

## What leads to antibiotics losing their power?

There is serious danger of losing some of our most precious medicines -- especially antibiotics. Infections caused by resistant microbes fail to respond to treatment, resulting in prolonged illness and greater risk of death.

- Bacteria become resistant through overexposure and overuse of antibiotics.
- When antibiotics are used for too short a time, at too low a dose, or for the wrong disease.
- Patients demanding antibiotics routinely often for viral infections against which the drugs are useless.
- Using antibiotics, not to cure sick animals, but to increase the animal's weight gain per unit of feed.



This use of antibiotics in the agricultural industry can cause bacteria to develop resistance, to the antibiotic used and other related drugs. Then humans infected with those bacteria may not be able to be treated with conventional antibiotics.

## Antibiotic Resistance and Hand washing

We all know the importance of good hand washing in preventing disease, but the question is whether antibacterial agents are necessary given the potential risk of antibiotic resistance.



Here's how the different products work:

- **Hand sanitizers** (alcohol gels) work by stripping away the outer layer of oil on the skin, thereby destroying any microorganisms present on the surface of the hands. This method is good for killing germs when not near soap and water.
- Most **Antibacterial soaps** contain triclosan, which inhibits the production of a fatty acid vital to life within bacterial cells. However, triclosan needs a significant amount of time to become effective, not the usual 30 seconds most people spend washing their hands.

*According to the Centers for Disease Control (CDC), antibacterial soaps are **not** more effective than ordinary soaps in disease prevention.*

- **Regular soap** works in two different ways to remove surface dirt, bacteria, and other contaminants. A fatty ingredient bonds to the contaminants and skin oils, while a detergent breaks the surface tension and allows water to wash away the suspended particles. No extra chemicals are needed. This is the recommended way to keep hands clean!



THE CITY OF ASPEN  
ENVIRONMENTAL HEALTH

130 South Galena Street  
Aspen, CO 81611 Tel: 970 920 5039  
Website: [aspenpitkin.com](http://aspenpitkin.com)

## Medicine and the Environment



City of Aspen  
Environmental Health  
Department

Tel 970 920 5039

# Federal Guidelines for Proper Disposal of Prescription and Over-the-Counter Medicines

If you are instructed to do so by your physician, finish the prescription. Do not flush medicine down the toilet or drain. To properly dispose of medicine take advantage of a community drug take-back program. If a collection program is not available here are the federal guidelines for disposal.

## Disposal Method

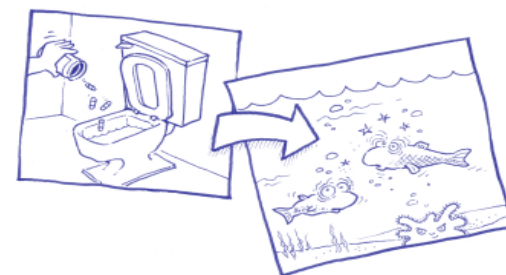
If a collection program is not available here are the federal guidelines for disposal.

1. Do not flush prescription drugs down the toilet or drain
2. Take your medicines out of their original containers.
3. Mix drugs with an undesirable substance, such as cat litter or used coffee grounds.
4. Put this mixture into a disposable container with a lid, such as an empty margarine tub, or into a sealable bag.
5. Conceal or remove any personal information, including Rx number, on the empty containers by covering it with black permanent marker or duct tape, or by scratching it off.
6. Place the sealed container with the mixture, and the empty drug containers, in the trash.



## Why do the right thing?

- The US Geological Survey found that 80% of the watersheds they sampled nationally contained low levels of at least one type of pharmaceutical chemical, with half of the streams containing seven or more.
- Wastewater treatment facilities are not equipped to clean out these chemicals, so many drugs are being detected in our rivers.



- In Boulder Creek, native fish populations have shown significant endocrine disruption (changes in hormone levels).
- The increased concentrations of antibiotics in our waterways have contributed to bacteria that are resistant to antibiotics.
- The risk of long-term exposure to humans, animals and ecosystems is still unknown.
- Previous information campaigns encouraged consumers to “flush” excess medicines down the toilet, but we now know this is wrong.

