

**IMMUNIZATIONS AND FOREIGN TRAVEL
BRIGHAM YOUNG UNIVERSITY
STUDENT HEALTH CENTER**

This information is designed to assist students and faculty members of Brigham Young University, and others participating in University-related tours, who will be traveling overseas for a visit or schooling. It is designed to be a guide and not to answer all possible questions. If further information is required or desired, the BYU Student Health Center or the Utah State Department of Health should be contacted. (This information is taken from the publication *Health Information for International Travel, 2012*, U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control [CDC].)

The majority of U.S. international travelers should be current with their vaccines, including Td or Tdap, MMR, hep A, hep B, and polio. In general, the risk of illness depends upon the area of the world visited. Travelers to developing nations are at greater risk than those visiting developed nations. In many developing countries, the living conditions and sanitation is poor and, therefore, the subsequent risk is higher. Travelers to urban areas generally are at less risk than those traveling to rural areas because of the exposure to water and foods of uncertain quality. Consequently, additional immunizations would be recommended for these visitors.

Recommendation: BRING CURRENT IMMUNIZATIONS UP TO RECOMMENDED LEVELS.

When traveling always remember that most diseases are related to the sanitary conditions of the country visited. You can thus help protect yourself from illness by practicing good sanitation. In the developing countries, food and drink should be carefully monitored. Contaminated food and drink are the most common sources of disease while traveling. Among these are hepatitis A, dysentery, giardiasis, shigellosis, amebiasis, cholera, and typhoid fever. Food should always be washed carefully and prepared fresh. Water should be adequately chlorinated or boiled. Generally, only drinks made with boiled water or that are canned or bottled should be considered safe. Also, be careful of contaminated containers and ice. If water is to be boiled, it should be brought to a full boil for several minutes and then allowed to cool. Travelers may want to invest in a filtration water bottle or filtration straw which removes virus and bacteria to 99.999%. Filtration systems are very effective to increase the integrity of drinking water.

Recommendation: EAT ONLY FRESHLY PREPARED AND PROPERLY WASHED FOOD. DRINK ONLY SAFE WATER.

HIV Infection: Because of the worldwide epidemic and concern over HIV, a brief comment on the subject needs to be given. HIV is almost totally spread by sexual contact or through contact with contaminated blood products and/or needles. There is no indication that mosquitoes transmit the disease. Generally, while traveling abroad, you should be very careful to have no contact with injection needles, unless proven to be sterile, or with blood products, unless it is a matter of life or death. If the need should arise to decontaminate a needle or a syringe, bleach is highly effective against the HIV virus.

The International Certificate of Vaccination (The YellowCard): This certificate is an official statement that you have been adequately immunized against certain diseases (usually yellow fever). If you should lose this certificate, you may need to contact the nearest American consulate. If an epidemic breaks out in an area you have been in, the certificate may be required, indicating your protection. It should be kept with your passport or other papers.

For more details concerning specific areas and immunizations see www.cdc.gov .

IMMUNIZATIONS:

When traveling outside of the U.S. or Canada, travelers should check the www.cdc.gov website for recommended travel vaccines. Usually, when traveling to developed countries of the world, there is little need for concern. However, when traveling into the developing countries of the world, there continues to be a problem. Many areas of the world continue to have diseases for which reliable protection is available. Examples of these are tetanus, polio, measles, hepatitis A, yellow fever, and typhoid. Therefore, it remains important for travelers to be adequately protected by having current immunizations. The Center for Disease Control (CDC) recommends specifically that all foreign travelers should have current immunizations, including polio, tetanus and diphtheria, measles-mumps-rubella, hep A, hep B, and other vaccinations as may be needed. All of the following vaccines are available for students through the Student Health Center (801)422-5156. Most of them are also available at the Utah County Health Department (801)851-7043.

Polio Vaccine:

Poliovirus vaccine (IPV) is an inactivated poliovirus vaccine given as an injection in four doses over the first four years of life. Polio vaccine travel guidelines should be followed according to recommendations at www.cdc.gov . Outbreaks continue to be a risk for major portions of Africa and some portions of southern Asia/Asian subcontinent. If any individual is traveling to one of these areas or affected surrounding areas, it is recommended that polio immunization be current, regardless of age. If an individual has had a polio booster at least once in adult years, another polio injection is not needed.

