

## KEY HEALTH AND SAFETY ISSUES IN COTE D'IVOIRE

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Note: The information in this appendix is drawn primarily from public information available through the Centre for Disease Control.

### VACCINATIONS

The following vaccinations are recommended for staff working in Cote d'Ivoire.

- Hepatitis A.
- Hepatitis B.
- Meningococcal (meningitis).
- Rabies.
- Typhoid vaccine.
- Yellow fever.
- Baseline vaccinations for tetanus-diphtheria, measles, and polio.

Prophylaxis for malaria is also recommended, upon advice from a physician.

It should be noted that a certificate of yellow fever vaccination is required for entry into Cote d'Ivoire.

### HEALTH RISKS

Based on a combination of all major infectious diseases that occur in a country, an overall country risk level is assigned as low, intermediate, high, or highest risk by the CDC. Cote d'Ivoire is rated as HIGHEST RISK for infectious diseases. Environmental contamination may also present short- and long-term health risks to staff working in Cot d'Ivoire.

## VECTOR-BORNE DISEASES

Vector-borne diseases are diseases that are contracted through the bite of an insect.

The vector-borne diseases of greatest risk are:

Malaria. Malaria is a very serious disease transmitted through the bite of a mosquito that carries the malaria protozoa. Soldiers who contract malaria usually are in the hospital for 1-7 days. Most people survive a bout of malaria after a 10-20 day illness, but it is important to spot the symptoms early. The first is high fever, followed a few hours later by chills. Two to four days later, this cycle is repeated. The most serious forms of the disease can affect the kidneys and brain and can cause anaemia, coma and death. Malaria can be fatal. The risk of contracting malaria is the same throughout the year and in all areas of West Africa.

Yellow fever. Yellow fever is a very serious disease transmitted through the bite of a mosquito that carries the yellow fever virus. Soldiers who contract yellow fever may require intensive care. Yellow fever can be fatal. The risk of contracting yellow fever is the same throughout the year and occurs in all rural areas and most urban areas of West Africa.

Dengue Fever Dengue fever is another disease that is spread to humans from mosquitoes. It is caused by four distinct, but closely related, viruses. It is a severe, flu-like illness that affects infants, young children and adults but rarely causes death. Symptoms of the disease vary, but can include high fever, severe headache, pain behind the eyes, muscle and joint pains, and rash. Dengue haemorrhagic fever is a potentially deadly complication that can lead to an enlargement of the liver and, in severe cases, failure of the circulation system.

Trypanosomiasis Sleeping sickness (also called trypanosomiasis) is an infection that is passed to humans by the tsetse fly. The first sign of infection may be a sore appearing at the site of the tsetse fly bite about two to three days after having been bitten. Within two to three weeks, fever develops, often accompanied by an intensely itchy rash. Other symptoms include headache, mental confusion, swelling of the lymph tissue and enlargement of the spleen and liver. Eventually, the patient's speech becomes slurred, mental processes slow, and the patient sits and stares for long periods of time, or sleeps. Untreated, these symptoms eventually lead to coma and then to death.

Persons working or living in West Africa are also at risk of contracting Crimean-Congo hemorrhagic fever from ticks. Other vector-borne diseases that pose some risk to staff are chikungunya virus, Rift Valley fever, Sindbis (Ockelbo) and

West Nile fever from mosquitoes; Boutonneuse (Mediterranean spotted fever) from ticks; leishmaniasis from sand flies; and murine typhus from fleas.

How to prevent vector-borne diseases:

- There are prophylaxis you can take to help prevent malaria, and there is a vaccine for yellow fever. Standard malarial prophylaxis include:
- atovaquone/proguanil,
- doxycycline,
- mefloquine,
- or primaquine (in special circumstances).
- When working in this region, especially in rural areas, use an insect repellent containing DEET to reduce your risk of acquiring a vector-borne disease.
- When using both DEET and sunscreen products, apply the sunscreen to the skin first so it does not interfere with the effectiveness of the DEET. After 30 minutes to an hour, apply the DEET. This allows the sunscreen to penetrate and bind to the skin first.

