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Information from [www.cdc.gov](http://www.cdc.gov)

[www.mdtravelhealth.com](http://www.mdtravelhealth.com) and

<http://www.who.int/en/>

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**Animal Hazards**

In general animals have a tendency to avoid humans. They can attack and are more likely to when protecting their young or their territory. You should never pet, handle or feed domestic dogs, cats, and other mammals where rabies is endemic. Avoid contact with wild animals. Most of the injuries reported from wild animals are associated with attempting to feed, handle or pet them.

Poisonous snakes are a concern in many areas. Some dangerous snakes to avoid are: the Australian brown snake, Russell’s viper and cobras (Southern Asia), coral snakes and rattlesnakes (the America’s), and carpet vipers (Middle East). Do not try to handle or harass snakes, they will bite to defend itself. It is dangerous to try to kill snakes. The venom is more concentrated in smaller or immature snake than in larger one. If a traveler is bitten and the skin is broken medical attention should be sought. Immobilize the limb that was bitten and apply a pressure bandage (not a tourniquet) and move as quickly as possible to a medical facility. Snakes are more likely to be active in warm weather and at night. It is recommended that boots and long pants be worn when walking outside in areas inhabited by venomous snakes.

Stings from scorpions are painful but seldom dangerous to adults. They can be avoided by sleeping under mosquito nets and by shaking out clothes and shoes before dressing.

**Insect and Arthropod Precautions**

**Use an insect repellent** on exposed skin to repel mosquitoes, ticks, fleas and other arthropods. EPA-registered repellents include products containing DEET (N,N-diethylmetatoluamide) and picaridin (KBR 3023). DEET concentrations of 30% to 50% are effective for several hours. Picaridin, available at 7% and 15 % concentrations, needs more frequent application. DEET formulations as high as 50% are recommended for both adults and children over 2 months of age. Protect infants less than 2 months of age by using a carrier draped with mosquito netting with an elastic edge for a tight fit.

**When using sunscreen**, apply sunscreen first and then repellent. Repellent should be washed off at the end of the day before going to bed.

**Wear long-sleeved shirts** which should be tucked in, long pants, and hats to cover exposed skin. When you visit areas with ticks and fleas, wear boots, not sandals, and tuck pants into socks.

**Inspect your body and clothing for ticks** during outdoor activity and at the end of the day. Wear light-colored or white clothing so ticks can be more easily seen. Removing ticks right away can prevent some infections.

**Apply permethrin-containing** (e.g., Permanone) or other insect repellents to clothing, shoes, tents, mosquito nets, and other gear for greater protection. Permethrin is not labeled for use directly on skin. Most repellent is generally removed from clothing and gear by a single washing, but permethrin-treated clothing is effective for up to 5 washings.

**Be aware that mosquitoes** that transmit malaria are most active during twilight periods (dawn and dusk or in the evening). Stay in air-conditioned or well-screened housing, and/ or sleep under an insecticide treated bed net. Bed nets should be tucked under mattresses and can be sprayed with a repellent if not already treated with an insecticide.Daytime biters include mosquitoes that transmit dengue and chikungunya viruses and sand flies that transmit leishmaniasis.

**RECOMMENDATIONS FOR SAFE FOOD AND WATER CONSUMPTION:**

1. Drink beverages only made with boiled water, i.e. tea, coffee. To kill bacteria and parasites boil water vigorously for 1 minute, for viruses boil water for an additional 3 minutes. Cool to room temperature.
2. Drink canned or bottled carbonated drinks in sealed containers. If the outside of containers are wet dry them off before opening.
3. Never have ice with your drink, or use containers that had ice in them.
4. Never wash drinking or eating utensils with non-boiled water.
5. Never brush your teeth with non-boiled or unbottled water.
6. All raw foods are subject to contamination. Avoid salads, uncooked vegetables, unpasteurized milk, milk products, and undercooked or raw meat, fish, or shellfish.
7. Eat only foods that have been cooked and are still hot, or fruits that have been peeled by the traveler. Do not wash fruits with water that has not been boiled.
8. Use chlorine or iodine tablets to purify water. Iodine tablets contain 8 mg of iodine. Use 4 mg or 1/2 tablet in 1 quart of water. (Iodine is not recommended for persons with thyroid disease, pregnancy, or known iodine allergy). Water that is cloudy should be strained through a clean cloth to remove sediment before being treated. If water remains cloudy, double the number of tablets used to purify. It is not a reliable way to kill *cyptosporidium* unless the water is allowed to sit for 15 hours before consumption. Chlorine purification: follow instructions on chlorine product and is intended for short term use only.

**Diseases**

***AFRICAN TICK-BITE FEVER***

**Description:** Is a bacterial infection

**Transmission:** Is spread through the bite of an infected tick.

**Area of Risk:** Sub-Saharan Africa and the West Indies. There is a higher risk for African tick-bite fever with travel plan outdoor activities such as camping, hiking, and game hunting in grassy, brushy, or wooded areas. Infected ticks are usually most active from November through April.

**Signs and Symptoms:** Usually appear within 2 weeks after a tick bite and often include fever, headache, muscle soreness, and a rash. The tick bite site will be a red skin sore with a dark center.

**Treatment:** Seek medical attention and inform your health care provider of your foreign travel. Since it is a bacterial infection, antibiotics such as Doxyxcycline may be used as part of your treatment plan.

**Prevention:** Follow the prevention of tick bites tips at <http://wwwnc.cdc.gov/travel/diseases/african-tick-bite-fever>

***AFRICAN TRYPANOSOMIASIS (African Sleeping Sickness)***

**Description:** a disease caused by the parasite *Trypanosoma brucei.*

**Transmission:** It is transmitted through the bite of a tsetse fly (a gray-brown insect the approximate size of a honeybee).

**Area of Risk:** tropical Africa from north of South Africa to south of Libya, Egypt and Algeria. The tsetse flies live in woodlands and thickets and in dense vegetation along streams. In recent years there has been an increase in the number of cases reported, primarily to East African game parks.

**Signs and Symptoms:** fever, rash, swelling in extremities, and skin lesions. As the infection progresses generally within 1-3 weeks, meningoencephalitis symptoms will appear, which could include severe headache, stiff neck, confusion, fever, convulsions or coma. If untreated can be fatal.

**Treatment:** If ill with high fever or other symptoms seek medical care early. It can be cured by a course of anti-trypanosomal therapy (Pentamidine isethionate and suramin for early symptoms and Melarsoprol for late disease treatment.

**Prevention:** No vaccine is available. Tsetse flies are not affected by insect repellants. They can bite through lightweight clothing and are attracted to dark, contrasting colors and moving vehicles. Avoid areas of heavy infestations, these areas are usually well known to the locals. Wear medium-weight, neutral colored that blend in to the environments clothing that cover to wrist and ankle.

***AMEBIASIS***

**Description:** Is a protozoan parasitic infection caused by *Entamoeba histolytic.*

**Areas of Risk:** Worldwide, very common in regions with poor sanitation in developing countries, particularly the tropics. Most infections occur in Africa, Asia, and Central and South America.

**Transmission:** It is passed by fecal-oral route by eating or drinking contaminated food or water, person to person contact.

**Signs and Symptoms:** Infected individuals may not have symptoms. Incubation usually is 2-4 weeks but can be delayed for years. This parasitic infection usually affects the intestinal tract but occasionally spreads to other organs. *E. histolytica* rarely invades the liver and forms an abscess. Even less commonly, it spreads to other parts of the body, such as the lungs or brain.  The most common symptom is diarrhea that can worsen into bloody, painful bowel movements. Fever can accompany diarrhea.

**Treatment:** Seek medical care. Different medications would be used in treatment depending on the severity of the disease.

**Prevention:** No vaccine available. Follow safe food and water precautions as well as using safe sex practice to reduce oral-fecal transmission.

***ANGIOSTRONGYLIASIS***

**Description:** Is a parasitic considered to be the most common cause of eosinophilic meningitis in humans.

**Areas of Risk:** Most cases occur in Asia and the Pacific Basin (e.g., parts of Thailand, Taiwan, mainland China, the Hawaiian Islands, and other Pacific Islands). Cases have been reported in many other parts of the world, including the Caribbean.

**Transmission:** Ingesting (third-stage larvae) raw or undercooked snails or slugs, or contaminated raw produce (e.g., lettuce or vegetable juice). Also through ingesting raw or undercooked freshwater shrimp or prawns, crabs, and frogs.

**Signs and Symptoms:** Incubation period is typically 1–3 weeks but ranges from 1 day to >6 weeks. Headache, photophobia, stiff neck, nausea, vomiting, fatigue, and body aches. Abnormal (tingling or painful feelings) skin sensations and possibly a low grade fever.

**Treatment:** Seek medical care

**Prevention:** Avoid eating raw/undercooked snails, slugs, and other hosts. Follow precautions when eating raw produce. Wear gloves (and wash hands) if handling snails or slugs.

***ANTHRAX***

**Description:** A disease caused by *Bacillus antracis*, a spore bacterium. It can be cutaneous (skin), inhaled (lung), or gastrointestinal (digestive).

**Area of Risk:** Is found globally in developing countries without veterinarian health programs. It is found in certain developing regions in Southern and Eastern Europe, Asia, South and Central America, sub-Saharan Africa, the Middle East, and the Caribbean.

**Transmission:**  it is possible to acquire anthrax through direct or indirect contact with carcasses of animals that died from anthrax. Mechanically be transmitted through biting flies who have fed off these carcasses. Cases of cutaneous and inhalation anthrax have been reported among individuals who have made, handled or played contaminated goatskin drums from Haiti or West Africa.

**Signs and Symptoms:** In cutaneous anthrax, itching is followed by a lesion, vesicle, and depressed black eschar. Inhaled anthrax symptoms are mild and non-specific. They may include fever, malaise, and a mild cough or chest pain. Ingested anthrax is difficult to recognize but may include abdominal distress followed by fever, septicemia, and death.

**Treatment:**  If contact is suspected, seek medical attention for antibiotic treatment. Avoid areas where the hides and hairs of animals are kept (especially goats).

**Prevention:** Avoid contact with potentially unvaccinated livestock or animal products. Eat only meat that has been properly slaughtered and cooked. Vaccine is available for use in humans. Vaccine should be considered for: 1) persons who work directly with the organism in a laboratory setting 2) those working with imported animal hides or furs in areas with substandard regulations 3) those who handle potentially infected animal products and 4) military personnel deployed to areas of high risk.

***AVIAN INFLUENZA A (H5N1) VIRUS***

**Description:** Avian influenzais a viral influenza strain carried by poultry and birds. It can cause serious disease and death. **Area of Risk:** H5N1 bird flu is widespread in poultry and wild birds in several countries in Asia and the Middle East. Outbreaks of H5N1 bird flu have been reported in Europe and Africa. H7N9 bird flu cases in China.

**Transmission:** The risk of bird flu to travelers is extremely low. People who come in contact with live poultry are at higher risk. The virus is spread through direct contact with saliva, feces, blood, uncooked meat or nasal secretions of infected birds. It can be contracted through surfaces contaminated by infected feces or secretions. Fecal-to-oral transmission is most common. It may also be spread environmentally by ingestion of contaminated water while swimming or through the widespread use of poultry feces as a fertilizer.

**Signs and Symptoms:** Symptoms may vary from: sore throat, cough, difficulty breathing, fever, muscle aches to eye infections. Early in the course of the illness diarrhea, vomiting abdominal pain, bleeding from gums and nose have been reported.

**Treatment:**  It is important to monitor your health for 10 days following your travel. Seek medical attention if you develop any illness during this 10 day period. It is important that you inform your health care provider of your present symptoms, if you had direct contact with poultry or birds, and the area in which you traveled. Several different antiviral medications can be used for treatment unfortunately some of these strains have developed a resistance to these drugs. An inactivated vaccine for avian influenza is currently undergoing human clinical trials.

**Prevention:** Avoid undercooked or raw poultry or poultry products, direct contact with poultry or birds especially in known infected countries. Eat only thoroughly cooked poultry meat. Avoid all eggs and blood. Washing hands carefully and frequently. Go to <http://wwwnc.cdc.gov/travel/diseases/avian-bird-flu> for more information.

***BABESIOSIS***

**Description:**A rare illness caused by microscopic parasites that infect red blood cells.

**Area of Risk:** This disease is found in eastern and northern Australia. It mainly occurs in parts of the Northeast and upper Midwest and usually peaks during the warm months. Cases have been reported in a wide range of European countries

**Transmission:** It is transmitted through the bite of an infected *Ixodes scapularis* tick (also called blacklegged ticks or deer ticks). The tick species type can be different in Australia and Europe. People can also become infected via blood transfusion or congenitally (from mother to baby during pregnancy).

**Signs and Symptoms:** The incubation period is 5-33 days. High fever (as high as 104° F.), chills, weakness, headache, fatigue, and decreased appetite. Some individuals will show no symptoms and others will become seriously ill and possibly die

**Treatment:** Most asymptomatic persons do not require treatment. But seek medical attention if you are noting symptoms. Antibiotics are used in treatment.

**Prevention:** Avoid tick infested areas. Use DEET or permethrin on clothing. Check for ticks and remove them promptly with a tweezers. To remove with tweezers place them close to the skin and avoid leaving mouth parts in the skin. Do not crush the body of the tick.

***BARTONELLOSIS (Cat Scratch Disease, Oroya fever, and Trench fever)***

**Description:** an infectious disease caused by the *bartonella* bacteria.

**Areas of Risk:** Worldwide. Outbreaks have occurred in the Andes Mountains, 3,000 to 10,000 ft in elevation in western South America, including Peru, Colombia, and Ecuador. Most cases are reported in Peru. Trench fever has a worldwide distribution; cases have been reported from Europe, North America, Africa, and China.

**Transmission:** By being bitten or scratched by an infected domestic or feral cat or exposure to infected cat saliva in the eyes or through broken skin/open wound. Oroya Fever and Carrión's disease can be transmitted from the bite of an infected sand fly. Trench fever is transmitted by human body lice and is more commonly associated with homeless populations or areas of high population density/poor sanitation.

**Signs and Symptoms:** The first symptom may be a localized infection at the site of exposure appearing red/ swollen with a pustule. Enlarged lymph nodes usually near the site of infection which will appear within days or up to weeks after exposure. Oroya Fever symptoms include fever, body aches, abdominal pain, headache and anemia. Carrión's disease later phase, lesions appear under the skin as nodular growths, then emerge from the skin as red-to-purple vascular lesions that tend to ulcerate and bleed. Trench fever symptoms are fever, headache, a transient rash, and bone pain (mainly in the shins, neck/back).

**Treatment:** Seek medical care. Most cases of cat scratch disease (CSD) resolve without treatment, but other types can be more serious and require antibiotic treatment.

**Prevention:** Avoiding contact with cats. If contact is unavoidable, thoroughly wash hands after handling animals and try to minimize risks of being bitten or scratched or have contact with cat saliva. Reduce risk of Oroya fever by using insect repellants and avoid being outdoors when sand flies are most active at dusk and dawn. Trench fever prevention is aimed at avoiding exposure to human body lice.

***BLASTOMYCOSIS***

**Description:** Blastomycosis is disease caused by a fungus,

**Areas of Risk:** *Blastomyces dermatitidis*, which is found in parts of the south-central, south-eastern and mid-western United States. Microfoci are also found in Central and South America and parts of Africa. The fungus can be found in moist soil enriched with decomposing organic debris. There is a risk to individuals living or visiting in areas with endemic disease with exposures to wooded sites (e.g., farmers, forestry workers, hunters, and campers).

**Transmission:** The infection is spread by inhalation of airborne conidia (spores) after disturbance of contaminated soil, however, many people who inhale the spores do not get sick. Blastomycosis is not known to be transmitted from person to person.

**Signs and Symptoms:** Symptomatic infection (50% of cases) usually presents as a flu-like illness with fever, chills, productive cough, myalgia, arthralgia and pleuritic chest pain. Some patients fail to recover and develop chronic pulmonary infection or widespread disseminated infection (affecting the skin, bones and genitourinary tract in particular). Blastomycosis can also occasionally affect the central nervous system, resulting in meningitis. Symptoms may appear between 3 and 15 weeks after exposure.

**Treatment:** Blastomycosis requires treatment with antifungal drugs that must be prescribed by your doctor. Untreated infection can lead to complications and death.

