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Traveler Information

TREATING WATER

INTRODUCTION

While the typical traveler to the developing world can access safe purchased or prepared water, there are times when water purity cannot be guaranteed. In this situation, travelers should be prepared to treat water by one or more of the following methods.

BOILING

High temperatures kill most germs quickly. Boiling is always reliable in killing all of the common intestinal pathogens in water. Travelers may choose an immersion coil for boiling water (a plug adapter and current converter might be necessary). Boiling for 1 minute, from the time the water begins to bubble, is sufficient. However, because the boiling point decreases at higher altitudes, water should be boiled for 3 minutes at altitudes above 2,000 m (6,562 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.
- Limit the use of iodine to a few weeks to avoid its effect on the thyroid.
- For travelers who wish to avoid the taste and smell of iodine in the disinfected water, vitamin C (ascorbic acid) can be added 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.
- Tetraglycine hydroperiodide tablets (e.g., Globaline, Potable-Aqua, Coghlan's) are available from pharmacies and sporting goods stores. Follow the manufacturer's instructions.
- In many countries potassium permanganate (iodine containing) solutions, always purple in color, are readily available and can be used according to instructions to soak fruits and vegetables.

Chlorine also can be used, but is less reliable than iodine.

PORTABLE FILTERS

There is no guarantee that portable filters will make drinking water safe; however, they may be helpful (when used along with chemical disinfection) in situations where it is not practical to boil all drinking water. A good quality filter will have a pore size of 0.1-0.4 microns and will be impregnated with iodine to effectively remove cysts and bacteria and killed viruses. Water filtered with non-impregnated filters should then be treated chemically, as well. Filters rapidly clog if the source water is cloudy or contains large amounts of sediment.

ULTRAVIOLET LIGHT

Ultraviolet 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 water. This technique is less effective for cloudy or turbid water.