Diphtheria-Pertussis-Tetanus (Tdap) and Tetanus-diphtheria (Td) Vaccine:

Traveler should ensure they have adequate immunity to tetanus and diphtheria by completion of the 3-dose primary vaccine series (Td) and a booster if it has been >10 years since the last dose. However, if you sustain a major wound or one that is dirty in a country where vaccines are administered safely, and 5 years have elapsed since your last dose—get a booster.

For children less than 7 years old the CDC recommends, “Complete vaccination with 5 doses of acellular pertussis vaccine in combination with diphtheria and tetanus toxoids.” (DTaP)

In 2005 a new vaccine (Tdap) was licensed to add an additional pertussis booster to the tetanus-diphtheria vaccine for adolescents aged 11-18 and adults 19 and up. This is a single lifetime booster that replaces one of the tetanus-diphtheria (Td) boosters. These diseases can cause serious illness as noted below:

Tetanus (lockjaw) causes painful muscle spasms, usually all over the body. It can lead to tightening of the jaw muscles so the victim cannot open the mouth or swallow. Tetanus kills about 1 out of 5 people who are infected.

Diphtheria causes a thick covering in the back of the throat. It can lead to breathing problems, paralysis, heart failure, and even death.

Pertussis (whooping cough) is a highly contagious bacterial disease. Symptoms are initially mild, and then develop into severe coughing fits, which produce the namesake high-pitched “whoop” sound in infected babies and children when they inhale air after coughing. The coughing stage lasts for approximately six weeks or longer before subsiding. Recently there has been an increase in whooping cough in the U.S. and several deaths to young infants who have been exposed to a family member or other adult who has not been immunized for Pertussis. Up to 2 in 100 adolescents and 5 in 100 adults with pertussis are hospitalized or have complications, including pneumonia.

The side effects of Td or Tdap may include local erythema, tenderness, pain, irritability, and fever.

Measles-Mumps-Rubella Vaccine:

Protection against measles, mumps and rubella is especially important for people planning foreign travel, including adolescents and adults who have not had measles and have not been adequately vaccinated, and infants aged 6-11 months. Similarly, protection against rubella is especially important for women of childbearing age who are not immune to the disease. Most international travelers should receive 1 or 2 doses of MMR vaccine before travel. Children who travel or live abroad should be vaccinated at an earlier age than recommended for children remaining in the U.S.

Infants aged 6-11 months should have at least one MMR dose. Infants vaccinated before age 12 months must be revaccinated on or after the first birthday with 2 doses of MMR separated by at least 28 days.

Preschool children older than 12 months should have 2 MMR doses separated by at least 28 days.

School age children should have 2 MMR doses separated by at least 28 days.

Adults born in or after 1957 should have 2 MMR doses separated by at least 28 days.

Adults born before 1957 are generally considered “immune” and usually do not require vaccination.

The side effects of MMR vaccine occur approximately 25% of the time and are generally mild. They include fever, malaise, lymph node enlargement, and occasionally a rash, occurring from 5 to 14 days after immunization.

Cholera Vaccine:

Cholera is a potentially fatal bacterial infection that causes severe diarrhea and dehydration. The disease is spread through untreated sewage and contaminated drinking water.

The symptoms are profuse diarrhea (which may be bloody), severe abdominal cramps, and fatigue. Occasionally it can result in prostration and fever, in which case medical help should be obtained immediately. The main problem is the loss of large quantities of fluids with the diarrhea. Don't restrict fluids to treat the diarrhea. Drinking large quantities of fluids is your only protection if you have this illness.

The United States does not currently have a licensed vaccine for cholera. An oral cholera vaccine is available in countries where it is a problem. Cholera is endemic in Africa and South and Southeast Asia. A cholera outbreak was also confirmed in Haiti in October 2010.

This vaccine is given only to those who are traveling to a developing country where there is an outbreak of cholera. The benefits of the vaccine are questionable for most travelers, since the risk of cholera is low and the vaccine is only 50% effective in reducing the clinical illness.