**Prevention:**In endemic regions, it may not be possible to completely avoid exposure to the fungus. However, those who are immunocompromised may consider avoiding wooded areas where the fungus is prevalent.

***BOVINE SPONGIFORM ENCEPHALOPATHY AND VARIANT CREUTZFELDT-JAKOB DISEASE***

**Description:** Cattle strain found also in goats and sheep is Bovine Spongiform Encephalopathy (BSE or “mad cow disease”). Human strain is Creutzfeldt-Jakob disease (vCJD). It is a fatal brain disease with incubation periods measured in years. Important Note: Classic CJD is not related to "mad cow" disease. Classic CJD also is distinct from "variant CJD", another prion disease that is related to BSE.

**Areas of Risk:** Between 1996-2011 vCJD cases have been reported in the United Kingdom (175), France (25), Ireland (4), Netherlands (3), United States (3), Italy (2), Canada (2), Portugal (2), Japaj (1), Saudi Arabia (1), and Taiwan (1). Several of the cases in other countries were likely from exposure to the BSE agent while residing in the United Kingdom.

**Transmission:** vCJD is acquired by eating beef and beef products from cattle with BSE. With the compliance’s and effectiveness of public health measures the current risk is approximately 1 case per 10 billion servings. It can also be transmitted through blood transfusions and a person may be deferred from donating blood if they have lived in Europe from 1980-1996.

**Signs and Symptoms:** Confusion, visual disturbances, jerking movement, unsteadiness, and paralysis.

**Treatment:** No vaccine is available. No effective treatment is presently available. It is invariably fatal.

**Prevention:** Avoid consuming beef and beef products. Selecting solid pieces of beef muscle meat rather than brain or ground meats such as sausages or burgers may reduce chances of exposure to BSE contaminated beef products. It is *not believed* to be transmitted through milk or milk products.

***BRUCELLOSIS***

**Description:** Is an infectious bacterial disease. The sources of infection and the responsible organism vary according to geographic area. It is predominantly an occupational disease of those working with infected animals or their tissues, especially farm workers, veterinarians and more frequent among males. Sporadic cases and outbreaks occur among consumers of non-pasteurized milk and milk products (especially cheese) from cows, sheep and goats.

**Areas of Risk:** High-risk regions include the Mediterranean Basin, South and Central America, Eastern Europe, Asia, Africa, and the Middle East.

**Transmission:** The most common way to be infected is by eating or drinking unpasteurized/raw dairy products. When sheep, goats, cows, or camels are infected, their milk becomes contaminated with the bacteria. or enzootic.Exposure can also occur during preparation or consumption of undercooked contaminated meat. Bacteria can also enter wounds in the skin/mucous membranes through contact with infected animals. Breathing in the bacteria that causes brucellosis may also lead to infection. This risk is generally greater for people in laboratories that work with the bacteria. In addition, slaughterhouse and meat-packing employees have also been known to be exposed to the bacteria and ultimately become infected. Person-to-person spread of brucellosis is extremely rare. Infected mothers who are breast-feeding may transmit the infection to their infants. Sexual transmission has been rarely reported. While uncommon, transmission may also occur via tissue transplantation or blood transfusions.

**Signs and symptoms:** Incubation period is 2–4 weeks (range, 5 days to 5 months). Initial presentation is nonspecific, including fever, muscle aches, fatigue, headache, and night sweats. Continued, intermittent or irregular fever of variable duration, headache, weakness, profuse sweating, chills, arthralgia, depression, weight loss, generalized aching, and long term persistent symptoms could also include swelling of the liver, spleen, and/or heart.

**Treatment:** Seek medical treatment if symptoms persist

**Prevention:** Do not consume undercooked meat, unpasteurized dairy products, including: milk, cheese, and ice cream. Exercise care in handling and in the disposal of contaminated meat sources.

***BURULI ULCER***

**Description:** It is a disease caused by the bacteria *Mycobacterium ulcerans.* It destroys skin, underlying tissue and bones. It can cause disfigurations and deformities. It affects children, ages 2-14, more often than adults.

**Area of Risk**: Buruli ulcer has been reported in 33 countries in Africa, the Americas, Asia and the Western Pacific. Most cases occur in tropical and subtropical regions except in Australia, China and Japan. West Africa, Benin, Côte d’Ivoire and Ghana report most cases with Côte d’Ivoire reporting almost half of the global cases. Only 15 of the 33 countries reported data in 2012.

**Transmission:** The exact mode of transmission of M. ulcerans is still unknown. However, it appears that different modes of transmission occur in different geographic areas and epidemiological settings. There may be some role for living agents as reservoirs and as vectors of M. ulcerans, in particular aquatic insects, adult mosquitoes or other biting arthropods. In Victoria, Australia, Buruli ulcer also occurs in native wildlife and domestic animals. Laboratory-confirmed cases have been diagnosed in koalas, common ringtail possums, a common brushtail possum, a mountain brushtail possum, a long-footed potoroo, horses, dogs, alpacas and a cat. Incubation period is thought to be less than 3 months.

**Signs and Symptoms:** Buruli ulcer often starts as a painless swelling (nodule). It can initially also present as a large painless area of induration (plaque) or a diffuse painless swelling of the legs, arms or face (oedema). Without treatment or sometimes during antibiotics treatment, the nodule, plaque or oedema will ulcerate within four weeks with the classical, undermined borders. Occasionally, bone is affected causing gross deformities.

**Treatment:** Seek medical treatment

**Prevention:** There is not a vaccine available. Avoid high- risk areas.

***CAMPYLOBACTER ENTERITIS***

**Description:** An infection caused by a bacteria.

**Areas of Risk:** Campylobacter is a leading cause of bacterial diarrheal disease worldwide.

**Transmission:** consuming contaminated food (esp. undercooked/raw chicken or foods contaminated by raw chicken), water, or unpasteurized milk. It is also spread by contact with animals particularly farm animals.

**Signs and Symptoms:** Diarrhea (frequently bloody), abdominal pain, fever, nausea and vomiting. Some infected persons do not have any symptoms. In persons with compromised immune systems, Campylobacter occasionally spreads to the bloodstream and causes a serious life-threatening infection.

**Treatment:** Could include rehydration, this illness is usually self-limiting (and last up to a week), and antibiotic therapy. Almost all persons infected with Campylobacter recover without any specific treatment.

**Prevention:** Avoid ingestion of foods at high risk for contamination, practice water precautions, and have antibiotic preventive (if at high risk) or treatment available to take. Cook all poultry products thoroughly. If you are served undercooked poultry in a restaurant, send it back for further cooking. **Wash hands** with soap before preparing food, immediately after handling raw foods of animal origin, or if you have had contact with animal feces. Do not drink unpasteurized milk or untreated surface water

***CAPILLARIASIS***

**Description:** Capillariasis is a parasitic disease in humans caused by two different species of capillarids: *Capillaria hepatica* and *Capillaria philippinensis*.

**Areas of Risk:** Infection with *C. hepatica* is rare but has been reported worldwide. Infection with *C. philippinensis* is frequently found in the Philippines and Thailand. Some cases have been found in other Asian countries, the Middle East, and Colombia.

**Transmission:** can be transmitted human to human when eggs are deposited through human fecal matter into the soil. The eggs then become infective in the soil, and humans ingest infective soil directly by eating soil (pica) or indirectly through contaminated food or water. *C. philippinensis* cannot be transmitted human to human and requires the intermediate freshwater fish host. However, adult *C. philippinensis* worms in humans can release eggs that hatch into larvae in the intestine and cause hyperinfection.

**Signs and Symptoms:** When a human is infected with only one *C. hepatica* worm, there are often no signs or symptoms. With multiple worms and female worms that lay eggs continually, the clinical manifestations of *C. hepatica* include hepatitis, anemia, fever, hypereosinophilia, and even death. When a human is first infected with *C. philippinensis*, the signs and symptoms include general abdominal pain and diarrhea. Later on, nausea, vomiting, weight loss, and even death can occur.

**Treatment:** Seek medical care, The medications used to treat *C. hepatica* include thiabendazole and albendazole. However, *C. hepatica* is a rare infection and clinical experience is limited. Steroids have been used to help control the inflammation of the liver. To treat *C. philippinensis*, medications that can be used include mebendazole (200 mg twice a day for 20 days), and albendazole (400 mg a day for 10 days).

**Prevention:** to prevent both types of capillariasis, proper hygiene and disposal of fecal matter is important. 1) Specific latrines should be used that are both out of reach from animals and will not let fecal matter seep into the water or around the food supply. 2) Washing your hands with soap and warm water after touching or working with soil and before handling food. 3) Wash fruits and vegetables before eating them. 4)Do not eat raw or undercooked fish.

***CHAGAS DISEASE (Trypanosomiasis)***

**Description:**A disease caused by the protozoan parasite *Trypanosoma cruzi.*

**Areas of Risk:** found only in the Americas (mainly, in rural areas of Latin America where poverty is widespread) in Mexico, Central America, and South America. Rare cases have been reported in the United States.

**Transmission:** It is a parasite usually transmitted by contact with feces of an infected “kissing” or “cone nose” triatomine bug. These bugs infest poorly constructed buildings with cracks in the walls and roof, especially as the destruction of natural habitats in forested areas continues to occur. The person can become infected if T. cruzi parasites in the bug feces enter the body through mucous membranes or breaks in the skin. The unsuspecting person may accidentally scratch or rub the feces into the bite wound, eyes, or mouth. Dogs and other animals can transmit the disease through feces and foods that may have been contaminated with animal excrement. It can also be transmitted through organ transplants, blood transfusions, transplacental infection, and consumption of uncooked food contaminated with feces from infected bugs.

**Signs and Symptoms:** The acute infection may go undetected, however, fever, and local swelling at the site of the contact, especially around the eyes causing periophthalmic cellulitis. Symptoms can include fever, fatigue, body aches, headache, rash, loss of appetite, diarrhea, and vomiting. It can lead to heart and intestinal complications

**Treatment:** Seek medical attention if infection is suspected. Antiparasitic treatment is most effective early in the course of infection but is not limited to cases in the acute phase accompanied by symptomatic treatment.

**Prevention:** Avoid overnight stays in infested dwellings. If overnight stays are necessary, use long-lasting insecticide sprays in the house and mosquito netting while sleeping. Be aware of how and where food is prepared. No vaccine is available. Wear protective clothing, and applying insect repellent to exposed skin. Be aware of other possible routes of transmission, including bloodborne and foodborne.

***CHIKUNGUNYA***

**Description:** Chikungunya is an illness caused by a virus

**Areas of Risk:** Outbreaks have occurred in countries in Africa, Asia, Europe, and the Indian and Pacific Oceans. In late 2013, chikungunya virus was found for the first time in the Americas on islands in the Caribbean. **Transmission:** Spread mostly via the bite of an infected mosquito of the *Aedes* spp., rarely is it transmitted through blood transfusions or from mother to newborn around the time of birth. The mosquito that carries chikunguya can bites more during the day, both indoors and outdoors, and often lives around buildings in urban areas.

**Signs and Symptoms:** include fever, headache, tiredness, nausea, vomiting, rash, and muscle or joint pain.  Symptoms usually last for a few days to a few weeks, but some people may feel tired for several weeks. **Treatment:** Treat symptoms with rest, fluids, and use of analgesics and fever reducers. Contact a medical provider if you feel seriously ill, especially if you have a fever, and report your travel.

**Prevention:** Avoid mosquito bites, wear long-sleeved shirts and long pants. For information on insect repellents go to <http://www.cdc.gov/westnile/faq/repellent.html>

***CHOLERA***

**Description:** It is an acute intestinal infection which is usually mild and self-limited.

**Areas of Risk:** Cholera occurs in many countries of the world and may occur anywhere that sanitary conditions deteriorate. It remains endemic in much of Africa and South and Southeast Asia.

**Transmission:** It is most often acquired from drinking water in which V. cholerae is found naturally or into which it has been introduced from the feces of an infected person. Other common vehicles include contaminated fish and shellfish. Other foods, including produce, are less commonly implicated. Direct transmission from person to person is not frequent. It may be found in seafood beds and transmitted by eating raw or undercooked seafood.

**Signs and symptoms:** Cholera infection is most often asymptomatic or results in a mild gastroenteritis. Severe cholera is characterized by acute, profuse watery diarrhea, described as “rice-water stools,” and often nausea and vomiting. Additional symptoms, including muscle cramps, are secondary to the resulting electrolyte imbalances. If untreated, rapid loss of body fluids can lead to severe dehydration, hypovolemic shock, and death within hours

**Treatment:** Seek medical attention. Re-hydration and antimicrobial agents for the specific strain are indicated in moderate to severe strains.

**Prevention:**  Cholera vaccine is not available in the United States. It is not recommended by the CDC, due to its brief and incomplete immunity.

**Follow the recommendations for safe food and water consumption on page 3**

***CIGUATERA FISH POISONING***

**Description:** Ciguatera Fish Poisoning is caused by ciguatoxin found in coral reef fish.

**Area of Risk:** It is most prevalent in fish of the Caribbean Sea and Pacific and Indian Oceans.

**Transmission:** Ingesting fish infected with the ciguatoxin. Freezing and cooking do not change the toxin.

**Signs and Symptoms:** Abdominal pain, nausea, vomiting, diarrhea followedby weakness, dysesthesias (numbness and tingling sensation), taste disturbance, diarrhea, nausea and vomiting, abdominal cramping.

**Treatment:** Seek medical attention if symptoms develop.

**Prevention:** Do not eat or limit the amount of coral reef fish eaten. Fish especially high in ciguatoxin include: Barracuda, Jack, Grouper, Sea Bass, Moray Eel, although there are nearly 50 species that can cause disease. Parts of the fish with highest concentration of this toxin include the head, guts, and liver. The flesh of the barracuda contains the most toxins. Be especially wary of roe or soups made with these parts of the fish.

***CLONORCHIASIS & OPISTHORCHIASIS***

**Description:** Both are a type of liver fluke one *Clononrchis sinensis* and the *Opisthorchis.* The flukes migrate to the biliary ducts.

**Areas of Risk:** Clonorchiasis can be found inLaos, China, Korea, Thailand, Hong Kong, Japan, Vietnam, Taiwan. Opisthorchiasis is found in a wide geographical area extending from eastern Europe to central Asia and Siberia.

**Transmission:** Ingestion of imported, raw, undercooked, salted, smoked, marinated, dried, poorly cooked, or pickled infected fresh water fish or shell fish.

**Signs and Symptoms:** Abdominal pain, nausea, vomiting, diarrhea followedby weakness, dysesthesias (numbness and tingling sensation), taste disturbance, diarrhea, nausea and vomiting, abdominal cramping. Most individuals have no symptoms. Symptoms may include: low grade fever, malaise, diarrhea, nausea, upper mid to right sided abdominal pain, jaundice, and enlarged liver.

**Treatment:** Seek medical care. Medications such as Praziquantel or Albendazole could be used in treatment.

**Prevention:** Eat only well-cooked fish.

***COCCIDIOIDOMYCOSIS***

**Description:** Is also referred to as “Valley Fever” it is caused by a fungus found in the soil.

**Areas of Risk:** Areas in the Americas with warm/hot climates with yearly rainfall of 5-20 inches. The U.S. states include: Arizona, California, Nevada, New Mexico, Texas, and Utah (highly endemic areas such as the Phoenix and Tucson metropolitan areas of Arizona). Outside the U.S. it is endemic in parts of Argentina, Columbia, Brazil, Honduras, Guatemala, Nicaragua, Venezuela, Paraguay, and Mexico (Central and South Americas).

**Transmission:** It is acquired through inhalation of fungal spores from dust generated by natural disasters or human activities. Those working in outdoor activities such as construction, landscaping, mining, farming, excavation, recreational activities, and military maneuvers are at higher risk. Natural disasters like earthquakes and dust storms/ windstorms increase risk of exposure. Valley fever is not person-to- person contagious

**Signs and Symptoms:** The incubation period is 7-21 days. Sixty percent of the cases are asymptomatic. Those who do have symptoms are usually self limiting and would include fever, headache, muscle aches, rash on upper body or legs, dry cough, fatigue, night sweats, shortness of breath, weight loss, and malaise. In rare cases severe lung disease will develop those that develop severe illness are the elderly and persons with chronic health conditions.

**Treatment:** Treatment is usually not needed, for many people, the symptoms of valley fever will go away within a few months. Anti-fungal medications such as Fluconazole would be used for 3-6 months or longer to treat severe disease. An infectious disease specialist should be consulted. Talk to your healthcare provider about whether you need treatment.

