Water Precautions

In developed countries, clean drinking water is available right out of the tap, and breakdowns in the system are rare. Developing countries, however, don’t always have the resources needed to ensure a pure water supply, and consequently, tap water is not safe to drink. Even if the people who live there can drink the water, travelers should not assume that they can. Local residents have built up immunity to organisms in the water, but visitors have not. As a result, tap water can make travelers sick.

When traveling through areas with less than adequate sanitation or with water sources of unknown purity, travelers can reduce the chance of illness by following these precautions.

Do:

- Use sealed bottled water or chemically treated, filtered, or boiled water for drinking and for brushing teeth.
- Drink beverages made only with boiled water whenever possible (such as hot tea and coffee). Water boiled for any length of time at sea level (even 1 minute) is safe to drink.
- Drink canned, boxed, or commercially bottled carbonated water and drinks. International brands are safest. Beware of unsealed containers that may have been refilled.

- Safely drink beer and wine; however, alcohol added to other beverages does not render the beverages safe.
- Purify water (see Treating Water) if one of these options is not available. Decide which method to use for water purification and bring along the appropriate equipment.

- Carry safe water if going out for the day in an area where availability of safe water is not assured.
- Continue to breastfeed infants who are nursing, as it is the safest food source for these infants. If formula is used, prepare with boiled water and sterilized containers.

Don’t:

- Drink tap water or anything mixed with tap water.
- Rinse toothbrush in tap water.
- Use ice unless it is made from boiled, bottled, or purified water. Freezing does not kill the organisms that cause diarrhea.
- Assume that water is safe because it is chlorinated. Chlorination does not destroy all the organisms that can cause illness.
- Drink from wet cans or bottles—the water on them may be contaminated. (Dry wet cans/bottles before opening and clean all surfaces that will have contact with the mouth.)
- Drink fruit juice unless it comes directly from a sealed container; otherwise, it may have been diluted with tap water.

Treating Water

Boiling

Urban travelers may choose an immersion coil for boiling water (a plug adapter and current converter might be necessary). Boiling for 1 minute is usually sufficient. Because the boiling point decreases at higher altitudes, water should be boiled for 3 minutes at 2,000 m (6,600 ft).

Chemical Disinfection

If it is not possible to boil water, chemical disinfection is an alternative. Most (but not all) diarrhea pathogens are susceptible to being killed by iodine, which can be used to disinfect water, leafy vegetables, and fruits. Add 5 drops of 2% iodine to 1 liter of water and let stand for 30 minutes.

- Travelers who have thyroid problems or iodine allergies or who are pregnant should NOT use iodine for water purification. The use of iodine should be limited to a few weeks to avoid its effect on the thyroid from long-term use.
• For those travelers who wish to avoid the taste and smell of iodine in their disinfected water, vitamin C (ascorbic acid) can be added to the water after the iodine has been in contact with the water for 30 minutes or more. Add about 50 mg of vitamin C to a liter of water and shake briefly to eliminate the iodine taste and odor.

• Tetraglycine hydroperoxidide tablets (e.g., Globaline, Potable-Aqua, Coghlan’s) are available from pharmacies and sporting goods stores. The manufacturer’s instructions should be followed.

• Chlorine also can be used, but its germicidal activity varies greatly with temperature and other factors; thus, it is less reliable than iodine.

**Portable Filters**

It cannot be assumed that portable filters will make drinking water safe; most authorities make no recommendation regarding their use because of insufficient independent verification of efficacy.

However, in areas where it is not practical to boil all drinking water, a good quality filter with a pore size of 0.1-0.4 microns will effectively remove cysts and bacteria but not viruses. The filtered water should then be treated chemically, as well.

**Ultraviolet (UV) Light**

UV light can kill bacteria, viruses, and protozoan oocysts in water. Battery-operated, portable units that deliver UV doses have become available and may be useful to disinfect small quantities of clear (not turbid) water.

**Food Precautions**

It is difficult, if not impossible, to guarantee the safety of food and beverages when traveling, especially in developing countries. Without strict public health standards, bacteria or parasites in food or water may go undetected and cause illness such as traveler’s diarrhea.

However, travelers can continue to enjoy local foods—this is part of the pleasure of international travel. Just be sure to follow food and water precautions and concentrate on eating the types of food that tend to be safest. Although there is some evidence that suggests where food is eaten is more important than what food is eaten, following food and water precautions can still help decrease the amount of organisms ingested and decrease the severity of traveler’s diarrhea if contracted. It also helps reduce the risk of other infections such as dysentery, hepatitis A and E, giardiasis, typhoid, and paratyphoid.

While it may not be possible to avoid diarrhea in certain high-risk destinations even with the strictest adherence to preventive measures, the risk can be minimized by following the guidelines.

**Do:**

• Eat at establishments that are known to cater to foreigners or that are specifically known by other foreigners to be safe.

• Eat foods that are well-cooked and served steaming hot.

• Eat breads, tortillas, crackers, biscuits, and other baked goods.

• Eat fruits, nuts, and vegetables with thick skins, peels, or shells that can be removed.

• Eat canned foods.

• Wash hands with soap before eating and after using the toilet.

**Don’t:**

• Eat any food from street vendors or market stalls.

• Eat leafy or uncooked vegetables and salads. Some organisms in soil and water are not destroyed by normal cleaning methods.