## **FOOD-BORNE AND WATER-BORNE DISEASES**

Food-borne and water-borne diseases are caused by eating food or drinking water that contains the bacteria, parasites or viruses that cause certain diseases. Sanitation is very poor throughout West Africa, even in major urban areas. Local food and water sources (including ice) can be heavily contaminated with the bacteria, parasites, viruses, pesticides, and fertilizers that cause disease.

The food and water-borne diseases of greatest risk are:

Diarrhea (bacterial and protozoal). This is a mild but uncomfortable disease caused by drinking water or eating food that contains bacteria or protozoa. There are a number of bacteria and protozoa that can cause diarrhea.

Hepatitis A. Hepatitis A is a debilitating liver disease caused by eating food or drinking water that contains the hepatitis A virus. It can also be caused by not washing your hands after you go to the bathroom.

Typhoid/paratyphoid fever. Typhoid fever is a life-threatening illness caused by bacteria found in food and water. People can have typhoid and not have symptoms. Often, these people will infect others by accidentally contaminating their food or water.

People working and living in West Africa are also in danger of contracting other food and water-borne diseases such as brucellosis (usually caused by eating contaminated dairy products), cholera, and hepatitis E.

How to prevent food and water-borne diseases:

- There are vaccines for hepatitis A and typhoid fever.
- Assume all food, ice, and water is contaminated unless it has been properly filtered, washed or prepared in a clean environment. Restaurants with many patrons that prepare food to order are often the cleanest.
- Unfortunately, even a one-time consumption of these foods or water may cause severe illness.

## **WATER-CONTACT AND SOIL-CONTACT DISEASES**

Water-contact diseases are diseases contracted by swimming, wading, or other skin contact with water contaminated with certain diseases. Soil-contact diseases are contracted by coming into contact with soil or dust contaminated with certain diseases. Usually, you must breathe in the dust or soil that is infected.

The water-contact and soil-contact diseases of greatest risk are:

Schistosomiasis. Schistosomiasis is a water-contact disease caused by parasitic worms. Infection can be mild or serious enough to require hospitalization. The risk of contracting schistosomiasis is the same year round. It is found in all areas of West Africa, including urban areas.

Lassa fever. Lassa fever is a soil-contact disease caused by a virus. You can contract Lassa fever when you breathe in dust that contains the virus. Lassa fever is most common in Guinea but can be found in almost any country in West Africa.

Tetanus Tetanus is a disease of the nervous system caused by bacteria that enters the body through a break in the skin. Early symptoms include lockjaw, stiffness in the neck and abdomen, and difficulty swallowing. Later on, symptoms include fever, elevated blood pressure, and severe muscle spasms. Death occurs in about 11% of cases.

In addition to schistosomiasis, tetanus and Lassa fever, another disease of importance is the water-contact disease leptospirosis. Skin irritations and infections, such as athlete's foot and ringworm, are also common medical ailments and are commonly caused by fungi that thrive in moist conditions.

Water and soil-contact diseases can be prevented by:

- Not swimming or wading in water that has not been treated with chlorine.
- If you must be exposed to non-chlorinated water, wear protective clothing and footwear.
- Never go barefoot outdoors.
- Clean your skin and clothing after wading or swimming in freshwater ponds or streams.
- Try not to inhale dust or dirt that has been inhabited by rodents.
- To prevent skin infections, maintain clean, dry skin.

## **ANIMAL-CONTACT DISEASES**

Diseases contracted through contact with animals that are potentially serious include rabies, anthrax and Q fever. These animal-contact diseases are serious illnesses that you contract from being bitten by an infected animal (rabies), touching or eating infected animals (anthrax), or inhaling dust that contains the organisms that cause the disease (Q fever, anthrax). Cats, dogs, and bats are the main carriers of rabies, but any animal can be infected with rabies. Cattle, sheep and goats are the main carriers of anthrax and Q fever.