**Prevention:** Complete prevention is impossible. To decrease risks limit outdoor dust exposure in endemic areas by controlling dust by wetting down the soil, and wearing well-fitting dust masks. Clean skin injuries well with soap and water to reduce the chances of developing a skin infection, especially if the wound was exposed to dirt or dust. No vaccine is available.

***CRIMEAN-CONGO HEMORRHAGIC FEVER***

**Description:** Crimean-Congo Hemorrhagic Fever (CCHF) is a viral hemorrhagic fever.

**Areas of Risk:** Is endemic in many countries in Africa, Middle East, Eastern Europe, particularly in the former Soviet Union, throughout the Mediterranean, in northwestern China, central Asia, southern Europe, and the Indian subcontinent

In 2001 cases or outbreaks were reported in Albania, Iran, Pakistan, Kosovo, and South Africa.

**Transmission:** People can become infected with the virus by direct contact with blood or infected tissues from livestock or from a tick bite. The majority of the cases reported involved individuals working in the livestock industry. CCHF can be transmitted from one infected human to another by contact with infectious blood or body fluids.

**Signs and symptoms:** The incubation period can vary depending on the mode of acquisition. If infected from a tick bite the incubation period is 1-3 days, with a possible maximum time of 9 days. Those contracted through infected blood or tissue the incubation period is 5-6 days with a possible maximum time of 13 days. Onset of symptoms is usually sudden, with high fever, lethargy, headache, dizziness, neck/back pain and stiffness, and abdominal pain. Nausea and vomiting, diarrhea, red eyes, flushed face, and sore (red) throat may occur early in the illness. The symptoms may progress over the next few days. These could include, jaundice, changes in mood and sensory perception, aggressive behavior, and confusion followed within a few days by sleepiness, depression and upper right sided abdominal pain. A petechial rash (a rash caused by the small blood vessels bleeding under the skin) or larger bruises may occur anywhere on the body. Crimean-Congo Hemorrhagic Fever mortality rates vary from 9-50%.

**Treatment:** If you develop symptoms it is important to seek medical care.

**Prevention:** Presently there is not a safe and effective vaccine available for use in humans. While living in endemic areas use personal protective measures. These would include avoiding areas where abundant tick vectors have been found. Especially in the Fall and Spring when they are active. Follow tick precautions such as, examining clothing and skin for ticks, and use DEET-type repellents. Dress appropriately by wearing light colored clothing, a hat or head covering, long sleeves and have pants tucked into socks. Remove ticks immediately.

***CRYPTOSPORIDIOSIS***

**Description:** Is a parasitic infection caused by *Cryptosporidium parvum* or other similar species.

**Areas of Risk:** This disease occurs worldwide. The risk would be greater for travelers going to resource-poor countries. Outbreaks have been reported in North America, Europe, Latin America, Australia, and Asia.

**Transmission:** Transmission is through ingestion of fecal contaminated water or food (you can become infected if you swallow the parasite). It would include water swallowed when swimming, from person to person via fecal-oral route (caring for an infected person, changing diapers, or certain sexual behaviors), or exposure of contaminated environmental surfaces. The parasite lives in soil, food and water. It may also be on surfaces that have been contaminated with waste. **Signs and Symptoms:** Abdominal cramping, watery diarrhea, fever, and vomiting. The symptoms usually last 6-10 days or could last several weeks. It can be chronic or fatal to those individuals with severely weakened immune systems.

**Treatment:** Most people who have healthy immune systems will recover without treatment. A medication suspension of Nitaxozanide is used. Consulting an infectious disease specialist is recommended.

**Prevention:** No vaccine is available. Follow safe food and water precautions. Wash hands with soap and water for at least 20 seconds, rubbing hands together vigorously and scrubbing all surfaces. Wash hands after gardening, even if wearing gloves. Minimize contact with the feces of all animals and wash hands after any contact with animals or their living areas. Shower before entering the water, and do not swim if you have a diarrheal illness. Cryptosporidiosis is not likely to be inactivated by chlorine or iodine disinfection. Do not drink untreated water from lakes, rivers, springs, ponds, streams, or shallow wells. Use safe, uncontaminated water to wash all food that is to be eaten raw. Avoid eating uncooked foods when traveling in countries with poor water treatment and food sanitation. Treat water by filtration with an absolute 1-micron filter or by boiling.

***CYCLOSPORIASIS***

**Description:** Cyclospora is a microscopic parasite that can affect the intestinal tract and cause diarrhea.

**Areas of Risk:** It can be contracted worldwide. In North America outbreaks have been associated with various imported fresh produce. Cyclosporiasis is most common in tropical or subtropical regions of the world.

**Transmission:** Transmission is through ingestion of contaminated water or food with symptoms starting about a week after ingestion. Person to person transmission is unlikely.

**Signs and Symptoms:** An infected person may not have any symptoms or could have loss of appetite, watery diarrhea, bloating, weight loss, stomach cramping, nausea, vomiting, muscle aches, fatigue and low-grade fever. Untreated illness can last weeks or months.

**Treatment:** The medication of choice is trimethoprim-sulfamethoxazole. Consult your health care provider.

**Prevention:** No vaccine is available. There is an increase risk to traveler’s going to poor-resource countries. Risks also vary according to seasons. Avoid water or food that may be contaminated with stool or feces. Thoroughly wash fruits and vegetables. Follow safe food and water recommendations.

***CYSTICEROSIS***

**Description:** Is a parasitic infection caused by pork tapeworms.Cysticercosis is a parasitic tissue infection caused by larval cysts of the tapeworm *Taenia solium*. These larval cysts infect brain, muscle, or other tissue, and are a major cause of adult onset seizures in most low-income countries.

**Area of Risk:** Worldwide. Most often found in rural areas and developing countries. The highest rates of infection are found in areas of Latin America, Asia, and Africa that have poor sanitation and free-ranging pigs that have access to human feces.

**Transmission:** The tapeworm larvae are ingested through contaminated water or food and form a cyst. A person gets cysticercosis by swallowing eggs found in the feces of a person who has an intestinal tapeworm. People living in the same household with someone who has a tapeworm have a much higher risk of getting cysticercosis than people who don’t. It is also transmitted y putting contaminated fingers in mouth.

**Signs and Symptoms:** When the ingest larvae hatches it penetrates the intestinal wall and travels through the blood. It then forms cysts in the muscles, brain or eyes. If present in the muscle it will generally not cause symptoms. Lumps may be felt under the skin. If found in the brain symptoms will depend on the cyst location. The most common symptoms are headaches or seizures. Sudden death can occur in heavy infections. It is rare for the cysts to form in the eye but it may cause floaters and disturb or blur vision. It can cause retinal swelling or detachment.

**Treatment:** Some people with cysticercosis do not need to be treated. There are medications available to treat cysticercosis for those who do need treatment. Seek medical attention. Anti-parasitic and anti-inflammatory medications are used in treatment.

**Prevention:** Avoid eating or drinking contaminated water or food. Do not eat raw or undercooked pork or meat from infected animals. Maintain and instruct children in good hand washing with soap and warm water after using the toilet, changing diapers, and before handling food. Wash and peel all raw vegetables and fruit. Drink bottled water.

***DENGUE FEVER***

**Description**: Is a disease caused by any one of four closely related dengue viruses (DENV 1, DENV 2, DENV 3, or DENV 4).

**Areas of Risk:** Occurs in most in tropical climates found in the Caribbean, South/Latin America, the South Pacific, South and Southeast Asia, Puerto Rico, US virgin Islands, and US-affiliated Pacific Islands. Recent, locally acquired infections have been reported in Texas-Mexico border area, Florida, and Hawaii. **Transmission:** The Dengue viruses are transmitted to humans by the bite of an infected mosquito.These bites can occur during daylight hours, indoors, in shady areas or if weather is overcast.

**Signs and symptoms:** Sudden onset after an incubation period of 4-7 days (range of 3-14 days) notingfever, intense headache, pain behind the eyes, joint and muscle pains, nausea and vomiting. When the fever declines, these additional symptoms may develop including persistent vomiting, severe abdominal pain, and difficulty breathing. A rash, or tendency to bruise easily (other types of skin hemorrhages), bleeding nose or gums, and possibly internal bleeding may be noted.About 75% of Dengue fever cases are asymptomatic.

**Treatment:** Travelers should seek medical attention if any febrile illness occurs within two weeks of being exposed to mosquitoes. A blood test for determination of Dengue Fever is necessary.

**Prevention:** Avoid mosquito bites. Select accommodations with well-screened window and doors or air conditioned areas when possible, wear clothing that covers arms and legs, and apply mosquito repellent containing DEET (at least 20-30%, Deep Woods Off, Repel and Ultrathon). Empty and clean or cover any standing water that can be mosquito breeding sites. The longer duration of travel the higher the incidence. No vaccine is available.

***DIPHYLLOBOBTHRIASIS (FISH TAPEWORM DISEASE)***

**Description:** *Diphyllobothrium latum* (the fish or broad tapeworm), the largest human tapeworm

**Areas of Risk:** Diphyllobothriasis occurs in the Northern Hemisphere (Europe, North America, and Asia), Uganda, Japan, Soviet Union, and in South America (Uruguay and Chile).

**Transmission:** Ingestion of raw, pickled, smoked, or undercooked freshwater fish. The fish could be ingested by, tasting the fish while cooking, consuming raw cod “lutefish”, or eating at a sushi bar.

**Signs and Symptoms:** Abdominal cramping, weight loss, vomiting, and diarrhea. Fatigue and anemia may be caused from a Vitamin B12 deficiency (due to the tapeworm depleting this important vitamin).

**Treatment:** Seek medical care for possible prescription medication.

**Prevention:** Avoid eating infected raw or undercooked fresh fish. Adequate cooking or freezing of freshwater fish will kill the encysted fish tapeworm larvae. Also, because human feces is an important mechanism for spreading eggs, proper disposal of sewage can cut down on infection of fish and thus of humans.

***DIPHTHERIA, TETANUS, AND PERTUSSIS***

**Description:** Diphtheria: an acute bacterial infection of the pharynx, larynx, tonsils, skin, nose, and mucous membranes. Tetanus: an acute disease causing muscle spasms and rigidity often noted first in jaw and neck. Pertussis: and acute bacterial infection of the respiratory tract.

**Areas of Risk:** Diphtheria is found throughout much of the world. Diphtheria is endemic in many countries in Africa, South America, Asia, the South Pacific, the Middle East, and Eastern Europe and in Haiti and the Dominican Republic. Diphtheria and pertussis are found worldwide, more frequently in areas where vaccination levels are low. Tetanus is more common in agricultural regions, where there is potential contact with soil or animal excreta is more likely to occur and can occur anywhere in the world in unvaccinated individuals.

**Transmission:** Diphtheria is transmitted from person to person especially in crowded conditions which foster the sharing or respiratory secretions. Tetanus is a disease caused by an anaerobic bacillus. Infected wounds can be superficial or deep and are contaminated from contact with dirt, feces or saliva, or exposure to other infected wounds. Five to ten percent of reported tetanus cases are not associated with any type of open wound contamination. Pertussis is highly contagious and spread person to person by respiratory droplets in the air or direct contact with respiratory secretions.

**Signs and Symptoms:** Diphtheria has an incubation period of 2-5 days with symptoms of mucous membranes of the upper respiratory tract, the skin, and rarely other sites. Tetanus has an incubation period of 3-21 days and is an acute disease with noted muscle spasm and rigidity especially of the neck and jaw. Pertussis incubation period is 7-10 days (range of 6-21 days) after exposure and is characterized by prolonged “whooping” paroxysmal coughing or post-coughing episode vomiting with a duration of cough of longer than 2 weeks.

**Treatment:** Seek medical care.

**Prevention:** Vaccine is available for all these diseases and is given as a series in infancy and early childhood. The Tdap (tetanus, diphtheria, and pertussis) is an adult booster vaccine. After the initial series an adult dose of tetanus and diphtheria vaccine should be given every 10 years.

***DRACUNCULIASIS***

**Description:** Is a parasitic disease/nematode worm.

**Areas of Risk:** It is found mainly in remote parts of Africa that do not have safe water to drink.

**Transmission:** Following drinking infested water It is caused by drinking water containing water fleas (*Cyclops* species) that have ingested *Dracunculus* larvae

**Signs and Symptoms:** Burning and itching of the skin in the area of the lesion (usually on the leg or foot), fever, nausea, vomiting, diarrhea, shortness of breath, and the possible visualization of the adult worm protruding from the skin.The female worms move through the person’s subcutaneous tissue, causing intense pain, and eventually emerge through the skin, usually at the feet, producing edema, a blister and eventually an ulcer, accompanied by fever, nausea, and vomiting.

**Treatment:** Seek medical attention.

**Prevention:** Follow safe food and water precautions. There is not a vaccine to prevent it.

***ECHINOCOCCOSIS***

**Description:** [Cystic echinococcosis (CE)](http://www.cdc.gov/parasites/echinococcosis/gen_info/ce-faqs.html) disease results from being infected with the larval stage of Echinococcus granulosus, a tiny tapeworm (~2-7 millimeters in length) found in dogs (definitive host), sheep, cattle, goats, foxes, and pigs, amongst others (intermediate hosts). [Alveolar echinococcosis (AE)](http://www.cdc.gov/parasites/echinococcosis/gen_info/ae-faqs.html) disease results from being infected with the larval stage of Echinococcus multilocularis, a tiny tapeworm (~1-4 millimeters in length) found in foxes, coyotes, dogs, and cats (definitive hosts).

**Areas of Risk:** Cystic echinococcosis (CE) is found in Africa, Europe, Asia, the Middle East, Central and South America, and in rare cases, North America. Alveolar echinococcosis,AE is found across the globe and is especially prevalent in the northern latitudes of Europe, Asia, and North America.

**Transmission**: In CE the most common mode of transmission to humans is by the accidental consumption of soil, water, or food that has been contaminated by the fecal matter of an infected dog. **In** AE, the adult tapeworm is normally found in foxes, coyotes, and dogs. Infection with the larval stages is transmitted to people through ingestion of food or water contaminated with tapeworm eggs

**Signs and Symptoms:** Symptoms with both CE and AE will vary depending on location of cysts**.** In the diagnosis of CE, imaging techniques, such as CT scans, ultrasonography, and MRIs, can be used to detect cysts. After a cyst has been detected, serologic tests may be used to confirm the diagnosis. In AE, imaging techniques such as CT scans are used to visually confirm the parasitic vesicles and cyst-like structures and serologic tests can confirm the parasitic infection.

**Treatment:** Seek medical care.

**Prevention:** With **CE**, do not consume any food or water that may have been contaminated by fecal matter from dogs. In **AE** void contact with wild animals such as foxes, coyotes and stray dogs, do not encourage wild animals to come close to your home or keep them as pets. With **both** wash your hands with soap and warm water after handling dogs, cats, or other animals, and before handling food.

***EHRLICHIOSIS***

**Description:** Ehrlichiosis is the general name used to describe several bacterial diseases that affect animals and humans.

**Areas of Risk:** Ehrlichiosis is most commonly reported in the southeastern and south-central United States where the lonestar tick, and the upper Midwest. In Europe and Asia, transmission of monocytic ehrlichiosis appears to be due primarily to Ehrlichia chaffeensis or related organisms, which may also occur in Brazil, Panama, South Africa, and Africa. 3.3-26 cases per million in Arkansas, Delaware, Kentucky, Maryland, Missouri, New Jersey, North Carolina, Oklahoma, Tennessee, Virginia, and Wisconsin.

**Transmission:** Ehrlichiae are [transmitted](http://www.cdc.gov/ticks/life_cycle_and_hosts.html) to humans by the bite of an infectedtick.It is caused by the bacteria, “rickettsiae”. This disease attacks the white blood cells. It is transmitted through the bite of an infected tick most likely the deer or Lone Star ticks.

**Signs and Symptoms:** Sudden onset of high fever, major muscle aches, fatigue, severe headache, vomiting, diarrhea, confusion, and possible rash. Symptoms appear 3-16 days after the tick bite. Severe clinical presentations may include difficulty breathing, or bleeding disorders. The estimated case fatality rate (i.e. the proportion of persons who die as a result of their infection) is 1.8%.

**Treatment:** It is important to seek medical care. Lab tests can be done to detect the bacteria but testing is not always widely available.Lab findings might also include a low white blood cell count, low platelet count and abnormal liver function tests. Tell your health care provider your history of exposure. This infection can be treated with antibiotics.