If properly managed, the illness is short-lived and can be adequately treated with the intake of large quantities of oral fluids. The side effects to the vaccine are local pain, swelling and redness, systemic fever, malaise, and headache. The vaccine should not be given in conjunction with the yellow fever vaccine, as the antibody response to both is diminished.

Typhoid Vaccine:

This vaccine is important to travelers to countries with poor sanitary conditions. The typhoid vaccine is one of the most common vaccines given to international travelers and is one of the most important. An oral typhoid vaccine, Vivotif, has been developed with 78-80% efficacy. The oral medication must be kept refrigerated until properly taken. Four capsules are taken, one every other day with a cool liquid approximately one hour before a meal. It should be completed one week before potential exposure and lasts 5 years. You cannot take oral typhoid if you are presently taking antibiotics.

There is also an injectable typhoid vaccine that lasts 18 months to two years. It is an inactivated vaccine and is approximately 70-78% effective, initially. However, its effectiveness decreases quickly over two years. It should be given at least 2 weeks before potential exposure.

Yellow Fever:

Yellow fever occurs only in sub-Saharan Africa and tropical South America. In Africa, the case-fatality rate approximates 20%. The risk of illness and death varies greatly according to specific location and season. If you will be traveling in the above areas, yellow fever vaccine is recommended. Travel into or from countries where yellow fever exists may require proof of vaccination. You will receive a yellow fever international certificate that must be signed and stamped as proof that you have had the yellow fever vaccine. Keep this certificate with your passport. The vaccine is a live vaccine and is given as 1 injection, 0.5 ml SQ. A booster is recommended every 10 years. Generally, the side effects are minimal with occasional headache, fever, and myalgia. It may not be available through all health clinics. About 25% of vaccine recipients may have a reaction.

Since mosquitoes carry the virus, mosquito precautions should be followed, including wearing long sleeves and long pants, applying repellants containing 35-50% DEET or picardin on exposed skin and permethrin-containing repellants to clothing, netting, and window screens.

Hepatitis B Vaccine:

The CDC (Center of Disease Control) states, "Hepatitis B virus is spread through contact with the blood or other body fluids of an infected person. A person can become infected by: contact with a mother's blood and body fluids at the time of birth; contact with objects that could have blood or body fluids on them such as toothbrushes or razors; having unprotected sex with an infected person; sharing needles when injecting drugs; being stuck with a used needle on the job." This is one of the "routine" vaccines recommended by the CDC to be current with prior to travel. It takes 6 months to complete the hepatitis B series. Injections are given as 3 injections, 1 month apart for the first two and 5 months between shots 2 and 3.

Hepatitis A Vaccine:

Hepatitis A is a potentially serious liver disease caused by the hepatitis A virus (HAV). HAV is found in the stool of persons with hepatitis A. It is usually spread by close personal contact and sometimes by eating food or drinking water containing HAV. Those who should consider getting this vaccine include those people traveling to or working in countries with high or intermediate prevalence of hepatitis A including Central and South America, Mexico, Africa, the Middle East, and the Indian subcontinent. Hepatitis A series is a two-shot series with the first and second shots being separated by 6 months. This is also considered a "routine" vaccine by the CDC.

Twinrix Vaccination:

Twinrix is a combination hepatitis A and B vaccine for use in persons 18 years and older for those who have not had hep A or hep B previously. It can be taken on a regular schedule—day 0, 1 month later, and 6 months after the first dose. It has recently been approved to be given on an accelerated schedule if needed—day 0, day 7, and day 21, with a booster dose one year later.

Influenza Vaccine:

This vaccine is for anyone over 6 months of age who wants to reduce the chance of becoming ill with influenza. You should talk with a doctor before getting an influenza vaccine if you: 1) have had severe allergic reaction to a previous flu shot, or 2) have an allergy to eggs or gelatin. It is given as a single IM dose of 0.5 cc. The side effects are mild with occasional fever, malaise, and/or headache. It should be given at least 2 weeks prior to travel to affected areas between the months of September and January.

Meningococcal Vaccine:

The CDC states, “For traveler, vaccination is especially recommended for those visiting the parts of sub-Saharan Africa known as the “meningitis belt” during the dry season (December-June). Vaccination is required by the government of “Saudi Arabia for all travelers to Mecca during the annual Hajj. Advisories for travelers to other countries are issued when epidemics of meningococcal disease, caused by vaccine-preventable serogroups, are detected.”