Avoid contact with all animals.

- If bitten, seek medical attention immediately.
- Keep living quarters free of rodents, and stay clear of buildings infested with rodents.
- Clean your skin and clothing after contact with animals or dust.

## **DANGEROUS ANIMALS AND PLANTS**

There are many species of highly poisonous snakes, which are well camouflaged and sometimes aggressive, that live in the region. There are also several species of scorpions and spiders, some with potentially fatal venom. Some regional plants have thorns, stinging hairs, or toxic resins that may puncture the skin or introduce poison into the skin causing skin irritation, rashes or infections. It is important to remember that even contact with smoke from the burning of these plants can also cause skin rashes and damage to your lungs. Also, some regional plants may cause systemic poisoning if the leaves, berries, flowers, or other plant parts are chewed or swallowed. Symptoms may include dizziness, vomiting, irregular heartbeat, and delirium or hallucinations.

Rabies. Rabies is a disease caused by the rabies virus. It may take several weeks or even a few years for people to show symptoms after becoming infected with rabies, but usually people start to show signs of the disease 1 to 3 months after the virus infects them. The early signs of rabies can be fever or headache, but this changes quickly to nervous system signs, such as confusion, sleepiness, or agitation. Once someone with rabies infection starts having these symptoms,

that person usually does not survive. This is why it is very important to talk to your doctor or health care provider right away if any animal bites you, especially a wild animal.

- There is a vaccination available for rabies, and treatment is possible immediately after an infected bite.
- Consider any snake encountered as poisonous, and do not handle.
- Seek immediate medical attention if bitten or stung by any animal or insect; untreated snakebites may cause serious illness or death within 1 hour.
- If possible, avoid sleeping on the ground.
- Shake out boots, bedding, and clothing prior to use, and never walk barefoot.
- Avoid skin contact with plants when possible.
- Clean your clothing with soap and water after contact with animals or harmful plants.

## **RESPIRATORY AND SEXUALLY TRANSMITTED DISEASES**

The contagious diseases of greatest risk are:

Meningococcal meningitis. This is an extremely serious, often fatal, highly contagious bacterial disease that causes an inflammation of the lining of the brain and can eventually shut down your organs. A person is at risk of contracting the disease when he or she comes into close contact with oral secretions of a person who is carrying the bacteria (for example, through a cough or kiss).

HIV/AIDS. These are potentially fatal sexually transmitted diseases (STDs) that are very common in West Africa. They can also be passed by sharing needles. Though the immediate impact of HIV/AIDS on your ability to function may be limited, the long-term impact on your individual health is great.

Tuberculosis There is a risk of being exposed to the bacteria that causes tuberculosis (TB). Breathing in the bacteria that someone coughed or sneezed into the air spreads TB. Being exposed to the bacteria will cause a positive skin test even if you do not become sick. If you have a positive skin test, you may still be treated even if you have no symptoms.

STDs Staff are also at risk of contracting STDs, such as gonorrhea and Chlamydia, if they have unprotected sex.

Hepatitis B. This can be contracted if you are exposed to blood or body fluids (for example, health-care workers), have unprotected sexual contact with an infected person, or are exposed through medical treatment.

- There is a vaccine against meningococcal meningitis, but it is not always effective. If there is a local outbreak, stay away from crowds.
- There is also a vaccine for hepatitis B but not for any other STD. Anyone working in the region should not have unprotected sex and should not share needles.

## **TOXIC INDUSTRIAL CHEMICALS AND MATERIALS**

One of the greatest environmental health risks to persons working or living in West Africa are associated with consumption of water contaminated with raw sewage or runoff containing fecal pathogens, as well as air pollution and soil and water contaminated with pesticides. There may also be health risks from industrial chemicals and materials as a result of accidents related to improper design, maintenance, or operation of indigenous industrial facilities or improper handling or disposal of hazardous materials.