**Prevention:** There is not a vaccine available to protect humans. To reduce your risk, take the following

precautions: the proper use of insect or tick repellents or insecticides and acaricides, self-examination after visits to vector-infested areas, and wearing protective clothing are ways to reduce risk. And avoiding areas where abundant tick vectors have been found.

***ENCEPHALITIS (TICKBORNE)***

**Description:** Is a viral infection the affects the central nervous system.

**Areas of Risk:** In temperate regions of Europe and Asia, (from eastern France to northern Japan and from northern Russia to Albania). It is known to be endemic in Austria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Italy, Latvia, Lithuania, Norway, Poland, Romania, Slovakia, Slovenia, Sweden, and Switzerland. Asian countries include: China, Japan, Kasakhstan, Syrgyzstan, Mongolia, and South Korea.

**Transmission:** It is transmitted through the bite of an infected tick or consuming unpasteurized dairy products from infected goats, cows or sheep.The risk is low to those travelers who do not visit or work in forested areas or consume contaminated dairy products. There is greater risk with extensive unprotected outdoor activities in rural and forested areas.

**Signs and Symptoms:** About 2/3rds of infections do not have symptoms. The incubation period is about 8 days (range, 4-28 days) the milk-born type is 3-4 days. Onset is usually with fever, headache, myalgia, and fatigue, in the first phase with the symptoms of the second phase being altered mental state, tremors, decrease use of extremities, cognitive dysfunction.

**Treatment:** Seek medical treatment. **Prevention:** Vaccine is not available in the United States but vaccine is available in Europe, Canada, Russia, and China through travel clinics. Avoid tick infested areas and follow insect precaution instructions. Avoid consuming unpasteurized dairy products.

***FASCIOLIASIS***

**Description:** Is a parasitic disease caused by flatworms, *fasciola hepatica* (the sheep liver fluke).

**Areas of Risk:** Worldwide. Human cases reported in area where cattle and sheep are raised. Particularly high rates in: Bolivia, Egypt, Peru, Iran, Portugal and France. It is more limited in Africa, the Middle East, and South and East Asia.

**Transmission:** Through ingestion of contaminated water or water plants such as watercress. The water contaminated by feces of infected sheep or cattle. Transmission also occurs with consumption of raw liver from an infected goat, cow or sheep.

**Signs and Symptoms:** The acute phase usually begins 6-12 weeks after infection and can last 4 months. Most individuals are without symptoms. But symptoms might include: abdominal pain, enlargement of the liver, itching of skin, intermittent high fever, weight loss, the chronic phase may include , stomach pain, nausea, jaundice, and itching skin.

**Treatment:** Seek medical care. The drug of choice in treatment is triclabendazole with nitrazoxanide as a alternative.

**Prevention:** Avoid consumption of potentially contaminated water and water plants(water cress, mint, parsley). Do not eat raw liver.

***FILARIASIS***

**Description:** Is caused by adult worms that live in the lymphatic vessels.

**Areas of Risk:** Occurs in most warm humid regions of the world and travelers are at low risk. It is found in sub-Saharan Africa, Southern Asia, Egypt, the northeastern coast of Brazil, the western Pacific Islands, Guyana, Haiti and the Dominican Republic

**Transmission:** Filariasis is transmitted by the bite of a mosquito harboring infective larvae.

**Signs and Symptoms:** Most individuals will not have symptoms. Lymph system dysfunction may cause lymphedema in legs, scrotum, penis, arms, or breasts years after infection. Painful acute swelling of an extremity or other part of the body, fever, or chills due to bacterial superinfection. This disease could also affect the lungs causing nocturnal, wheezing, coughing and fever. Not directly transmitted from person to person.

**Treatment:** Seek medical care. The drug of choice for treatment is diethylcarbamazine through the CDC.

**Prevention:** Identify times and places of mosquito biting and locate breeding places. If indoor night-biters are responsible, spray inside walls with a residual insecticide, screen houses, or use bed nets and insect repellents. Follow mosquito precautions. No vaccine is available.

***GIARDIASIS***

**Description:** Is a diarrheal illness caused by protozoa.

**Areas of Risk:** It is most commonly diagnosed in travelers returning from south Asia, the Middle East, and South America. The infection increases with the duration of travel.

**Transmission:** Is transmitted by ingesting fecal contaminated food and/or water. Person-to-person transmission occurs by caring for an infected person or sexual contact. Contact with environmental surfaces and swallowing infected recreational water can also spread the illness.

**Signs and Symptoms:** Symptoms begin approximately 1-2 weeks after parasitic ingestion and resolve within 2-4 weeks. Symptoms could include: chronic diarrhea (foul smelling, greasy stools), abdominal cramps, bloating, flatulence, anorexia, nausea, fatigue, and weight loss.

**Treatment:** Seek medical treatment. Antimicrobial medications, such as metronidazole, are usually effective in treatment.

**Prevention:** Be aware of personal hygiene and the need for hand washing before eating and after toilet use. Follow safe food and water precautions. No vaccine is available.

***GNATHOSTOMIASIS***

**Description:** A type of roundworm parasite, it is caused by several species of parasitic worms

**Areas of Risk**: Gnathostomiasis is most commonly diagnosed in Asia, particularly in Thailand, other parts of Southeast Asia, and Japan. The parasite has also been found in other areas, including South and Central America and Africa, and the diagnosis is increasingly recognized in these areas.

**Transmission:** It is primarily transmitted by eating undercooked or raw freshwater fish, eels, frogs, birds, and reptiles. People might also become infected by swallowing infected water fleas.

**Signs and Symptoms:** During this early phase, many people have no symptoms or they may experience fever, excess tiredness, lack of appetite, nausea, vomiting, diarrhea, or abdominal pain. Later, when the parasite moves under the skin, people may experience swellings under the skin that may be painful, red, or itchy. The swellings move around and typically are not pitting, which means that if you push on the swelling with a finger an indentation is not left behind. The swellings often begin within 3 to 4 weeks after ingestion of the parasite, but they can occur up to around 10 years after infection. Rarely, *Gnathostoma* can enter other parts of the body and cause other various symptoms.

**Treatment:** Seek medical treatment. Medications such as, albendazole or ivermectin could be used. Surgical removal if indicated

**Prevention:** Don't eat undercooked or raw freshwater fish, eels, frogs, birds, and reptiles, particularly if you are in an area of the world where the parasite is commonly found. Marinating freshwater fish in lime juice, as is done in ceviche, does not kill the parasite. Avoiding contaminated freshwater in areas where the parasite is commonly found, washing your hands with soap and warm water before and after preparing food, or wearing gloves when handling raw tissue from animals that might be infected. Follow safe water recommendations.

***HANTAVIRUS PULMONARY SYNDROME (HPS)***

**Description:** Hantavirus is a viral infection that can cause serious respiratory illness.

**Areas of Risk:** It is spread by rodents, and is found in many places throughout the world. Cases of HPS have been confirmed elsewhere in the Americas, including Canada, Argentina, Bolivia, Brazil, Chile, Panama, Paraguay, and Uruguay. Risk areas are rural areas where forests, fields, and farms offer suitable habitat for the virus's rodent hosts. The peridomestic setting (for example, barns, outbuildings, and sheds) are potential sites where people may be exposed to the virus. In the US and Canada, the Sin Nombre hantavirus is responsible for the majority of cases of HPS.

**Transmission:** Infected rodents spread the disease through urine, saliva, droppings, and in nesting materials. Exposure to the virus can occur by coming in contact with droppings or with things that the rodents have handled, eaten, or lived in. Disturbing a nest or sweeping up droppings can spread the virus through the air. The virus is mainly transmitted to people when they breathe in air contaminated with the virus. The types of hantavirus that cause HPS in the United States cannot be transmitted from one person to another.

**Signs and Symptoms:** Symptoms develop 1 to 5 weeks after exposure to the virus. Early symptoms include fatigue, fever, muscle aches, headache, dizziness, chills, nausea, vomiting, diarrhea, and abdominal pain. Late symptoms occur 4 to 10 days after exposure and include coughing, rash, and shortness of breath. It is a potentially fatal disease.

**Treatment:** Seek medical treatment. If you have been around rodents and have symptoms of fever, deep muscle aches, and severe shortness of breath, see your doctor immediately. Be sure to tell your doctor that you have been around rodents—this will serve as an alert to your physician to look closely for any rodent-carried disease, such as HPS.

**Prevention:** Avoid contact with rodents and areas where they may have nested, including garbage cans/woodpiles. Do not disturb their dens or nests. Keep food/ food scraps in tightly covered containers and wash all dishes and utensils immediately after use. Many people who have contracted HPS reported that they had not seen rodents or their droppings before becoming ill. Therefore, if you live in an area where the carrier rodents, such as the deer mouse, are known to live, take sensible precautions-even if you do not see rodents or their droppings.

***HEPATITIS A***

**Description:** Is a caused by hepatitis A virus (HAV) that infects the liver.

**Areas of Risk:** Hepatitis A occurs throughout the developing world, but is less common in developed countries, such as the United States. Even in the United States community outbreaks still occur. Many travel-related cases occur in persons traveling to developed countries with “standard tourist accommodations, itineraries and food consuming behaviors.”

**Transmission:** Viral Hepatitis is transmitted from person-to-person through the fecal-oral route, and through ingesting contaminated food, ice, water, or shellfish, raw fruits and vegetables, or other foods harvested from contaminated environment.

**Signs and Symptoms:** The average incubation period is 28 days (range 15-50 days). Symptoms could include an abrupt onset of fever, malaise, anorexia, nausea, and abdominal discomfort, followed within a few days by jaundice (yellowing of skin and eyes). It is possible to be asymptomatic or mildly ill for 1-2 weeks or it could be severely disabling for several months. Hepatitis A is not a chronic or long-term infection.

**Treatment:** Seek medical treatment.

**Prevention:** Consider Hepatitis A vaccine for travel to developing countries, especially to rural areas, poor or unsanitary settings, and close contact with local persons. Hepatitis A vaccine requires two doses, 6-12 months apart. The first dose of Hepatitis A vaccine should be given at least 4 weeks before travel. For long term protection, the second dose should be given 6-12 months after the first.

**Follow the recommendations for safe food and water consumption.**

***HEPATITIS B***

**Description:** Is a viral infection of the liver caused by the Hepatitis B virus (HBV).

**Areas of Risk:** The risk for Hepatitis B Virus (HBV) infection from international travel is generally low except for travelers to countries where it is endemic. Hepatitis B is most common in some countries in Asia, Africa, South America and the Caribbean.

**Transmission:** HBV is primarily transmitted through activities which result in exchange of blood or body fluids, such as unprotected sexual intercourse with an infected person, use of contaminated, non-sterilized syringes or needles for any skin-piercing, procedures, including drug use, tattooing, body piercing, injections, or acupuncture. Work in health and dental care, or research activities may increase exposure risk. In less developed countries, open skin lesions in children with impetigo, scabies, or scratched bites may pose a risk.

**Signs and Symptoms:** The average incubation period is 90 days (range 60-150 days). Symptoms would include malaise, fatigue, decreased appetite, nausea, abdominal pain, vomiting, and jaundice (yellowing of skin). Other symptoms might include skin rashes, joint pain, and arthritis. Chronic infection can occur in 30-90% in infants and young children, and less than 5% in adolescence or adults. Chronic infection can cause scarring of the liver, liver cancer and chronic liver disease.

**Treatment:** Seek medical treatment.

**Prevention:** HB vaccine is recommended for all persons who work in health care fields (medical, dental, and laboratory) which may increase exposure to HBV and also to individuals who reside in an endemic area for greater than 6 months. In an ideal situation the vaccination series should be started 6 months prior to travel. Some protection is provided after 1-2 doses are given. Optimal protection is not received until after the final vaccine dose is given.

***HEPATITIS C***

**Description:** Hepatitis C is a disease of the liver caused by the Hepatitis C virus (HCV).

**Transmission:** It is transmitted by exchange of blood through blood transfusions, untreated clotting factors, or sharing drug injecting equipment. In developing countries , unsterile medicinal and other injection practices account for many HCV infections. It is less commonly spread through other procedures that involve blood exposure, like tattooing and during sexual activity.

**Areas of Risk:** Hepatitis C is most common in some countries in Asia, the former Soviet Union, the Middle East, Latin America, Eastern Europe, and Africa, but it occurs in nearly every part of the world. Traveler’s risk of this infection is low, but travelers could become infected if they receive a transfusion of unscreened blood, have medical or dental procedures in a developing country, get tattoos or piercings or receive acupuncture with needles that are not sterile, or have sex with an infected person.

**Signs and Symptoms:** Eighty percent of persons with acute HCV have no symptoms. If present, symptoms may include; decreased appetite, fatigue, nausea, abdominal pain, dark urine and jaundice. Severe liver disease occurs in 10-20% of infected individuals.

**Treatment:** Seek medical care.

**Prevention:** No vaccine is available. Be aware of risks and transmission through blood and contaminated equipment used for medical, surgical, dental, tattooing, body piercing and drug use.

***HEPATITIS E***

**Description:** Is an inflammation of the liver caused by the Hepatitis E virus (HEV).

**Areas of Risk:** Hepatitis E is endemic in many tropical and subtropical countries. Outbreaks have also been reported in South and Central Asia, tropical East Asia, Africa, and Central America. Sporadic cases have been reported from the Middle East, temperate East Asia (including China), North and South America, and Europe. In Japan, Hep E can be associated with eating meat and offal (including liver) of deer, boars, and pigs. In France it can be acquired from eating *figatellu*, a sausage delicacy made from raw pig liver. Shellfish can also transmit Hep E. Rarely is it transmitted from blood tranfusions.

**Transmission:** Hepatitis E is transmitted from person-to-person through the fecal-oral route, and through ingesting contaminated food or water.

**Signs and Symptoms:** The incubation period ranges from 2-9 weeks with the average period being 6 weeks. Symptoms could include, jaundice, loss of appetite, fatigue, abdominal pain, nausea, and fever.

**Treatment:** Seek medical treatment. Hepatitis E is usually self-limiting and supportive treatment is given. There is an increased risk of fulminant hepatitis particularly in pregnant women. Hepatitis E should be considered in returned travelers with fever and Hepatitis (any form). Travelers should seek medical attention if any febrile illness occurs within 2 weeks of returning home.

**Prevention:** Avoid drinking unboiled or unchlorinated water and beverages that contain unboiled water or ice. Eat only thoroughly cooked foods, including meat, seafood, offal, and other products derived from these. Be vigilant about hand washing. **Follow the recommendations for safe food and water consumption.**

***HETEROPHYSASIS***

**Description:** Is a intestinal parasite/intestinal fluke

**Areas of Risk:** Egypt, the Middle East, and Far East. It has been reported after eating raw or undercooked freshwater or brackish fish in the Far East, Siberia, Manchuria, the Balkan states, Israel, and Spain.

**Transmission:** It is acquired by eating infected raw or undercooked fish from freshwater or brackish water containing metacercariae (encysted stage). After ingestion, metacercariae excyst and attach to the mucosa of the small intestine.

**Signs and Symptoms:** Diarrhea and colicky abdominal pain. Migration of the eggs to the heart, resulting in potentially fatal myocardial and valvular damage, has been reported from the Philippines. Migration to other organs (e.g., brain) has also been reported.

**Treatment:** Seek medical care, Praziquantel\* is the treatment drug of choice.

**Prevention:** Avoid eating undercooked or salted fish.

***HISTOPLASMOSIS:***

**Description:** Is a fungal disease that grows in the soil enriched with the accumulation of bird or bat droppings. Exposures can occur with activities such as spelunking, construction, farming/gardening, fishing, roofing, chimney cleaning, excavation, and installation of heating and cooling systems.

**Transmission:** Histoplasma fungus grows as a mold in the soil. You may get sick when you breathe in spores produced by the fungus. Soil that contains bird or bat droppings may have larger amounts of this fungus. The threat is greatest after an old building is torn down or in caves.

**Areas of Risk:** It occurs throughout the world. In the United States, it is most common in the southeastern, mid-Atlantic, and central states.

**Signs and Symptoms:** Ninety percent of infected persons are asymptomatic or result in mild influenza-type symptoms. Some infections will have a more acute presentation similar to pneumonia with high fever, headache, dry cough, chills, chest pain, and weakness. Most individuals recover spontaneously in 2-3 weeks. Re-infection and reactivation can occur. If symptoms occur, they usually start within 3 to 17 days after being exposed to the fungus.