Japanese Encephalitis Vaccine:

Japanese encephalitis (JE) is a viral infection that is transmitted to humans through the bite of an infected mosquito. (Wading birds are the main animal reservoir for the virus, but the presence of pigs greatly amplifies the transmission of JE.) It is found throughout much of Asia and parts of the western Pacific. Transmission principally occurs in rural agricultural areas, often associated with rice production and flooding irrigation. JE vaccine is currently recommended for travelers who plan to spend a month or longer in endemic areas or areas with ongoing transmission. Vaccine should also be considered for shorter-term travelers whose itineraries may put them at increased risk for JE exposure, such as rural stays during the rainy seasons. The Japanese encephalitis vaccine is called IXIARO. It is a two-shot vaccine--the first and second shots given 28 days apart. Travelers may need to plan ahead if they think they may need this vaccine. Travelers should also use a mosquito repellent with a concentration of 35-50% DEET.

Malaria Prophylaxis:

Malaria is an acute and sometimes chronic infectious disease due to the presence of protozoan parasites within red blood cells. It is transmitted by mosquito bites from the female Anopheles mosquito or through infected blood or blood product transfusions. The symptoms include unexplained fever, persistent headaches, muscular aching and weakness, vomiting, and diarrhea. If travel involves areas of the world endemic for malaria, prophylactic medication is recommended. All medication regimens involve

taking medication before, during, and after traveling to an area with malaria. Check with your doctor about which medication you should take. Several medications are listed below.

- Mefloquine 250 mg once a week, starting 1 week prior to leaving, every (Lariam) week while traveling, and continuing for 4 weeks after returning. If you have problems with depression or other mental illness, you should not take this. It may cause strange dreams and hallucinations.
- Malarone 1 tablet daily, beginning 2 days prior to entering and for 7 days after leaving the area. This is a combination of two drugs and is very expensive to take—causes few side effects generally.
- Doxycycline 100 mg daily, starting 2 days prior to leaving, every day while traveling and for 4 weeks after returning. Doxycycline should be taken with a full glass of water and causes light sensitivity. Adult women have a higher chance of yeast infections on doxycycline. Doxycycline should not be taken by pregnant women. It is the least expensive prophylaxis available. However, in recent months the manufacturer has greatly increased the price.

Note: Taking prophylactic measures is no guarantee against developing malaria.

If you are traveling to an area of chloroquine resistant malaria, doxycycline, malarone, or Lariam should be taken. Mosquitoes transmit malaria between dusk and dawn. Going out in that time period is risky. If you are going outdoors after dark, use a mosquito repellent which has a concentration of 35-50% DEET to help protect you. Use permethrin spray on clothes, bed netting and window screens.

ILLNESS/DISEASE

One of the least desirable things to occur when you are in a foreign country is to have an illness. Unfortunately, it occurs too often. The purpose of this section is to discuss common illnesses and how you can treat them. But first, some guidelines on preventing illnesses:

- Use bottled water whenever possible, or a filtered water bottle.
- Be very careful about your hygiene. Always wash your hands following the use of rest rooms and before touching any food or drink.
- Do not drink or brush your teeth with local water, unless it has been properly treated or boiled. Ice may contain bacteria and should not be used unless you are sure of its source.
- Peel all fruits and vegetables before eating. Wash them with treated water.
- Make sure your food is properly prepared and well-cooked before eating.
- Do not eat vendor foods from the streets, no matter how good it may look.
- Never eat or drink from another person's utensils or glass. Bacteria are passed through mucus.
- Always remember that most bacteria will enter your body through the mouth.

Keep these principles in mind and you will probably have done all you can to prevent the usual illnesses.

INFECTIONS

Infections are caused by viruses (common cold), bacteria (strep throat), and parasites (Giardia and Rickettsia, or spotted fever). Keep this in mind as we discuss various conditions that you may encounter.

FEVER:

Most infections will cause a fever. Remember that fever is a symptom of an infection. It is a response by the body to help control the infection. It is not a problem unless it rises above 105 degrees. Generally, virus infections run higher fevers than do bacterial infections. The height of the fever does not correlate with the severity of the infection, but be sure to always note the degree of fever, particularly when it is high. In children a fever is a temperature over 101 degrees.

