

## **Diarrhea – general information**

Nepal is a country with high risk for gastrointestinal illness. Approximately one third of patients who are seen at CIWEC Hospital do so for diarrhea. Inadequate restaurant and food hygiene, lack of adequate sanitary infrastructure in the country are probably responsible for the high rates of diarrheal illness. Risk of diarrhea is higher from April to September than in the cooler months. CIWEC Hospital has performed extensive research on diarrheal diseases in travelers and expatriates and what is said below is borne out by the research that has been performed at CIWEC.

### **What causes diarrhea?**

**Bacterial infections** - Most cases (approximately 70-75%) of diarrhea are due to bacterial infections. It is characterized by the abrupt onset of uncomfortable diarrhea and cramps. Diarrhea often begins in the middle of the night or early morning. Nausea, vomiting and fever can occur, but are not necessary to make the diagnosis. Bacterial diarrhea can resolve spontaneously without medication but the illness has the potential to last from 1- 2 weeks. Ongoing diarrhea can cause problems like dehydration, fatigue and loss of time from work or vacation. Replacement of lost fluids is very important in preventing dehydration. The length of this illness can be shortened by antibiotic therapy.

**Viral infections** – Viruses are responsible for causing 20-25% of acute diarrhea. Norovirus is the most common cause followed by rotavirus and other viruses that are being uncovered more with molecular techniques. Vomiting is common in viral diarrhea and the onset is usually sudden. No antibiotic therapy is required for viral diarrhea but it is not easy to tell the difference between viral and bacterial diarrhea.

**Parasitic infections** – responsible for about 5% of acute diarrhea in travelers

- 1. Giardia** - A parasite that causes a relatively low-grade, subacute to chronic diarrhea associated with stomach rumbling, gas, abdominal cramping and 3-5 loose stools per day. It can sometimes cause a lot of watery diarrhea. Fever almost never occurs with giardia. Sulfurous smelling burps and farts, sometimes seen in Giardia infections, are equally common in bacterial infections and therefore not a reliable finding.
- 2. Cyclospora** - Cyclospora is a protozoan parasite that causes infections from May to August each year, with most of the cases occurring in June and July. The disease can start with an abrupt onset of diarrhea and may be accompanied by low grade fever, nausea or vomiting. It then has a waxing and waning course with profound fatigue, loss of appetite, and diarrhea that comes and goes. Untreated, the illness can last for several weeks. There is a specific antibiotic treatment for this condition.
- 3. Other parasitic causes** – Other parasites like Dientameba fragilis, Cryptosporidium, and Entameba histolytica can be responsible for diarrhea. Ameba infections in the local population is usually found to cause chronic diarrhea alternating with constipation. Fatigue and weight loss are common complaints as the illness persists. This can rarely progress to mucousy and bloody stools, which is then referred to as “amebic dysentery.”

**CIWEC Hospital and Travel Medicine Center**

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**Worms** - Worms are intestinal parasites that almost never cause diarrhea but may sometimes, cause mild abdominal pain. Hookworm can cause anemia. Worms are seen more commonly in children. Occasionally, an adult round worm which looks like an earthworm gets passed with stool and is a source of great anxiety to parents.

## Symptomatic Treatment of Diarrhea

When diarrhea or vomiting occurs, it is important to replace fluid and electrolytes to prevent dehydration. This can be done fairly easily with an electrolyte solution mixed in a liter of boiled water or one liter of mineral water. Some commercially available products are Nava Jeevan and Jeevan Jal. Other fluids that can supplement the oral rehydration solution are: coca-cola/sprite without the bubbles, herbal teas, clear soup, tang solution, Gatorade or weak tea. Alcohol and heavily caffeinated products should be avoided. It is important to urge young children with diarrhea to drink liquids frequently since they can get dehydrated quickly from seemingly small fluid losses. Adults should drink 3 liters or more fluids per day depending on the amount lost as diarrhea or vomiting.

Bowel paralyzers, such as loperamide, can give temporary relief of abdominal cramps and diarrhea, but do not shorten the illness or treat the cause. To treat with loperamide, take 2 pills to start, and 1 pill after each loose stool (not to exceed 4 pills a day) until the diarrhea stops. If you have bloody diarrhea or fevers, do not use loperamide alone unless you take an antibiotic with it.

## Water Purification and Food Precautions

All tap or ground water in Nepal must be assumed to be contaminated. Bottled water is reasonably safe to drink. Water can be purified by bringing it to a boil. An alternative is to add liquid iodine (Lugol's solution) at the rate of 4-6 drops per liter. The water is safe to drink after 20-30 minutes. Cold water takes longer to purify than warmer water. Iodine is also available in tablet form. The iodine taste and odor can be completely removed by adding a small amount (50 mg or so) of vitamin C *after* the water is purified.

Some restaurants soak their salad vegetables in iodine or other disinfectants which render them safe to eat. Otherwise, avoid any raw vegetable or fruit that cannot be peeled.

**Remember, you cannot completely control what you eat, and no matter how careful you are, you can still get ill. Take reasonable precautions, as suggested, then relax and enjoy your food.**

## Stool Examination at CIWEC Clinic

We pride ourselves on our stool microscopy results. You might wonder what is special about this simple test. Each stool sample is looked at in 2 ways at CIWEC. A fresh sample of stool is put on a slide and looked at under the microscope. Secondly, an equal volume of formalin ether is mixed with the stool and spun in a centrifuge. This method allows for digestion of fecal material and makes viewing of parasites easier. Some parasites like giardia are not always found in a single stool test necessitating multiple stool tests or empiric treatment for giardia by the physician.

**Stool examination is a guide to therapy but a negative test result does not mean that there is no problem.**

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