**Treatment:** Persons with localized, acute pulmonary histoplasmosis may not need treatment with an antifungal medication. Others with persistent or severe disease can be treated with an antifungal medication such as itraconazole.

**Prevention:** Avoid areas of high risk where known cases have been reported or areas such as bat-inhabited caves. Preventative measures would include watering dry areas before engaging in dust producing activities and wearing masks and protective equipment (e.g. masks) if exposure cannot be avoided. No effective vaccine is available

***HIV/AIDS***

**Description:** Acquired Immune Deficiency Syndrome (AIDS) is a severe and potential life threatening illness caused by the Human Immunodeficiency Virus (HIV).

**Areas of Risk:** This virus has been reported worldwide.

**Transmission:** Transmission occurs through the exchange of bodily fluids (semen, blood, and vaginal secretions). Travelers are at risk if they have unprotected sexual intercourse with an infected person, use contaminated, non-sterilized syringes or needles for any skin-piercing procedures, including drug use, tattoos, body piercing, injections, or acupuncture. (An individual with HIV cannot be identified by outward means).The immune system usually takes 2 to 8 weeks to make antibodies against HIV (the average is 25 days). Ninety-seven percent of people will develop antibodies in the first 3 months after they are infected. In very rare cases, it can take up to 6 months to develop antibodies to HIV.

**Signs and Symptoms:** Symptoms usually do not appear for several months to years. The first sign is usually fever, fatigue, and malaise.

**Prevention:** Do not have unprotected sexual intercourse, use non-sterilized syringes or needles for any skin-piercing procedures, including drug use, tattoos, body piercing, injections or acupuncture. Travelers should avoid the use of blood products or blood transfusions if at all possible in less-developed countries. No vaccine is available.

**Treatment:** For more information Ph. #1-800-342-AIDS, toll free in the United States.

**Prevention**: In addition to limiting your number of sexual partners, never sharing needles, and using condoms correctly and consistently. The CDC recommends that PrEP be considered for people who are HIV-negative and at substantial risk for HIV. [Post-exposure prophylaxi](http://www.cdc.gov/hiv/basics/pep.html)s (PEP) is medicine that is used to prevent HIV after a possible exposure.

***HOOKWORM AND STRONGYLOIDIASIS***

**Description:** A type of intestinal round worm disease.

**Transmission:** Walking barefoot in fecal contaminated soil that harbors larvae. The larvae enter the body by penetrating the skin usually of the feet. The larvae are able to penetrate it and migrate through the body, eventually finding their way to the small intestine where they burrow and lay their eggs. In addition to contact with soil and auto-infection, there have been rare cases of person-to-person transmission in: organ transplantation, institutions for the developmentally disabled, long-term care facilities, and daycare centers.

**Areas of Risk**: Worldwide mostly in warm moist climate areas, more common in tropical and subtropical countries where skin exposure is common and the environment is conducive. It is endemic in the tropics and subtropics, and limited foci in the southeastern U.S., Europe, Australia, and Japan. It is considered low risk for short term travelers.

**Signs and Symptoms:** Most infected with Hookworms or Strongyloidiasis will not have any symptoms. Those who do develop symptoms tend to have complaints of: localized, itchy, red, raised rash that can can develop at the site of penetration, followed by abdominal pain, bloating, heartburn, intermittent episodes of diarrhea and constipation, a dry cough, and rashes. Rarely people will develop arthritis, kidney problems, and heart conditions. Strongyloidiasis is potentially dangerous in individuals who are immunocompromised from AIDS, radiation, cancer, or are on oral or intravenous steroids, have hematologic malignancies such as leukemia or lymphoma, or are transplant recipients. Larvae can be found in the stool about 3 to 4 weeks later..

**Treatment**: Seek medical attention. Ivermectin is the drug of choice in treatment, Albendazole or similar medications may be used.

**Prevention:** The best way to prevent *Strongyloides* infection is to wear shoes when you are walking on soil, and to avoid contact with fecal matter or sewage. Proper sewage disposal and fecal management are keys to prevention.

***INFLUENZA***

**Description:** Is a viral infection caused by either influenza A or B virus.

**Areas of Risk:** It is a worldwide health concern and has a tendency to be a seasonal illness.

**Transmission:** Person-to-person through respiratory droplets or saliva. The incubation period is 1-4 days from time of exposure. It is considered infectious from the day before illness starts and for 5-7 days after onset of symptoms.

**Signs and Symptoms:** Abrupt onset of fever, body aches, cough, headache, malaise, vomiting, sinus congestion, and sore throat.

**Treatment:** Seek medical care. Use symptomatic treatment.

**Prevention:** Vaccine given on a yearly basis is available to reduce the impact of influenza.

***JAPANESE ENCEPHALITIS***

**Description:**  Is a form of viral encephalitis.

**Areas of Risk** The risk to short term travelers who stay within urban areas is very low. In temperate areas of Asia, JE virus transmission is seasonal. Human disease usually peaks in the summer and fall. In the subtropics and tropics, transmission can occur year-round, often with a peak during the rainy season. It has been identified in the following countries: Australia, Bangladesh, Brunei, Burma, Cambodia, China, Guam, India, Indonesia, Japan, Laos, Malaysia, Nepal, North Korea, Pakistan, Papua New Guinea, Philippines, Russia, Saipan, Singapore, South Korea, Sri Lanka, Taiwan, Thailand, Timor-Leste, and Vietnam.

**Transmission:** Japanese Encephalitis is transmitted by the bite of a mosquito. These mosquitoes feed mainly from dusk through the evening hours. In temperate areas the greatest risk occurs June through September. JE virus is maintained in a cycle involving mosquitoes and vertebrate hosts, mainly pigs and wading birds. Humans can be infected when bitten by an infected mosquito. JE virus transmission occurs primarily in rural agricultural areas, often associated with rice production and flooding irrigation.

**Signs and Symptoms:** Most human infections are asymptomatic or result in only mild symptoms, if present would include nausea, vomiting, fever and headache. However, a small percentage of infected persons develop inflammation of the brain (encephalitis), with symptoms including sudden onset of headache, high fever, disorientation, coma, tremors and convulsions. About 1 in 4 cases are fatal.

**Treatment:** Seek medical care.

**Prevention:** Take precautions to avoid mosquito bites to reduce the risk for JE and other vector-borne infectious dis­eases. For some travelers who will be in a high-risk setting based on season, location, duration, and activities, JE vaccine can further reduce the risk for infection**.** When traveling in rural areas, use of long sleeves and long pants is recommended, as well as the use of mosquito repellent containing DEET (Deep Woods OFF, Repel, and Ultrathon). In evening hours, assure that screens are used and that there are no holes in the screens, use bed nets if screened areas are not available.

***LEGIONELLOSIS***

**Description:**Includes Legionnaires’ disease and Pontiac fever. Both of these diseases are caused by bacteria

that grow in warm, freshwater environments. Under certain conditions it can be inhaled and the lungs which are the primary site of infection.

**Areas of Risk:** Worldwide in freshwater environments.

**Transmission:** It can be transmitted through stagnant, warm (77-108 degree F) water that has become aerosolized so it can be inhaled into the lungs. People get Legionnaires' disease or Pontiac fever when they breathe in a mist or vapor (small droplets of water in the air) that has been contaminated with *Legionella* bacteria. Keeping *Legionella* bacteria out of water is the key to preventing infection.

**Signs and Symptoms:** Symptoms usually begin 2 to 14 days after being exposed to the bacteria would include cough, difficulty breathing, high fever, bodyaches, headache and myalgia.

**Treatment:** Seek medical treatment.Prompt use ofspecific antibiotics like quinolones and macrolides is recommended. Treatment may be needed for as long as 3 weeks. Consulting an infectious disease specialist is highly recommended.

**Prevention:** The key to preventing legionellosis is maintenance of the water systems in which Legionella grow, including drinking water systems, hot tubs, decorative fountains, and cooling towers. Persons at increased risk of infection (e.g. elderly and immuno-compromised travelers) may choose to avoid high-risk exposures, such as being in or near a hot tub.

***LEISHMANIASIS***

**Description:** Is a parasitic disease of the skin or internal organs. The most common forms are *cutaneous leishmaniasis*, which causes skin sores, and *visceral leishmaniasis*, which affects several internal organs (usually spleen, liver, and bone marrow).

**Areas of Risk:** Leishmaniasis is found in parts of the tropics, subtropics, and southern Europe leishmaniasis is found in some parts of Asia, the Middle East, Africa (particularly in the tropical region and North Africa, with some cases elsewhere), and southern Europe. It is not found in Australia or the Pacific Islands, Mexico, Central America, and South America. It is not found in Chile or Uruguay. Many of the cases of *cutaneous leishmaniasis* in U.S. civilian travelers have been acquired in common tourist destinations in Latin America, such as in Costa Rica. U.S. military personnel have become infected in various countries, such as Iraq and Afghanistan

**Transmission:** It is transmitted by the bite of some species of sand flies. The disease commonly presents as a cutaneous (skin) or visceral (internal organs) manifestation, which may not be apparent for months or years after a bite. Some people have a silent infection, without any symptoms or signs. The skin sores of the cutaneous type usually develop within a few weeks or months of the sand fly bite. People with the visceral type usually become sick within months (sometimes as long as years) of when they were bitten.

**Signs and Symptoms**:

For the skin-type one or more skin sores (which may or may not be painful or scabbed over) and appear weeks to months after a bite. These sores may last for weeks or months if left untreated. If leishmaniasis is of internal organ-type symptoms may occur weeks to months to sometimes years after infected. Symptoms would include, weight loss, fever, enlarged liver and spleen, and anemia. If untreated, this type of disease is typically fatal.

**Treatment:** Seek medical treatment with an infectious disease or tropical medicine specialist.

**Prevention:** No vaccines or drugs are currently available for preventing this infection; however, preventive measures should be aimed at reducing contact with sand flies. Protective clothing and insect repellent with DEET (Deep Woods Off, Repel, and Ultrathon) should be used whenever in areas of suspected sand fly activity. It is more common in rural areas.

***LEPTOSPIROSIS***

**Description:**Is a bacterial infection.

**Areas of Risk:** Leptospirosis occurs worldwide, but is most prevalent in tropical and subtropical regions. Outbreaks can occur following excessive rainfall or flooding.

**Transmission:** Transmission occurs through contact with contaminated freshwater or moist soil. The water and soil becomes contaminated through infected urine excreted from animals. It enters the skin through open wounds, mucous membranes or conjunctivae. The infection can be caused by ingestion of contaminated water or food.

**Signs and Symptoms**: The incubation period of leptospirosis is usually 5–14 days, with a range of 2–30 days. The symptoms following infection with leptospira can vary from a mild 'flu'-like illness to a serious and sometimes fatal disease. Although the disease is a self-limiting and often clinically inapparent illness in the majority of cases, 5-15% of untreated cases can progress to a more severe and potentially fatal stage. The onset is usually acute with high fever, myalgia, chills, nausea, diarrhea, eye irritation/redness, headache, muscle aches, vomiting, rash, jaundice (yellow skin and eyes), and cough. Without treatment, Leptospirosis can lead to kidney damage, meningitis (inflammation of the membrane around the brain and spinal cord), liver failure, respiratory distress, and even death.

**Treatment**: The CDC recommends that travelers at higher risk take doxycycline once a week starting 1-2 days before exposure and during time of exposure. The disease would be treated with an antibiotic such as penicillin, amoxicillin, or doxycycline. Treatment is most effective when started as soon as possible. **Prevention**: No vaccine is available.Avoid potentially contaminated freshwater and soil. Wear protective clothing and minimize contact with contaminated water. The risk of acquiring leptospirosis can be greatly reduced by not swimming or wading in water that might be contaminated with animal urine, or eliminating contact with potentially infected animals. Protective clothing or footwear should be worn by those exposed to contaminated water or soil because of their job or recreational activities. **Follow the recommendations for safe food and water consumption.**

***LYME DISEASE***

**Description:** Lyme disease is an infection caused by *borrelia burgdorferi*.

**Areas of Risk:** Lyme disease is found in the Northeast, north central and Pacific coastal areas of the U.S., and in temperate forested regions of northern Asia and Europe (more common in eastern and central Europe). The primary risk factor is exposure to wooded or grassy areas inhabited by ticks. Hikers, campers, hunters, and people living in wooded or rural areas are at highest risk.

**Transmission:** Lyme disease is transmitted by the bite of an infected is tranmitted to humans through the bite of infected blacklegged ticks. In most cases, the tick must be attached for 36-48 hours or more before the Lyme disease bacterium can be transmitted. Prompt removal of attached ticks is important. There is no evidence that Lyme disease is transmitted from person-to-person. Individuals being treated for Lyme disease with an antibiotic should not donate blood.

**Signs and Symptoms*:*** A rash occurs in approximately 70-80% of infected persons1 and begins at the site of a tick bite after a delay of 3-30 days (average is about 7 days). Parts of the rash may clear as it enlarges, resulting in a “bull's-eye” appearance at the bite site. The rash usually feels warm to the touch but is rarely itchy or painful. Additional bulls-eye like lesions may be noted on other areas of the body, facial or Bell's palsy (loss of muscle tone on one or both sides of the face), severe headaches and neck stiffness due to meningitis (inflammation of the spinal cord), pain and swelling in the large joints (such as knees), shooting pains that may interfere with sleep, heart palpitations and dizziness due to changes in heartbeat.

**Treatment:** Seek medical attention if symptoms develop. Treatment would include the use of antibiotics.

**Prevention:**No vaccine is available since it was removed from the market in February 2002. Reducing exposure to ticks is the best defense against Lyme disease, Rocky Mountain spotted fever, and other tickborne infections. Wear long pants and long sleeved shirts when in areas of highest risk. Use insect repellent with DEET (Deep Woods Off, Repel and Ultrathon). If a tick is embedded in the skin, remove gently with a tweezers, and assure that the head is fully removed. Wash the area with warm soap and water immediately.

***MALARIA***

**Description:** Is a protozoan infection caused by one of four species. It can be a fatal disease but is largely felt to be preventable.

**Areas of Risk:** Occurs in large areas of Central and South America, parts of the Caribbean, Africa, Asia (South Asia, Southeast Asia, and the Middle East), Eastern Europe and the South Pacific.

**Transmission:** It is transmitted by the bite of an infected female mosquito, and rarely, through blood transfusions or congenitally from mother to fetus.

**Signs and symptoms:** Fever, flu-like symptoms, including chills, headache, muscle aches, and malaise (lack of energy) these symptoms can come and go. Malaria can develop anywhere from 6 days to several months after exposure. So it is important to tell your health care provider of this travel risk when being treated for an illness.

**Treatment:** Seek medical attention immediately even if you have taken the prophylactic anti-malarial medication. Malaria is fatal if untreated.

**Prevention:** No vaccine is available. Take prophylactic anti-malaria medication, which must be taken 1-2 weeks before leaving to the malaria area and continue up to 4 weeks upon return. Personal protection measures are also necessary. These include staying indoors from dusk until dawn, using insect repellents which include DEET (Deep Woods Off, Repel and Ultrathon), wearing clothing that covers arms and legs completely, and using mosquito netting during sleep.

***MEASLES***

**Description:** Measles (Rubeola) is a serious viral disease complicated by secondary infections.

**Areas of Risk:** Measles remains a common disease in many parts of the world, including Europe, the Middle East, Asia, the Pacific, and Africa. In the United States, most measles cases result from international travel*.* **Transmission:**  Measles is a disease caused by a virus that is spread through the air by breathing, coughing, or sneezing. Measles virus is highly contagious and can remain so for up to 2 hours in the air or on surfaces. It is contagious from 4 days before until 4 days after onset of rash. Measles is one of the most contagious viral diseases.

**Signs and Symptoms:** The incubation period is 7-21 days from exposure; the rash usually appears about 14 days post-exposure. Rash (usually starts on the face), high fever (as high as 105°F.), cough, runny nose, and red, watery eyes. Some people who become sick with measles also get an ear infection, diarrhea, or a serious lung infection, such as pneumonia. Although severe cases are rare, measles can cause swelling of the brain and even death. Measles can be especially severe in infants and in people who are malnourished or who have weakened immune systems (such as from HIV infection or cancer or from certain drugs or therapies).

