, the maximum concentration found of the popular nonprescription anti-inflammatory drug, ibuprofen, was 1 microgram per liter (which is 1 part per billion). At this concentration, a person would have to drink a gallon of water daily for 144 years to reach the 200 mg dose in one ibuprofen tablet. This is true for any compound present at 1 part per billion. It is unlikely that anyone can ingest this quantity of water over their lifetime; thus are exposed to less than one pill's worth of medication. Even if there are dozens of drugs present, we are exposed to less than one tablet of each through our life. Further, there is a lack of proven technology to remove these low-dosage contaminants from wastewater and drinking water at reasonable cost.

What is being done to advance the science or alert the public? The District has been collaborating with other agencies such as the USEPA and USGS in studies of the occurrence and result of pharmaceuticals and other specific microconstituents in the environment. In addition, the District monitors the literature to see if any compounds emerge from the pack beyond the point of concentration type studies into ecological or human health effect type studies. These would be the compounds on which we would begin to focus. As water quality criteria are established, the District has added the analysis of new compounds to their monitoring program of the waterways within its jurisdiction.

As a proactive public education approach, the District convened a Pharmaceutical Waste Disposal Work Group. It is a regional collaboration of government, business and social agencies created to develop consistent guidelines for the disposal of unused pharmaceuticals, coordinate a public awareness program of these guidelines, and to ensure that everyone has access to a safe and secure way to dispose of expired or unused medications. Members of the Work Group include the Northwest Municipal Conference, Illinois Retail Merchants Association, City of

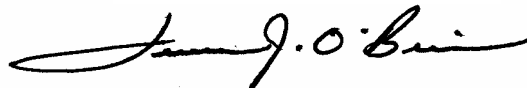
Chicago Department of Environment, University of Illinois, United States Environmental Protection Agency, Illinois/Indiana Sea Grant, Alliance for the Great Lakes, Solid Waste Agency of Northern Cook County, Metropolitan Chicago Healthcare Council, West Central Municipal Conference, Illinois Environmental Protection Agency, and Chicago Police Department.

Nationally, a public-private partnership was recently formed between the U.S. Fish and Wildlife Service, the American Pharmacists Association and the Pharmaceutical Research and Manufacturers of America to promote responsible consumer medication disposal while helping to protect the environment. The District is also taking regional leadership to connect these campaigns in order to achieve thorough public awareness and education.

What can the public do? The best approach to preventing these compounds from entering the environment is to control them at the source. Medications accumulating in households pose a serious risk to curious teens and toddlers, as well as to adults and the elderly who may confuse one bottle for another. Just as it is important to keep medicines away from little ones and clearly marked for the elderly, it is critical to the environment (and ultimately, potentially to human health) that the unused portions are properly disposed. Unwanted medications should never be flushed down the toilet, where they reach our local waterways and pose a threat to aquatic life. Nor should they be thrown in the trash where the chemicals may leach into the ground. Instead, medications should be brought to a household hazardous collection event or facility for proper disposal. The District currently co-sponsors semiannual household hazardous waste disposal events. Check the District website www.mwr.org, for dates and locations. The City of Chicago has a permanent hazardous waste collection site at Goose Island and is also hosting neighborhood disposal days. Many municipalities sponsor local collections or drop-off centers. Call your own municipality or the IEPA's Waste Reduction Unit at (217) 785-8604 for other local information.

The District convened the Pharmaceutical Waste Disposal Work Group to develop a plan for the proper disposal of unused medications. However, the implementation of such a plan will not solve the problem. As brought out in the AP article, most of the pharmaceuticals found in the environment come from the drugs taken by people and given to animals for medical or growth reasons. Caution being the more prudent course, the solution may be more careful control and use of pharmaceuticals. Taking care of the water environment begins with taking care of one's own body. Referring back to the general advice for good health at the top of the article, another admonition is to remember, "You are what you eat." It seems the planet is devolving into, "We are what everyone eats." To be responsible for the planet, people must first be responsible for themselves and their lifestyle choices.

Respectfully Submitted,



Terrence J. O'Brien
President

The Metropolitan Water Reclamation District is the 119 year old autonomous government agency responsible for storm water and wastewater management for an 883 square mile area, including 76 miles of navigable waterways and more than 1300 small streams in Chicago and 124 suburban municipalities. Its service population is the combined equivalent of ten million residents and industrial users.