Treatment - First of all, fever is a symptom and does not need to be treated unless you are having aching or it is unusually high (over 102 degrees). The treatment of fever is Tylenol. Fever burns off water in the body so you should always drink large quantities of fluids while you have a fever. If the fever persists and you are feeling bad all over, try a tepid water bath. Tylenol and a bath combined are the most effective treatment for a fever. The secret is to remain in the bath water until the fever clears. Don't just jump in and then out. Lastly, don't be concerned about the chills you may have. They are related to the temperature control center in the brain. With the exception of malaria, they are an indication of a change in the fever.

COLDS:

Colds are caused by about a hundred different viruses and are the most common type of illness you will experience. They generally last 7 - 10 days and will produce symptoms of a runny nose, cough, headache, aching muscles, and fever. The runny nose may be clear to green in color. The cough is produced by the infection as well as by the runny nose. The aching and headache are related to the infection by the virus. The fever is related to the spread of the virus in the blood stream. Colds generally do not lead to complications, but occasionally they can lead to sinus infections or secondary infections in the body. A runny nose and a cough are frequently seen with bronchitis and pneumonia when the infective agent is a virus. Lastly, the color of the mucus does not necessarily indicate a bacterial infection or the need for an antibiotic.

Treatment - Because a virus causes the infection, antibiotics are of no value. The treatment is symptomatic. You should take Tylenol for the aching and fever, drink lots of fluid to replace those lost because of the fever, and get rest to allow the body to fight the infection. You may consider taking a decongestant to help with stuffiness and runny nose (pseudoephedrine or Sudafed, 60 mg every 12 hours).

SORE THROAT:

Contrary to popular belief, most sore throats are caused by virus infections. The most common cause of a sore throat is a cold with drainage down the back of the throat. Similar symptoms can occur with sinus infections and even with an allergy. Less than

5% are caused by strep. Those that are a result of a strep infection usually show symptoms of being very sick, having a fiery red throat with white membranes over the tonsils, showing a bright red tongue, and enlargement of the lymph nodes underneath the jaw. Occasionally, there may be an associated bright red rash over the trunk. This type of infection needs to be treated with an antibiotic. Most of the other types of sore throats can just be treated symptomatically. Mononucleosis can also produce symptoms identical to strep. This infection is caused by a virus and needs to be diagnosed by a physician. It will not respond to antibiotics and the only treatment is bed rest. Mono is distinguished by marked fatigue.

Treatment - A strep throat is treated with an antibiotic for 10 days. Most of the other sore throats are treated symptomatically with throat lozenges, gargles, and the use of decongestants or antihistamines, if indicated.

SINUS INFECTIONS:

The sinuses are air-filled cavities over and beneath the eyes and behind the nose. Sinus infections usually begin with a runny nose which progresses to pain over the sinuses or a frontal headache and a colored discharge from the nose. Coughs are frequent and many individuals will cough up thick yellow mucus, which actually comes from a post-nasal drip. These coughs are usually worse at bedtime or in the early morning. Sinus headaches can be quite painful. They cause a pain in the forehead or behind the eyes or in the face. There may be associated tooth and/or ear pain. Again, the pain can be quite severe.

Treatment - The treatment is to relieve the pain while clearing the infection. The infection is treated with antibiotics. The pain is relieved by pain medication, decongestants, and salt-water spray in the nose. To use the spray, lean over a sink and spray vigorously up each side of the nose. Let the excess drain down into the sink. Sometimes a hot pad over the sinuses will help.

ALLERGY:

One of the most irritating problems while traveling is an allergy. It can manifest itself as a runny nose, itching eyes, sore throat, difficulty breathing, or swelling and itching of the skin (hives). Hives can be caused by almost anything, particularly any medication ingested within the previous 6 weeks. Allergies can result from skin contact or from breathing or eating the offending agent. The drainage from the nose is clear to cloudy white and can be profuse. Itching, if present, can be profound. It is not a happy experience. It is best prevented rather than treated.

Stay away from the offending agent.