**Treatment:** Seek medical attention

**Prevention:** Vaccine is available. Persons born before 1957 are likely to have natural immunity, and generally need not be considered susceptible. Individuals born since 1957 should receive two doses of measles vaccine at least 1 month apart after the first birthday, or have a measles blood test to determine if immune. Generally measles is given as a trivalent vaccine with mumps and rubella.

***MEDITERRANEAN SPOTTED FEVER (MSF)***

**Description**: Mediterranean spotted fever is also known as boutonneuse fever, African or Kenyan tick typhus, and the Indian tick typhus.

**Areas of Risk**: It occurs primarily in Africa, southern Europe, the Mediterranean, India and southern Asia.

**Transmission:** Transmission occurs through the bite of ticks usually the brown dog tick is associated with close contact with tick-carrying rodents, dogs or cattle. Most cases occur during the summer (87%), especially

during the period from July to September..

**Signs and Symptoms:** The incubation period is usually 4-15 days but can be longer. Symptoms include chills, fever, headache, myalgia, arthralgia, and a rash. An ulcer with a black crust may be noted at the site of the tick bite.

**Treatment:** Seek medical care. MSF is usually a benign self-limited febrile disease. If needed, antibiotics such as doxycycline could be used in treating MSF.

**Prevention:** To prevent infection by rickettsiae, precautions should be taken to avoid exposure to ticks, in particular by refraining from close contact with ticks’ animal vectors (eg, dogs, goats, and sheep) when in endemic areas. Also take the standard measures such as using a repellent with DEET (Deep Woods Off, Repel and Ultrathon) to prevent insect bites. If a tick is noticed on the skin, remove the tick immediately and wash the area with soap and water. During travel, daily self-checks and removal of any ticks found should be performed.

***MELIOIDOSIS***

***Description:***Is a *Burkholderia pseudomallei* bacteria widely distributed in tropical soil and water.

**Areas of Risk:** It is endemic in Southeast Asia and Northern Australia, Papua New Guinea, much of the Indian subcontinent, southern China, Hong Kong, and Taiwan. It is considered highly endemic in northeast Thailand, Malaysia, Singapore, and Northern Australia. Cases have been reported in Puerto Rico and El Salvador. Meliodosis may be underdiagnosed in India, Africa, the Caribbean, and Central and South America. It has been reported in Puerto Rico, and possibly in, India, the Caribbean, and Central and South America.

**Transmission:** *B pseudomallei* is transmitted through direct contact of abrasions, wounds or openings in the skin with contaminated soil and surface water. 75% to 85% of reported cases occur in the wet seasons. Humans and animals can also acquire this disease by inhalation of contaminated dust or water mist. Another means of transmission is through ingestion of infected water. There have been reported cases of person to person transmission.

**Signs and Symptoms:** The incubation period is generally 1-21 days although it could extend for months or years. The following are list of the categories and their symptoms:

Acute localized infection: Is the presence of a nodule at the site of inoculation of the bacteria through an opening or break in the skin. It can cause fever and muscle aches. It may rapidly progress and infect the blood stream, causing meningo-encephalitis or sepsis.

Pulmonary infection: The symptoms range from mild bronchitis to severe pneumonia. It is accompanied by high fever, loss of appetite, headache, and muscle aches. The cough with chest pain may be dry or productive with normal sputum. It may mimic tuberculosis with fever weight loss, productive cough, and an infiltrate in the upper lobe of the lungs.

Acute bloodstream infection: Individuals with HIV, diabetes and renal failure are most likely to develop this type of the disease. Symptoms usually include respiratory distress, fever, severe headache, diarrhea, pus filled skin lesions, muscle pain and disorientation.

Chronic suppurative (pus-like draining) infection: This infection can involve any organ of the body. The joints, lymph nodes, skin, brain, lung, liver, bones and spleen are common sites.

**Treatment:** Seek medical treatment in the early stages of this disease. Several types of antibiotics can be used in treatment such as: penicillin, imipenem, doxycycline, amoxicicllin-clavulanic acid, azlocillin, ticarcillin-vulanic acid, ceftazidime, ceftriaxone, and aztreonam. The acute bloodstream type of this disease can be fatal. The other types listed above are considered nonfatal.

**Prevention:**  No vaccine is available. Prevention in endemic areas is difficult since contact with contaminated soil is very common. Anyone with diabetes or skin lesions/abrasions should avoid standing water or soil in these areas. Wearing boots can reduce exposure in agricultural settings. Follow usual blood and body fluid precautions in health care settings. Thoroughly clean skin lacerations, abrasions, or burns that have been contaminated with soil or water.

***MENINGOCOCCAL DISEASE***

**Description:** Is an acute serious bacterial infection. There are 5 major meningococcal serogroups associated with disease: A, B, C, Y, and W-135.

**Areas of Risk:** The highest risk occurs in the “meningitis best” of sub-Saharan Africa. Hajj pilgrimage to Saudi Arabia has been associated with outbreaks in returning pilgrims and their contacts.

**Transmission:** Is through close contact with respiratory droplets or saliva of an infected individual. The bacteria can be spread from an asymptomatic person.

**Signs and Symptoms:** It generally occurs 1-14 days after exposure, and symptoms include: sudden onset of fever, severe headache, nausea and vomiting, rash, stiff neck, light sensitivity, and altered mental status.

**Treatment:** Seek medical attention immediately as this disease can be fatal and it progresses rapidly.

**Prevention:** Vaccine is available for A, C, Y, and W-135 serogroups. Immunization is recommended in travelers to high risk areas. Proof of receiving the meningitis vaccine is required for people traveling to Mecca during the annual Hajj and Umrah pilgrimages. Revaccination is recommended in those at risk travelers who were vaccinated 5 or more years previously.

***MIDDLE EAST RESPIRATORY SYNDROME (MERS)***

**Description:** MERS is a viral respiratory illness and it is different from any other virus that has been previously found in people and was first reported in Saudi Arabia in 2012. Go to <http://wwwnc.cdc.gov/travel/notices/alert/coronavirus-saudi-arabia-qatar> for more information.

**Areas of Risk:** Cases of MERS (Middle East Respiratory Syndrome) have been identified in multiple countries in the Arabian Peninsula and in several other countries in travelers who have been to the Arabian Peninsula and, in some instances, their close contacts.

**Transmission**: Most instances of person-to-person spread have occurred in health care workers and other close contacts (such as family members and caregivers) of people sick with MERS.

**Signs and Symptoms:** Symptoms of MERS include fever, cough, and shortness of breath.

**Treatment:** Contact a health care provider if you develop a fever and symptoms of lower respiratory illness, such as cough or shortness of breath, within 14 days after traveling from countries in or near the Arabian Peninsula. You should tell the doctor about your recent travel **before** you go in for an appointment.

Prevention: To help prevent the spread of germs and protect against colds, flu, and other illnesses 1)Wash your hands often with soap and water. If soap and water are not available, use an alcohol-based hand sanitizer 2) Avoid touching your eyes, nose, and mouth. Germs spread this way 3) Avoid close contact with sick people.

The World Health Organization issued these general precautions “for anyone visiting farms, markets, barns, or other places where animals are present. Travelers should practice general hygiene measures, including regular hand washing before and after touching animals, and avoid contact with sick animals. Travelers should also avoid consumption of raw or undercooked animal products.” Also avoid contact with camels and do not drink raw camel milk or raw camel urine or eat undercooked meat, particularly camel meat.

***MUMPS***

**Description:** It is a viral illness.

**Areas of Risk:** It is endemic in many countries throughout the world.

**Transmission:** Through close contact with respiratory droplets or saliva of an infected person and contaminated fomites.

**Signs and Symptoms**: The incubation period is 16-18 days (range 12-25 days) from exposure. Symptomsinclude: fever, body aches, malaise, myalgia, tenderness and swelling of one or more parotid salivary glands. Approximately 30% of cases are without symptoms.

**Treatment:** Seek medical attention.

**Prevention:** Vaccination is recommended (2 doses of live mumps virus or combination MMR vaccine 28 days apart, with first dose at or after 12 months of age).

***NOROVIRUS***

**Description:** It is a viral gastroenteritis-like illness.

**Areas of Risk:** Norovirus is common in both developing and developed countries throughout the world.

**Transmission:** Through oral-fecal route, either by direct person-to-person contact or by contaminated food or water. It is also spread indirectly through aerosols of vomitus and contaminated environmental surfaces and/or objects.

**Signs and Symptoms**: The incubation period is 12-48 hours from exposure. Symptomsinclude: acute onset of vomiting and non-bloody diarrhea. Additional symptoms could include: abdominal pain, nausea, and low-grade fever.

**Treatment:** This illness is usually self-limiting and a full recovery occurs in 1-3 days. Seek medical attention if there are concerns about dehydration.

**Prevention:** There is not a vaccine available at this time, although presently there are efforts to develop a vaccine. This virus is very common and highly contagious, minimize the risk of spread by frequent and proper (washing for at least 20 seconds with soap and water) washing of hands and avoiding possibly contaminated food and water. Utilize approved disinfectants approved for norovirus (bleach solution of 5-25 tablespoons of bleach per gallon of water). Soiled clothing should be laundried at the maximum wash cycle and dried using high-heat setting. Individual’s ill with the norovirus may be isolated and instructed not to work (esp. if in the food industry) to reduce spread.

***ONCHOCERCIASIS (River Blindness)***

**Description*:*** A parasite-like infection caused by prelarval and adult stage of the*Onchocerca volvulus.*

**Areas of Risk:** It is endemic in central Africa, small endemic foci can be found in the Arabian Peninsula (Yemen) and the Americas (Brazil, Columbia, Ecuador, Guatemala, Southern Mexico, and Venezuela) .

**Transmission:** It is transmitted through the bite of certain types of female black flies in daylight hours. These types of black flies are found near rapid running rivers and streams.

**Signs and Symptoms:** Itchy, raised, skin nodules under the skin. Lesions (ocular lesions) on the eye can progress to blindness. Symptoms may occur months to years after exposure.

**Treatment:** The drug of choice for treatment is ivermectin. Repeated doses may be required for up to several years. Seek medical care and consider a consult with an infectious disease/tropical medicine specialist.

**Prevention:** No vaccine is available. Avoid black fly habitats and use personal protective measures and insect repellents.

***PARAGONIMIASIS***

**Description:** Is a type of parasite known as a lung fluke,*Paragonimus westemani.*

**Areas of Risk:** The most important is *P. westermani,* which occurs primarily in Asia including China, the Philippines, Japan, Vietnam, South Korea, Taiwan, and Thailand. *P. africanus* causes infection in Africa, and *P. mexicanus* in Central and South America. Although rare, human paragonimiasis from *P. kellicotti* has been acquired in the United States, with multiple cases from the Midwest. Several cases have been associated with ingestion of uncooked crawfish during river raft float trips in Missouri.

**Transmission:** Consuming raw, undercooked, wine-soaked or salted freshwater crabs, shrimp and crayfish. It can infect the lungs of humans after eating an infected raw or undercooked crab or crayfish. Raw crabs or crayfish are also used in traditional medicine practices in Korea, Japan, and some parts of Africa.

**Signs and Symptoms:** In an acute infection symptoms could include: cough, abdominal pain, discomfort, and low-grade fever that may occur 2 to15 days after infection. Persons with light infections may have no symptoms. Symptoms of long-term infection may mimic bronchitis or tuberculosis, with coughing up of blood-tinged sputum.

**Treatment:** Seek medical care. Medications could be prescribed for treatment.

**Prevention:** Eat only well-cooked freshwater shellfish. Never eat raw freshwater crabs or crayfish. Cook crabs and crayfish for to at least 145°F (~63°C). Travelers should be advised to avoid traditional meals containing undercooked freshwater crustaceans.

***PERTUSSIS***

**Description:** is a very contagious bacterial disease caused by *Bordetella pertussis*.

**Areas of Risk:** Pertussis is endemic worldwide, even in areas with high vaccination rates. **Transmission**

**Signs and Symptoms:** The disease usually starts with cold-like symptoms and maybe a mild cough or fever. After 1 to 2 weeks, severe coughing can begin. Unlike the common cold, pertussis can become a series of coughing fits that continues for weeks.

**Treatment:** Seek medical attention. Macrolide antibiotic treatment is recommended**.**

**Prevention:** Immunity in adolescents and adults wanes over time and should receive a booster dose of Tetanus- diphtheria-pertussis (Tdap) vaccine. Postexposure prophylaxis is recommended for close contacts of pertussis cases.

***PLAGUE***

**Description:** It is a bacterial infection.

**Areas of Risk:** Occurs in rural areas of central and southern Africa, central Asia, the Indian subcontinent, the northeastern part of South America, and parts of southwestern United States.

**Transmission:** Is through bites from infected fleas or direct contact with infected material or inhalation of infected respiratory droplets. A bite from an infected rodent will also transmit the disease. Risk is relatively small to most travelers

**Signs and Symptoms:** the incubation period is typically 1-6 days. Bubonic plague: rapid onset of fever, painful, swollen, and tender lymph nodes, usually inguinal, axillary, or cervical. Pneumonic plague: high fever, overwhelming pneumonia, cough, bloody sputum, and chills. Septicemic plague: fever, prostration, hemorrhagic or thrombotic phenomena (red rash, bruising) and possible gangrene.

**Treatment:** Plague can be fatal so it is important to seek medical treatment immediately. Antibiotics such as streptomycin, gentamicin, or doxycycline could be used in treatment.

**Prevention:** Vaccine is not available. Avoid all potential contact with fleas and potentially infected rodent/other wildlife populations and use insect precaution.

***POLIO***

**Description:** Is an acute viral infection has 3 different types, 1, 2, and 3. that involves the gastrointestinal tract and on occasion the central nervous system.

**Areas of Risk:** In 2010 and 2011 Wild polio virus outbreaks from importations occurred in 18 countries in Africa, Eastern Europe, and Asia. It is prevalent in Afghanistan, Pakistan, Nigeria, Angola, Chad, and Democratic Republic of the Congo.

**Transmission:** transmitted through fecal-oral or oral route.

**Signs and Symptoms:** Symptoms can range from none to acute flaccid paralysis of a single limb to quadriplegia, respiratory failure, and rarely, death.

**Treatment:** Seek medical treatment.

**Prevention:** It is recommended to receive a booster polio vaccine (one adult booster for lifetime protection) when traveling to endemic countries.

**Q-*FEVER***

**Description:** Is a bacterial illness caused by *Coxiella burnetii*.

**Areas of Risk:** Worldwide, highest in African and Middle Eastern countries. People who travel to rural areas or visit farms with cattle, sheep, goats, or other livestock may be exposed. It is often reported in individuals who have work with sheep, goats and cattle carcasses (meat packers, veterinarians, butchers, farmers).

**Transmission:** Air-borne via inhalation of dust or soil contaminated with dried birth fluids or excreta from infected animals (usually cattle, sheep, or goats), consumption of unpasteurized dairy products, or rarely via sexual contact.

**Signs and Symptoms:** The incubation period is usually 2-3 weeks but could be shorter after exposure to large numbers of organisms. The most common presentation of acute infection is a mild, and self-limiting influenza-like illness, with pneumonia or hepatitis in more severe acute infections. If untreated it may become chronic and is a severe health risk for individuals who are immunosuppressed or have with heart valve abnormalities.

**Treatment:** No vaccine is available. Seek medical attention. Appropriate antibiotic therapy is used in treatment.

**Prevention:** Avoid traveling to areas where potentially infected animals are kept, and avoid consumption of unpasteurized dairy products. A vaccine for Q Fever is presently being used in Australia, but is not available in U.S.

***RABIES***

**Description:** It is an acute encephalomyelitis caused by a virus. Dogs are the main reservoir of the disease in many developing countries; however, the epidemiology of the disease in animals differs enough to warrant evaluation of all animal bites. Bats, skunks, raccoons, mongooses, foxes, jackals and other wild animals are also high risk.

**Areas of Risk:** Canine rabies is highly endemic in Africa, South and Central America, and Asia. Rabies is found on all continents except Antarctica.

**Transmission:** The virus is present in the saliva of the biting rabid mammal. Rabies is almost always transmitted by the bite of an infected animal that introduces the rabies virus into the wound. Very rarely rabies can be transmitted through a non-bite exposure by the virus coming in contact with mucous membranes or open wounds.

