

PE TIP SHEET NO. 19

The Role of Public Education in Preventing Pharmaceuticals in Wastewater

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There has been growing concern about potentially adverse effects of pharmaceuticals released in the environment through treated wastewater. These pharmaceuticals include prescription drugs such as hormones, antidepressants, and antibiotics; over-the-counter medicines such as pain relievers, cold and flu remedies, and antiseptics; and veterinary medicines. Small concentrations of these substances have been found in various waterways nationwide in some studies.

These medications may interfere with growth and reproduction in water organisms by disrupting the glands that secrete hormones (endocrine system), particularly when exposure occurs during developmentally sensitive times, such as before birth. There are several documented cases of such endocrine-disrupting effects on fish and wildlife.

The pharmaceuticals enter surface waters from various sources: industrial dischargers, commercial animal feeding operations, surface applications of biosolids, and wastewater treatment facilities. They primarily enter wastewater treatment facilities from excretion by the human body and disposal of unused or expired medications down the toilet or drain. Hospitals/clinics and residences account for the majority of pharmaceuticals entering wastewater treatment facilities.

The wastewater treatment facilities are not designed to remove low concentrations of synthetic pollutants, so it is important to educate hospital personnel and residents in each service area that unused medications should not be disposed of down the toilet or drain.

Utilities can work with hospitals and clinics to develop and implement appropriate unused medications disposal practices. Also, utilities can promote proper disposal practices among residential water consumers by promoting household hazardous waste drop-off events and organizing unused medications take-back events at local senior centers and pharmacies.

Distributing "no drugs down the drain" information should not add much burden to utilities that are already educating the public about other programs such as reclaimed water, beneficial uses of biosolids, oil and grease prevention, and water conservation. To increase the effectiveness of the program, make sure to include all the interested parties in planning and making use of already available avenues.

Additional information about the topic is available online at <http://www.epa.gov/nerlesd1/chemistry/pharma/index.htm>. This Web site serves as a central location to learn about the scientific issues associated with the occurrence of pharmaceuticals and personal care products (PPCPs) in the environment and contains numerous hotlinks to other Web references.