Treatment - The treatment is to use antihistamines, which are usually available anywhere. (The symptoms are caused by the release of histamine.) Benadryl is an antihistamine that can be used. Adults can take 25-50 mg 4 times each day. Benadryl causes drowsiness in most people. Generic

Claritin and Zyrtec are now available without a prescription for allergies and do not cause drowsiness. Salt-water nose spray can help the runny nose. Ice water that is sterile can be used to relieve eye itching and swelling. Itchy eyes can also be treated with Zaditor, an antihistamine eye drop that is now available over the counter. Use one drop in each eye twice a day. Cool baths are of benefit for hives and itchy skin. Using Aveeno bath powder can also relieve itching. Calamine lotion can also help, although sometimes it makes the itching worse.

NAUSEA/VOMITING:

Nausea and vomiting can be a symptom of many illnesses. It is most commonly caused by a virus infection. It is important to understand that these are symptoms and they should be treated as such. Look to see if there are other symptoms that will give you a clue as to the cause of the vomiting (i.e., sore throat, diarrhea, urinary infection). If there are no other symptoms, the illness is probably due to a virus and can be treated symptomatically. The illness usually lasts only a day or two, but it can be several days before you are back to full strength. If diarrhea is associated, it may take longer. The real danger of vomiting is dehydration. You can monitor the fluids needed by watching your urine output. If you are voiding less, you need to push fluids harder. If you are voiding frequently, you are in good shape. Push fluids and you probably won't get into trouble with dehydration.

Treatment - Push clear liquids hard (Gatorade, soda pop, juices, etc.). You need liquids that contain salt, sugar, and water. If you are in an undeveloped country, use canned or bottled drinks (bottled pop is always available). Monitor the urine output as an indication of dehydration. If available, you can take Emetrol (an OTC medication) for nausea. Be aware that too much apple and pear juice may give you diarrhea.

TRAVELER'S DIARRHEA:

Traveler's diarrhea is addressed by the CDC Health Information for International Travel 2012 book, pp. 56-58 and on the CDC travel website. It states:

"Traveler's diarrhea (TD) is the most predictable travel-related illness. Attack rates range from 30% to 70% of travelers, depending on the destination. Traditionally it was thought that TD could be prevented by following simple recommendations such as 'boil it, peel it, or forget it,' but studies have found that people who follow these rules still get ill. Poor hygiene practice in local restaurants is likely the largest contributor to the risk for TD. . . Bacteria are the most common cause of TD. Overall, the most common pathogen is enterotoxigenic Escherichia coli, followed by campylobacter jejuni, Shigella spp., and Salmonella spp. Enteroadherent and other E. coli species are also common pathogens in bacterial diarrhea. There is increasing recognition of Aeromonas spp. and Plesiomonas spp. as causes of traveler's diarrhea as well. Viral diarrhea can be caused by a number of viral pathogens, including norovirus, rotavirus, and astrovirus.

Giardia is the main protozoal pathogen found in TD. . . The most important determinant of risk is travel destination, and there are regional differences in both the risk and etiology of diarrhea. The world is generally divided into 3 grades of risk: low, intermediate, and high.

Low-risk countries include the U.S., Canada, Australia, New Zealand, Japan, and countries in Northern and Western Europe.

Intermediate-risk countries include those in Eastern Europe, South Africa, and some of the Caribbean islands.

High-risk areas include most of Asia, the Middle East, Africa, Mexico, and Central and South America.

TD occurs equally in male and female travelers and is more common in young adults than in older people. In short-term travelers, bouts of TD do not appear to protect against future attacks, and more than one episode of TD may occur during a single trip. In environments where large numbers of people do not have access to plumbing or outhouses, the amount of stool contamination in the environment will be higher. Inadequate electrical capacity may lead to frequent blackouts or poorly functioning refrigeration, which can result in unsafe food storage and an increased risk for disease. Inadequate water supplies can lead to the absence of sinks for hand washing by restaurant staff. Poor training in handling and preparation of food may lead to cross-contamination from meat, and inadequate disinfection of food preparation surfaces and utensils. In destinations in which effective food handling courses have been provided, the risk for TD has been demonstrated to decrease. Untreated bacterial diarrhea lasts 3-5 days. Viral diarrhea lasts 2-3 days. Protozoan diarrhea can persist for weeks to months without treatment.