**Signs and Symptoms:** The incubation period is variable but usually is 1-3 months. The disease progresses from a prodromal phase of fever and vague symptoms to paralysis: muscles used to swallow can be stimulated by the sound, sight and perception of water; delirium and convulsions, followed by coma and death.

**Treatment:** Seek medical care. Bat bites anywhere in the world are a cause of concern and an indication for prophylaxis.

**Prevention:** Develop a comprehensive strategy that consists of 1) Avoiding animal bites; (including do not surprise a dog, avoid contact with bats and other wildlife, or monkeys who live near temples and othe urban areas of Asia) 2) knowing how to prevent rabies after a bite(post-exposure vaccine); and 3) being able to travel to wherever post-exposure prophylaxis is available. If travel plans include cave exploration, or work with animals, consider the pre-exposure vaccine. This vaccine consists of three doses of Rabies Vaccine Absorbed (RVA). The pre-exposure vaccine does not eliminate the need for additional treatment with post exposure vaccine after a rabies exposure.

***RELAPSING FEVER (Tick-borne TBRF)***

**Description:** Relapsing fever is bacterial infection

**Area of Risk:** TBRF is found in discrete areas throughout the world, including mountainous areas of North America, plateau regions of Mexico, Central and South America, the Mediterranean, Central Asia, and much of Africa. In the United States, TBRF occurs most commonly in 14 western states: Arizona, California, Colorado, Idaho, Kansas, Montana, Nevada, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington, and Wyoming.

**Transmission:** The bacteria are carried by wild rodents and ticks. Ticks remain infective throughout their life. There has been no evidence of human to human transmission. Humans typically come into contact with soft ticks when they sleep in rodent-infested cabins. The ticks emerge at night and feed briefly while the person is sleeping. The bites are painless, and most people are unaware that they have been bitten.

**Signs and Symptoms:** The incubation period is approximately 7 days from time of bite. Relapsing fever is characterized by episodes of fever lasting several days, followed by an interval without fever, followed by another episode of fever. This process can recur from 1 to 4 times. Along with fever, patients may experience generalized body aches, muscle pain, joint pain, headache, nausea, vomiting, anorexia, dry cough, light sensitivity, rash, neck pain, eye pain, confusion, and dizziness.

**Treatment:** Seek medical treatment. Antibiotics such as Penicillin and Tetracycline are used in treatment.

**Prevention:** Avoid sleeping in tick infested areas. Avoid contact with rodents. Use an insecticide that contains DEET on skin or permethrin on clothing.

***RIFT VALLEY FEVER***

**Description:** A viral disease that affects primarily domestic animals (such as cattle, buffalo, sheep, goats, and camels) and humans.

**Areas of Risk:** The risk of RVF infection to persons who travel to endemic areas generally is low. RVF is generally found in regions of eastern and southern Africa where sheep and cattle are raised, but the virus exists in most of sub-Saharan Africa, including west Africa and Madagascar. A RVF outbreak was reported in Saudi Arabia and subsequently, Yemen(2000).

**Transmission:** Humans can be infected with RVFV from bites of infected mosquitoes and, rarely, from other biting insects that have virus-contaminated mouthparts. More commonly, humans are infected after exposure to blood, body fluids, or tissues of RVF-infected animals. This direct exposure to infected animals can occur during slaughter or through veterinary and obstetric procedures. Infection through aerosol transmission of RVF virus has occurred in the laboratory environment. No human-to-human transmission has been documented.

**Signs and Symptoms:** Most commonly, people with RVF have either no symptoms or a mild illness associated with fever and liver abnormalities. Patients who become ill usually experience fever, generalized weakness, back pain, and dizziness at the onset of the illness. Typically, patients recover within two days to one week after onset of illness. 1) Ocular disease (diseases affecting the eye), which sometimes accompanies the mild symptoms described above. Lesions on the eyes may occur 1-3 weeks after onset of initial symptoms with patients reporting blurred and decreased vision.2) It can cause encephalitis, or inflammation of the brain, which can lead to headaches, coma, or seizures. This occurs in less than 1% of patients and presents 1-4 weeks after first symptoms appear. 3) Hemorrhagic fever, which occurs in less than 1% of overall RVF patients, but fatality for those who do develop these symptoms, is around 50%. Symptoms of hemorrhaging may begin with jaundice and other signs of liver impairment, followed by vomiting blood, bloody stool, or bleeding from gums, skin, nose, and injection sites. These symptoms appear 2-4 days and death usually occurs 3-6 days after. **Treatment:** Seek medical care. Because most human cases of RVF are mild and self-limiting, a specific treatment for RVF has not been established.

**Prevention:** Travelers can reduce their risk by taking measures to decrease contact with blood, body fluids, or tissues of infected animals and protecting themselves against mosquitoes and other bloodsucking insects. Use of mosquito repellents and bednets are two effective methods. For persons working with animals in RVF-endemic areas, wearing protective equipment to avoid any exposure to blood or tissues of animals that may potentially be infected is an important protective measure. No vaccines are available for human vaccination.

***RUBELLA***

**Description:** Is a viral illness

**Areas of Risk:** It occurs worldwide outside the Americas.

**Transmission:** Person-to-person contact or droplets shed from the respiratory tract of someone who has Rubella.

**Signs and Symptoms:** The average incubation period is 14 days (with the range being 12-23 days). It usually presents with a generalized rash the lasts about 3 days, other symptoms could include: low-grade fever, enlarge lymph nodes, malaise, decreased appetite, runny nose, and sore throat.

**Treatment:** Contact medical provider, and provide supportive care.

**Prevention**: Vaccine is available, with the first dose given at 1 year of age and is usually part of a combination vaccine MMR. (2nd dose is given 28 days later or later)

***SANDFLY FEVER***

**Description:** Is a viral disease.

**Areas of Risk:** The Mediterranean basin is the main area for sandfly fever. Reports are increasingly published every day related with the presence of the vector, the virus or the infection itself, from Spain to Croatia, from Morocco to Iran, Italy, Portugal and Turkey. Because of the life cycle of the vectors, the infection is usually seen in summer months and may cause outbreaks

**Transmission:** It is transmitted to humans by the bite of an infected sand fly.

**Signs and Symptoms:** Symptoms usually occur 3-6 days after exposure. The sandfly fever is known as 3 days fever but the SFTV may cause prolonged fever. And consist of fever, myalgia and malaise along with abnormalities in liver enzymes, hematological test results, headache, photophobia, fatigue, decreased appetite, and abdominal discomfort are prominent clinical features for SFTV. **Treatment**: Seek medical care..

**Prevention:** Control of sand flies is most important. Prevent bites by using repellents while in infected areas, particularly after sundown. Use insecticides to destroy sandflies in and about human habitations.

***SCHISTOSOMIASIS***

**Description:** Is caused by flukes involving specific species of fresh-water snails.

**Areas of Risk:** 85% of the world’s cases are in Africa, different strains can be found in southern China, Indonesia, Cambodia, Laos, Southeast Asia, the Philippines, the Middle East, and sub-Saharan Africa. **Transmission:**  Schistosomiasis is transmitted by wading through fresh water. Flukes found in snails’ release larvae that are capable of penetrating the unbroken skin of the human host. Even brief exposures to infected fresh water can cause disease.

**Signs and Symptoms:** The incubation period is 14-84 days from exposure for most acute infections but chronic infection can remain without symptoms for years. A rash can occur within hours or up to a week after contaminated water exposure. Acute schistosomiasis symptoms include: fever, decrease appetite, abdominal pain, weight loss, blood in the urine, weakness, joint and muscle pain, diarrhea, headaches, nausea, and a cough.

**Treatment:** Seek medical treatment and consider seeking care with an infectious disease or tropical medicine specialist. Medications such as, praziquantel or oxamniquine are considered to be a safe and effective treatment.

**Prevention:** No vaccine is available. Avoid any wading or swimming in fresh water in endemic areas. There is no way to identify infected water from non-infected water, and therefore all fresh water should be avoided. Bathing water should be heated to 50 degrees C, 122 F for 5 minutes, or allowing water to stand for more than 24 hours before exposure can eliminate risk. If exposure to infected water is suspected, immediate and vigorous towel drying or rapid application of rubbing alcohol to exposed areas will reduce the risk of infection. Salt and properly chlorinated water is safe from Schistosomiasis.

***SEVERE ACUTE RESPIRATORY SYNDROME (SARS)***

**Description:** SARS is a respiratory illness accompanied by fever. It is caused by a coronavirus.

**Areas of Risk: Since 2004, there have not been any known cases of SARS reported anywhere in the world.** The illness spread to more than two dozen countries in North America, South America, Europe, and Asia before the SARS global outbreak of 2003 was contained.It emerged in November of 2002 in southern china. From then until July of 2003 was reported in 29 countries. Most cases were in China, Hong Kong, Singapore, Taiwan, and Canada.

**Transmission:** SARS natural reservoir is unknown, possibly acquired from infected animals sold in markets for human consumption. Most infections occurred from close contact with individuals infected with SARS. Since some animals have been found to have this virus it remains possible for travelers in China to be exposed.

**Signs and Symptoms:** SARS has an incubation period of 2-10 days. The illness usually begins with a high fever and along with that headache, myalgia, chills, malaise and rigors. In 3-7 days a dry cough and difficulty breathing are noted. Abnormal chest x-rays are noted by the 7 day into the illness. Diarrhea could also be present. The overall fatality rate is about 10%. The rate may exceed 50% in individuals over 60 years of age.

**Treatment:** Seek medical care. Treatment may include antibiotic therapy but there is not a specific treatment that has proven to be effective.

**Prevention:** precautions are: to avoid live food markets and direct contact with wildlife such as civet cats of raccoon dogs. If travelling to an area reporting a SARS outbreak avoid settings such as health care facilities, residences of individuals with SARS, or areas where known SARS cases have been reported.

***SHIGELLOSIS***

**Description:** Is a bacterial infection of the intestine. There are 4 species referred to as group A, B, C, and D.

**Areas of Risk:** Cases have been reported worldwide. It is endemic in temperate and tropical climates such as; sub-Saharan Africa, South Asia, Central and South Americas, and Asia.

**Transmission:** Is by the fecal-oral route, through direct person-to-person contact, or indirectly through exposure to contaminated food, water, and from an inanimate object (as a dish, toy, book, doorknob, or clothing) that may be contaminated with infectious organisms.

**Signs and Symptoms:** Symptoms usually begin 12-96 hours after exposure. The severity may vary depending on the species, and can be from mild to severe. Symptoms can include: watery, bloody or mucus-like diarrhea, stomach cramps, and fever, and nausea.

**Treatment:** Seek medical care if needed. In healthy individuals shigellosis will resolve within 4-7 days without treatment. Antimicrobial treatment started early in illness may help to shorten its duration.

**Prevention:** The best prevention is thorough, frequent hand washing (20 seconds, and all surfaces of hands) and taking safe food and water precautions.

***SMALLPOX***

**Description:** Is caused by the variola virus and is an acute infectious disease. Other members of the genus that cause cases in humans are vaccinia virus, monkeypox virus, and cowpox virus.

**Areas of Risk:** Smallpox has been eradicated globally. Vaccinia-like viruses have been reported among cattle and buffalo herders in India and dairy workers in Brazil, cowpox virus has been reported in Europe, and Monkeypox virus is endemic in tropical forested regions of West and Central Africa, notably the Congo Basin. Rodents imported from West Africa in 2003 caused an outbreak in the U.S. Cowpox has been reported in humans in Europe and Asia.

**Transmission:** It is spread by viral droplets inhaled and/or coming in contact with mucous membranes of the respiratory tract. It is less commonly spread by contact with infectious skin lesions/scabs.

**Signs and Symptoms:** Symptoms initially are abrupt in onset of high fever (greater than 101°F.), muscle pain, head and body aches, malaise, nausea and sometimes vomiting. These symptoms usually occur for 2-4 days before the rash appears. The rash is characterized by firm, deep-seated blister-like or acne-like (pus-filled blister-like areas). The most common rash that can be confused with smallpox is chickenpox. The incubation period average is 12 days with range of 7-17 days.

**Treatment:** Seek medical attention

**Prevention:** Smallpox vaccine is not recommended for travelers. Avoid contact with potentially infected rodents, sick/dead animals including pets and domestic ruminants (cattle and buffalo).

***SPOROTRICHOSIS***

**Description:** It is a fungal infection of the skin caused by *Sporothrix schenckii.*

**Area of Risk:** Sporadically worldwide. The fungus lives throughout the world in soil, plants, and decaying vegetation. It occurs more often in farmers, gardeners, and horticulturalists. The infection is more common among people with weakened immune systems, but it can also occur in otherwise healthy people. Outbreaks have occurred among florists, plant nursery workers who have handled sphagnum moss, rose gardeners, children who have played on bales of hay, and greenhouse workers who have handled thorns contaminated by the fungus.

**Transmission:** Cutaneous (skin) infection is the most common form of infection and usually occurs after handling contaminated plant material, when the fungus enters the skin through a small cut or scrape.

**Signs and Symptoms:** The first symptom is usually a small painless nodule (bump) resembling an insect bite. The first nodule may appear any time from 1 to 12 weeks after exposure to the fungus. The nodule can be red, pink, or purple in color, and it usually appears on the finger, hand, or arm where the fungus has entered through a break in the skin. The nodule will eventually become larger in size and may look like an open sore or ulcer that is very slow to heal. Additional bumps or nodules may appear later near the original lesion. This fungal infection can spread to other areas of the body, but rarely affects joints, bones, lungs or other tissues. In rare cases, a pneumonia-like illness can occur after inhaling *Sporothrix* spores, which can cause symptoms such as shortness of breath, cough, and fever.

**Treatment:** Most cases of sporotrichosis only involve the skin and/or subcutaneous tissues and are non-life-threatening, but the infection requires treatment with prescription antifungal medication for several months. The most common treatment for this type of sporotrichosis is oral itraconazole for 3 to 6 months

**Prevention:** You can reduce your risk of sporotrichosis by wearing protective clothing such as gloves and long sleeves when handling wires, rose bushes, bales of hay, pine seedlings, or other materials that may cause minor cuts or punctures in the skin. It is also advisable to avoid skin contact with sphagnum moss.

***SWIMMERS’ ITCH***

**(cercarial dermatitis, schistosome dermatitis)**

**Description:** Swimmers’ itch is a self-limiting parasitic skin rash. It infects birds, semi-aquatic mammals, and snails. It occurs worldwide in fresh or salt water that is infected by bird, rodent or snail contamination.

**Areas of Risk:** It is worldwide and occurs more in Africa, China, and other warmer climate areas.

**Transmission:** While the parasite's preferred host is the specific bird or mammal, if the parasite comes into contact with a swimmer, it burrows into the skin causing an allergic reaction and rash. Swimmer's itch is not contagious and cannot be spread from one person to another. The parasite can penetrate the skin but are unable to enter into the blood stream and soon die.

**Signs and Symptoms:** Symptoms of swimmer's itch may include: 1)tingling, burning, or itching of the skin, 2)small reddish pimples, and 3)small blisters. Within minutes to days after swimming in contaminated water, you may experience tingling, burning, or itching of the skin. Small reddish pimples appear within twelve hours. Pimples may develop into small blisters. Scratching the areas may result in secondary bacterial infections. Itching may last up to a week or more, but will gradually go away.

**Treatment**: Systemic antihistamines (like Benadryl/Diphenhydramine) or topical antihistamines or corticosteroids can be used to reduce symptoms. Topical antiseptics or antibiotics as well as systemic antibiotics may be needed in the case of secondary infection. Seek medical care in more severe cases or those with secondary infections.

**Prevention:** The most effective therapy is prevention.It is important to vigorously towel dry after swimming or wading. Avoid swimming in known contaminated water or areas where there are large accumulations of snails. To reduce the likelihood of developing swimmer's itch: 1)Do not swim in areas where swimmer's itch is a known problem or where signs have been posted warning of unsafe water, 2)Do not swim near or wade in marshy areas where snails are commonly found, 3)Towel dry or shower immediately after leaving the water, 4)Do not attract birds (e.g., by feeding them) to areas where people are swimming, 5)Encourage health officials to post signs on shorelines where swimmer's itch is a current problem.

***TAENIASIS***

**Description:** Is a tapeworm infection caused from ingesting raw or undercooked beef or pork.

**Areas of Risk:** Taeniasis occurs worldwide but is more prevalent in Latin America, Africa, South and Southeast Asia. Fewer cases have been reported in Eastern Europe, Spain, and Portugal.

