wellcare® information for you about

Emerging Water Contaminants

What are Emerging Contaminants?

New water testing methods now give scientists the ability to detect the smallest amounts of chemicals in our water supplies. As a result, new studies are revealing the presence of drugs, personal care products and other substances we use everyday at home, at work and on the farm. These substances are commonly referred to as "emerging pathogens" or "emerging contaminants."

A study of 139 streams throughout the country detected 82 chemicals in 80 percent of the waterways tested in 1999-2000, according to the U.S. Geological Survey's (USGS) Toxic Substances Hydrology Program (see map below). The most common chemicals were steroids (anti-inflammatory drugs), antibiotics, nonprescription drugs, caffeine and insect repellent.

Potential water quality contaminants are flushed into ground water from a variety of sources. The most common are wastewater from sewage treatment plants, run-off from agricultural land uses, particularly from industrial scale livestock facilities, and discharge from individual septic systems. Conventional sewage treatment varies greatly in its ability to eliminate drug or personal care product residues.

For example, antibotics are common in the general population and are used on farms to prevent disease in livestock and poultry. It is not surprising to find antibiotics in the wastewater from a local sewage treatment plant, from your own septic tank or in water sources near a farm where livestock or poultry are regularly dosed.

What Are the Health Effects of These Chemicals?

While common drugs and personal care products are used extensively throughout the nation, there is little information about the presence of these substances in our water supplies. The USGS has selected 18 "emerging contaminants" to monitor in U.S. streams, including ibuprofin (pain reliever), antacids, antidepressents, codeine and caffeine.

Early reports indicate that the many emerging contaminants are present only in very low concentrations, with many detected in parts per trillion. The U.S. Environmental Protection Agency (EPA) regulates most substances in drinking water based on parts per million or parts per billion, which represent much greater concentrations.

However, health concerns are raised by the presence of two key contaminants, steroids and antibotics. Studies of fish in streams contaminated by steroids have shown hormone disruption. And there is concern that too much exposure to antibotics in water could lead to disease-resistant strains of bacteria, reducing the effectiveness of the current class of drugs.

How Do I Test for These New Chemicals?

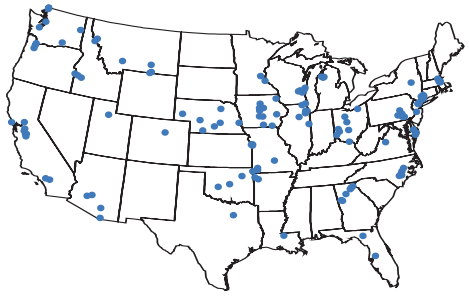
Testing for many emerging contaminants is rare and expensive. Therefore, it makes sense to research the potential for such contamination in your ground water and well, and to consider any health issues you might have, such as a weakened immune system that may need antibiotics to ward off infection.

The map on the next page indicates where the USGS has found emerging contaminants in streams. You might want to look closer at the issue if you live near a sewage treatment plant or any intensive agricultural operations, such as a feed lot or hog or poultry house. Your local or state health department can

provide guidance on whether you should test for common drugs or chemicals from personal care products. These agencies can also refer you to laboratories capable of conducting the tests

How Do I Treat Water for These Chemicals?

Again, your local or state health department is the best source for help in selecting appropriate water treatment methods, such as carbon filters or reverse osmosis, for any chemicals detected in your drinking water.



Pharmaceuticals, hormones and other organic wastewater contaminants were measured in 139 streams, indicated by blue dots, in 1999 and 2000 by the USGS Toxic Substances Hydrology Program. Map reprinted by permission from USGS Fact Sheet FS-027-02, June 2002.

There are also steps every household can take to reduce the substances released into the environment and to limit exposure to pharmaceuticals and personal care products:

- Don't dispose of unused drugs in the toilet.
- Cut down on personal care products.
- Eat less fatty meat and dairy products.
- Avoid clothes and furniture with stain-resistant chemicals.
- Reduce consumption of pre-package foods.
- Avoid reusable plastic bottles.

For more information about emerging contaminants

United States Geological Survey (USGS), Toxic Substances Hydrology Program website, *Emerging Contaminants in the Environment*, http://toxics.usgs.gov/regional/emc/index.html

USGS Fact Sheet: *Pharmaceuticals, Hormones and Other Organic Wastewater Contaminants in U.S. Streams*, http://toxics.usgs.gov/pubs/FS-027-02/

U.S. Environmental Protection Agency, National Exposure Research Laboratory Environmental Sciences, *Pharmaceuticals and Personal Care Products (PPCPs) as Environmental Pollutants*, http://www.epa.gov/esd/chemistry/pharma/index.htm

For more information on your drinking water

The following sites provide up-to-date information on efforts to protect drinking water supplies and steps you can take as a private well owner:

Water Quality Association www.wqa.org • NSF International www.nsf.org

For more information about wells and other wellcare® publications

wellcare® is a program of the **Water Systems Council (WSC). WSC** is a national nonprofit organization dedicated to promoting the wider use of wells as modern and affordable safe drinking water systems and to protecting ground water resources nationwide. Well owners and others with questions about wells or well water can now call the wellcare® **hotline** at **888-395-1033** or visit **www.watersystemscouncil.org**

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