For travelers to high-risk areas, several approaches may be recommended that can reduce but never completely eliminate the risk for TD. These include instruction regarding food and beverage selection, use of agents other than antimicrobial drugs for prophylaxis, and use of prophylactic antibiotics. Carrying small containers of alcohol-based hand cleaners containing at least 60% alcohol may make it easier for travelers to clean their hands before eating.

Care in selecting food and beverages for consumption might minimize the risk for acquiring TD. Travelers should be advised that foods that are freshly cooked and served piping hot are safer than foods that may have been sitting for some time in the kitchen or in a buffet. Care should be taken to avoid beverages diluted with non-potable water (reconstituted fruit juices, ice, and milk) and foods washed in non-potable water, such as salads. Other risky foods include raw or undercooked meat and seafood and unpeeled raw fruits and vegetables.

Safe beverages include those that are bottled and sealed or carbonated. Boiled beverages and those appropriately treated with iodine or chlorine may also be safely drunk. Although food and water precautions continue to be recommended, travelers may not always be able to adhere to the advice. Furthermore, many of the factors that

ensure food safety such as restaurant hygiene, are out of the traveler's control. The primary agent studied for prevention of TD, other than antimicrobial drugs, is bismuth subsalicylate (BSS), which is the active ingredient in Pepto-Bismol. Studies from Mexico have shown this agent (taken daily as either 2 oz of liquid or 2 chewable tablets 4 times per day) reduces the incidence of TD from 40% to 14%. BSS commonly causes blackening of the tongue and stool and may cause nausea, constipation, and rarely tinnitus. BSS should be avoided by travelers with aspirin, allergy, renal insufficiency, and gout and by those taking anticoagulants, probenecid, or methotrexate. In travelers taking aspirin or salicylates for other reasons, the use of BSS can result in salicylate toxicity. Caution should be used in administering BSS to children with viral infections, such as varicella or influenza, because of the risk for Reye syndrome. BSS is not recommended for children younger than 3 years of age. Studies have not established the safety of BSS use for periods longer than 3 weeks. As bacterial causes of TD far outnumber other microbial causes, empiric treatment with an antibiotic directed at enteric bacterial pathogens remains the best therapy for TD. The benefit of treating with antibiotics has been proven in numerous studies. Azithromycin, 500 mg daily for 1-3 days, appears to be effective in most cases of TD."

If you do not have azithromycin you may use Pepto-Bismol, 2 tablespoons every 4 hours until symptoms begin to clear. (You may develop black stools.)

Other treatment for TD includes pushing clear liquids hard (as noted under vomiting above). Monitor your urine output to be sure you are not getting dehydrated. Hold all solid foods for 8-12 hours.

If you have a bad episode of diarrhea, you may develop intolerance to milk, which is usually temporary but can be permanent. It is due to a lack of the lactase enzyme in the intestine that digests milk sugar or lactose. The symptoms are bloating, cramping, gas formation, and diarrhea for several hours after ingesting milk containing lactose (cow's milk).

After 12 hours (if no vomiting is present), begin a soft diet of cereal, bananas, rice, potatoes, bread, crackers, and vegetables. Hold all milk products until after the diarrhea has cleared. Fresh fruits drinks (apple and peach) and pit fruits (peaches, plums) may add to the diarrhea and should be avoided.

MEDICATIONS TO TAKE WITH YOU:

The following are suggested:

Sudafed 30 mg for colds. Take 1-2 three times a day.

Azithromycin for traveler's diarrhea. Take as directed.

Benadryl 25 mg for allergic reactions. Take 2 every 6 hours.

Tylenol for pain. Take 1 or 2 every 4-6 hours, if needed.

Antibiotic ointment (optional) for scrapes and cuts. Apply liberally after washing well with soap and water. Cover the wound and keep it clean.

Make sure all of your medications are in their properly labeled bottles or packages. You might get stopped at a border if they are improperly labeled.

Note: These are suggested medicines. You should consult your physician for specific recommendations.

Generally, you will not have a problem with illness, particularly if you wash your hands and prepare your food properly. This information is given to you just in case you do have an illness. If you are prepared, you will enjoy your trip more and feel less concerned about what may come. Be careful and practice good hygiene. That is the basic message.