**Transmission:** Transmission occurs when humans ingest raw or undercooked meat, especially pork.

**Signs and Symptoms:** The incubation period is 8-10 weeks for the pork tapeworm and 10-14 weeks for the beef tapeworm. Symptoms could include: abdominal pain, weakness, perianal itching, nervousness, insomnia, anorexia, weight loss, and nausea. Segments of worms emerging from the anus may be the only symptom in some individuals.

**Treatment:** Seek medical care. Medication such as praziquantel is used in treatment.

**Prevention:** Avoid eating undercooked beef and pork. Follow safe food and water. Good hand washing.

***TRACHOMA***

**Description:** It is an infection of the eye. Trachoma is an infectious disease responsible for approximately 3% of the world's blindness. Globally, almost 8 million people are visually impaired by trachoma.

**Areas of Risk:** This disease occurs worldwide, but mostly endemic in poorer rural communities in developing countries. The highest rate of trachoma is in the Africa, with cases being reported in India, Southeast Asia and China, Latin and South America and Australia (among Aboriginals).

**Transmission:** Symptoms begin 5 to 12 days after being exposed to the bacteria. Caused by the bacterium Chlamydia trachomatis, trachoma is easily spread through direct personal contact, shared towels and cloths, and flies that have come in contact with the eyes or nose of an infected person. Because trachoma is transmitted through close personal contact, it tends to occur in clusters, often infecting entire families and communities. Children, who are more likely to touch their eyes and have unclean faces that attract eye-seeking flies, are especially vulnerable to infection, as are women [(8)](http://www.cdc.gov/healthywater/hygiene/disease/trachoma.html#eight), the traditional caretakers of the home.

**Signs and Symptoms:** The principal signs and symptoms in the early stages of trachoma include: mild itching and irritation of the eyes and eyelids, and discharge from the eyes containing mucus or pus

As the disease progresses, later trachoma symptoms include: marked light sensitivity (photophobia), blurred vision, and eye pain.

**Treatment:** Seek medical attention, especially if you recently traveled to an area where trachoma is common. Antibiotics such as azithromycin would be used in treatment. If left untreated, repeated trachoma infections can cause severe scarring of the inside of the eyelid and can cause the eyelashes to scratch the cornea (trichiasis). Treatment of later stages of trachoma — including painful eyelid deformities — may require surgery.

**Prevention:** Wash hands and face frequently with soap and water. Avoid common-use towels in public places. **1)S**urgery to treat advanced forms of trachoma, 2)**A**ntibiotics to treat the infection and prevent further spread of infection, 3) **F**acial cleanliness,4) **E**nvironmental improvements, particularly in water, sanitation and fly control, to lower disease transmission

***TRICHINOSIS (TRICHINELLOSIS)***

**Description:** An infection caused by the worm species *Trichinella.*

**Area of Risk:** Worldwide

**Transmission:** People acquire trichinellosis by consuming raw or undercooked meat infected with the *Trichinella* parasite, particularly wild game meat or pork. Even tasting very small amounts of undercooked meat during preparation or cooking puts you at risk for infection.

**Sign and Symptoms:** Begin 1-2 days after ingestion. Symptoms include diarrhea, nausea, vomiting, fever, fatigue, and abdominal discomfort. The classic trichinellosis symptoms often occur within 2 weeks after eating contaminated meat, and can last up to 8 weeks causing: muscle pain, fever, swelling of the face, particularly the eyes, weakness or fatigue, headache, chills, itchy skin or rash, cough, diarrhea, and constipation. Symptoms may range from very mild to severe and relate to the number of infectious worms consumed in the meat. Many mild cases of trichinellosis are never specifically diagnosed because they are assumed to be the flu or other common illnesses.

**Treatment:** Seek medical treatment. Prescription medications may used in treatment.

**Prevention:** Avoid eating raw or undercooked meat of pork or wild game. Other preventative measures include: 1)Wash your hands with warm water and soap after handling raw meat 2)Curing (salting), drying, smoking, or microwaving meat alone does not consistently kill infective worms; homemade jerky and sausage were the cause of many cases of trichinellosis reported to CDC in recent years. 3)Freeze pork less than 6 inches thick for 20 days at 5°F (-15°C) to kill any worms. 4)Freezing wild game meats, unlike freezing pork products, may not effectively kill all worms because some worm species that infect wild game animals are freeze-resistant. 5) Clean meat grinders thoroughly after each use.

***TUBERCULOSIS***

**Description:** Is a bacterium that can cause pulmonary infections.

**Areas of Risk:** TB occurs worldwide, but the incidence varies greatly. With an increase incidence in sub-Saharan Africa and Asia. Bovine TB is most commonly a risk U.S. travelers to Mexico.

**Transmission:** Because of the mode of transmission (airborne in confined spaces) U.S. travelers are not at an increased risk unless travel is for extended time. It can be transmitted through unpasteurized milk or milk products from infected cattle.

**Signs and Symptoms:** 70-80% of TB cases affect the lungs with symptoms of prolonged cough, fever, decreased appetite, weight loss, night sweats, and coughing up blood. Symptoms usually occur 8-10 weeks after exposure.

**Treatment:** Seek medical attention. Medications such as isoniazid or a regimen of isoniazid and rifapentine would be used in treatment over several months.

**Prevention:** A travelers should avoid exposure to TB endemic areas such as rowded environments such as homeless shelters, hospitals, and prisons. A respiratory protective device (N-95 respirator mask) can be worn if those environments cannot be avoided.

***TULAREMIA***

**Description:** Is an infection caused by the bacterial organism *Francisella tularensis*. This infection is common in wild rodents (especially rodents, rabbits, and hares).

**Areas of Risk:** Worldwide. Endemic areas include North America and parts of Europe and Asia

**Transmission:** Symptoms usually appear 3 to 5 days after exposure to the bacteria, but can take as long as 14 days. It can be transmitted through 1) Broken skin/open wound in direct contact with an infected carcass or live animal 2) Being bitten by an infected flea or tick 3) More rarely through the ingestion of infected meat and 4) breathing in the bacteria, *F. tularensis.*

**Signs and Symptoms:** Symptoms of tularemia may include: sudden fever, chills, headaches, diarrhea, muscle aches, joint pain, dry cough, and progressive weakness. People can also develop pneumonia with chest pain, cough, and difficulty breathing. Other symptoms of tularemia depend on how a person was exposed to the tularemia bacteria. These symptoms can include ulcers on the skin or mouth, swollen and painful lymph glands, swollen and painful eyes, and a sore throat.

**Treatment:** Antibiotics such as Streptomycin or Tetracycline are commonly used.

**Prevention:** Use insect repellent containing DEET on your skin, or treat clothing with repellent containing permethrin, to prevent insect bites. Use care and wear gloves when handling sick or dead animals. Be sure to cook your food thoroughly and that your water is from a safe source. Note any change in the behavior of your pets (especially rodents, rabbits, and hares) or livestock, and consult a veterinarian if they develop unusual symptoms.

***TUNGIASIS***

**Description:** Is a parasitic infestation caused by the female sandfly, *Tunga penetrans.*

**Areas of Risk:** T*unga penetrans* is distributed in tropical and subtropical regions of the world, including Mexico to South America, the West Indies and Africa. The fleas normally occur in sandy climates, including beaches, stables and farms.

**Transmission:** Penetrations of the skin by the female sandfly. The eggs are expelled over a 3 week period, which form an itchy, infected, red nodule with a small blackish opening in the center. These nodules under the skin are usually found on the feet or area of the body exposed to the ground when sitting or lying down.

**Symptoms:** The initial burrowing by the gravid females is usually painless; symptoms, including itching and irritation, inflammation and ulceration may become severe, and multiple lesions in the feet can lead to difficulty in walking. Secondary bacterial infections, including tetanus and gangrene, are not uncommon with tungiasis.

**Treatment:** Treatment is usually limited to extraction of the whole flea from the skin using a sterile needle. Care should be taken not to burst the flea, which can lead to severe inflammation. No available drug has yet been demonstrated to be effective in treating tungiasis. Tetanus prophylaxis is indicated for patients whose tetanus vaccination status is unknown or not up-to-date.

**Prevention:** Wear covering over feet and other areas of the body that would come in contact with the ground/sand. Bathing in hot water after exposure may help to reduce the chances of skin penetration. Individuals can apply insect repellent to prevent the penetration of sand fleas.

***TYPHOID and PARATYPHOID FEVER***

**Description:**Is a life-threatening illness caused by a bacterium.

**Areas of Risk:** The greatest risk to travelers is in the countries of Southern Asia (which is 6-30 times higher risk than other destinations). Other risk areas include: East and Southeast Asia, Africa, the Caribbean, and Central and South America.

**Transmission:** Typhoid Fever is transmitted by consumption of contaminated food and water.

**Signs and Symptoms:** The incubation period is 6-30 days. A persistent high fever is a hallmark symptom. Others include headache, anorexia, malaise are nearly universal. More serious complications generally occur 2-3 weeks of illness such as abdominal pain (possible intestinal hemorrhage or perforation), weakness, and cough.

**Treatment:** Seek medical attention immediately and start appropriate antibiotics, such as fluoroquinolone.

**Prevention:** Typhoid vaccine is recommended for travel to areas listed above. The injectable vaccine is a single dose and provides protection for 2 years. The oral vaccine is taken every other day for four doses, and provides protection for 5 years. Both typhoid vaccine protect 50-80%. These vaccines do not protect against paratyphi infection. Follow safe food and water precautions and frequent handwashing.

***TYPHUS***

**Description:** An illness in humans caused by a bacteria, a species of *Rickettsia.* Paratyphi is similar and there are serotypes, A, B, or C.

**Areas of Risk:** Occurs in endemic foci in mountainous regions of Mexico, Central and South America, central and east Africa, and numerous countries of Asia. It occurs more often in colder months when clothing infested with lice are not laundered and person to person contact spreading lice is greater. Game hunting and traveling to southern Africa from November through April are risk factors for African tick-bite fever in travelers. Scrub typhus is endemic in northern Japan, Southeast Asia, the western Pacific Islands, eastern Australia, China, maritime areas and several parts of south-central Russia, India, and Sri Lanka. Active foci of endemic typhus are known in the Andes regions of South America and in Burundi and Ethiopia.

**Transmission:** Typhus Fever is caused by several different rickettsiae, resulting in similar disease. transmitted by ectoparasites such as fleas, lice, mites, and ticks during feeding or by scratching crushed arthropods or infectious feces into the skin. Inhaling dust or inoculating conjunctiva with infectious material may also cause infection. Typhus has rarely been reported with organ transplants or through blood transfusions.

**Signs and Symptoms:** Common symptoms typically develop within 1–2 weeks of infection include fever, headache, malaise, and sometimes nausea and vomiting. Most symptoms associated with acute rickettsial infections are nonspecific. Many rickettsioses are accompanied by a maculopapular, vesicular, or petechial rash or an eschar at the site of the tick bite. This rash may appear on day 5 or 6, initially on the upper trunk, spreading to the entire body, but not the face, palms, or soles of the feet. Seek medical attention immediately.

**Treatment:** Seek medical attention and antibiotics would be used as treatment.

**Prevention:** Avoid activity in infested scrub brush habitats, use repellents with DEET (Deep Woods Off, Repel and Ultrathon) to prevent tick attachment, and remove ticks immediately and wash area with soap and water. Avoid louse- infested dwellings and areas where rodents may be prevalent.

***VIBRIO PARAHAEMOLYTICUS***

**Description:** *Vibrio parahaemolyticus* is a bacterium in the same family as those that cause cholera.

**Areas of Risk:** It lives in brackish saltwater and causes gastrointestinal illness in humans. *V. parahaemolyticus* naturally inhabits coastal waters in the United States and Canada and is present in higher concentrations during summer; it is a halophilic, or salt-requiring organism.

**Signs and Symptoms:** When ingested, *V. parahaemolyticus* causes watery diarrhea often with abdominal cramping, nausea, vomiting, fever and chills. Usually these symptoms occur within 24 hours of ingestion. Illness is usually self-limited and lasts 3 days. Severe disease is rare and occurs more commonly in persons with weakened immune systems. *V. parahaemolyticus* can also cause an infection of the skin when an open wound is exposed to warm seawater.

**Transmission:** Most people become infected by eating raw or undercooked shellfish, particularly oysters. Less commonly, this organism can cause an infection in the skin when an open wound is exposed to warm seawater.

**Treatment:** Treatment is not necessary in most cases of *V. parahaemolyticus* infection. There is no evidence that antibiotic treatment decreases the severity or the length of the illness. Patients should drink plenty of liquids to replace fluids lost through diarrhea. In severe or prolonged illnesses, antibiotics such as tetracycline or ciprofloxicin can be used. The choice of antibiotics should be based on antimicrobial susceptibilities of the organism.

**Prevention:** Most infections caused by *V. parahaemolyticus* in the United States can be prevented by thoroughly cooking seafood, especially oysters. Wound infections can be prevented by avoiding exposure of open wounds to warm seawater.

***WEST NILE FEVER***

**Description:** Is potentially serious viral infection.

**Areas of Risk**: Outbreaks in Egypt, Israel, India, France, Romania, Czech Republic and is widespread in parts of Africa, western Asia, the northern Mediterranean area and parts of the North America.

**Transmission:** The most common means of transmission is through the bite of an infected mosquito. It may be transmitted through blood transfusion, organ transplants, exposure in a laboratory setting, or from mother to child (via breastfeeding, delivery, or pregnancy).

**Signs and Symptoms:** About 80% of infected individuals will have no symptoms. In milder forms of this illness symptoms would include, fever, headache, malaise, rash, nausea, and vomiting. With severe illness would be high fever, neck stiffness, headache, disorientation, stupor, tremors/convulsions, vision loss, numbness and paralysis, and coma.

**Treatment**: Seek medical attention.

**Prevention:** Follow personal protection measures including the use of insect repellant with DEET (Deep Woods Off, Repel, and Ultathon), wear clothing to cover arms and legs completely, stay indoors from dusk until dawn, and use mosquito netting for sleep in unscreened or poorly screened sleeping quarters.

***YELLOW FEVER***

**Description:** Is a viral disease.

**Areas of Risk:** Occurs in tropical and subtropical areas in South America and Africa. Some countries require a yellow fever certificate of vaccination if traveling from a country with yellow fever outbreaks.

**Transmission:** Yellow Fever is transmitted by the bite of the Aedes mosquito that feeds during dusk-to-dawn.

**Signs and Symptoms:** Illness ranges in severity from a self-limited febrile illness to severe liver disease with bleeding. Sudden onset of fever and chills, headache, backache, muscle pain, nausea and vomiting. Pulse is slow and weak out of proportion to elevated temp. Jaundice (yellow skin and eyes) may be seen early. A remission of hours or days, may occur, and then may progress too serious and life threatening disease. Seek medical attention at first sign of disease.

**Treatment:** Seek medical care.

**Prevention:** Yellow fever vaccine is recommended for persons aged ≥ 9 months who are traveling to or living in areas at risk for yellow fever virus transmission in [South America](http://www.cdc.gov/yellowfever/maps/south_america.html) and [Africa](http://www.cdc.gov/yellowfever/maps/africa.html).  Yellow fever vaccine may be required for entry into certain countries.Follow personal protection measures including, use of insect repellent with DEET (Deep Woods Off, Repel, and Ultrathon), wear clothing to cover arms and legs completely, stay indoors from dusk until dawn, and use mosquito netting for sleep if unscreened or poorly screened sleeping quarters.

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**Post Travel information**

The most frequent complain of travelers upon return is gastrointestinal upset such as, nausea, vomiting, abdominal pain and diarrhea. Presence of fever or skin rashes is also a concern. The most serious symptom would be fever. It could indicate a life threatening illness such as malaria or a hemorrhagic fever, if those diseases were risks to the area you traveled.

Illness may not occur immediately so it is important to advise your health care provider where you have traveled in the past several months. If you have traveled to an area where malaria is a risk a fever could indicate a medical emergency. Most travelers will become ill within 12 weeks after leaving a malaria risk area, although symptoms may not appear for up to 6-12 months.

It is important if you develop to inform your health care provider if you have a tattoo or body piercing done while traveling as well, having had unprotected intercourse or an injection. Screening tests may be ordered to check for Hepatitis, STD’s, and HIV. Testing of blood, stool and/or urine may be done too check for parasites or organisms associated with traveler’s diarrhea such as schistosomiasis