

Communicable Diseases

communicable diseases, illnesses caused by microorganisms and transmitted from an infected person or animal to another person or animal. Some diseases are passed on by direct or indirect contact with infected persons or with their excretions. Most diseases are spread through contact or close proximity because the causative bacteria or viruses are airborne; i.e., they can be expelled from the nose and mouth of the infected person and inhaled by anyone in the vicinity. Such diseases include diphtheria, scarlet fever, measles, mumps, whooping cough, influenza, and smallpox. Some infectious diseases can be spread only indirectly, usually through contaminated food or water, e.g., typhoid, cholera, dysentery. Still other infections are introduced into the body by animal or insect carriers, e.g., rabies, malaria, encephalitis, Rocky Mountain spotted fever. The human disease carriers, i.e., the healthy persons who may be immune to the organisms they harbor, are also a source of transmission. Some infective organisms require specific circumstances for their transmission, e.g., sexual contact in syphilis and gonorrhea, injury in the presence of infected soil or dirt in tetanus, infected transfusion blood or medical instruments in serum hepatitis and sometimes in malaria. In the case of AIDS, while a number of different circumstances will transmit the disease, each requires the introduction of a contaminant into the bloodstream. A disease such as tuberculosis may be transmitted in several ways—by contact (human or animal), through food or eating utensils, and by the air. Control of communicable disease depends upon recognition of the many ways transmission takes place. It must include isolation or even quarantine of persons with certain diseases. Proper antisepsis (see [antiseptic](#)) should be observed in illness and in health. Immunologic measures (see [immunity](#)) should be utilized fully. Some sexually transmitted infections are associated with cancer (cervical or penile). Education of the population in rules of public health is of great importance both in the matter of personal responsibility (disposal of secretions, preventing contact with the blood of others, proper handling and preparation of food, personal hygiene) and community responsibility (safe water and food supply, sterile blood supply, garbage and waste disposal). Animal and insect carriers must be controlled, and the activities of human carriers must be limited.

Common Infectious Diseases Worldwide

Sources: The Centers for Disease Control (CDC); The World Health Organization (WHO).

The following is a list of the most common infectious diseases throughout the world today. Accurate caseload numbers are difficult to determine, especially because so many of these diseases are endemic to developing countries, where many people do not have access to modern medical care. Approximately half of all deaths caused by infectious diseases each year can be attributed to just three diseases: tuberculosis, malaria, and AIDS. Together, these diseases cause over 300 million illnesses and more than 5 million deaths each year.

The list does not include diseases that have received a significant amount of media attention in recent years—such as Ebola Hemorrhagic Fever or [West Nile Virus](#) > but which in fact have infected a relatively small number of people

African Trypanosomiasis (“sleeping sickness”): African trypanosomiasis is spread by the tsetse fly, which is common to many African countries. The World Health Organization (WHO) estimates that nearly 450,000 cases occur each year. Symptoms of the disease include

fever, headaches, joint pains, and itching in the early stage, and confusion, sensory disturbances, poor coordination, and disrupted sleep cycles in the second stage. If the disease goes untreated in its first stage, it causes irreparable neurological damage; if it goes untreated in its second stage, it is fatal.

Cholera: Cholera is a disease spread mostly through contaminated drinking water and unsanitary conditions. It is endemic in the Indian subcontinent, Russia, and sub-Saharan Africa. It is an acute infection of the intestines with the bacterium *Vibrio cholerae*. Its main symptom is copious diarrhea. Between 5% and 10% of those infected with the disease will develop severe symptoms, which also include vomiting and leg cramps. In its severe form, cholera can cause death by dehydration. An estimated 200,000 cases are reported to WHO annually.

Cryptosporidiosis: Cryptosporidiosis has become one of the most common causes of waterborne disease in the United States in recent years; it is also found throughout the rest of the world. It is caused by a parasite that spreads when a water source is contaminated, usually with the feces of infected animals or humans. Symptoms include diarrhea, stomach cramps, an upset stomach, and slight fever. Some people do not exhibit any symptoms.

Dengue: WHO estimates that 50 million cases of dengue fever appear each year. It is spread through the bite of the *Aedes aegypti* mosquito. Recent years have seen dengue outbreaks all over Asia and Africa. Dengue fever can be mild to moderate, and occasionally severe, though it is rarely fatal. Mild cases, which usually affect infants and young children, involve a nonspecific febrile illness, while moderate cases, seen in older children and adults, display high fever, severe headaches, muscle and joint pains, and rash. Severe cases develop into dengue hemorrhagic fever, which involves high fever, hemorrhaging, and sometimes circulatory failure.

Hepatitis A: Hepatitis A is a highly contagious liver disease caused by the hepatitis A virus. Spread primarily by the fecal-oral route or by ingestion of contaminated water or food, the number of annual infections worldwide is estimated at 1.4 million. Symptoms include fever, fatigue, jaundice, and dark urine. Although those exposed usually develop lifelong immunity, the best protection against Hepatitis A is vaccination.

Hepatitis B: Approximately 2 billion people are infected with the hepatitis B virus (HBV), making it the most common infectious disease in the world today. Over 350 million of those infected never rid themselves of the infection. Hepatitis is an inflammation of the liver that causes symptoms such as jaundice, extreme fatigue, nausea, vomiting, and stomach pain;

hepatitis B is the most serious form of the disease. Chronic infections can cause cirrhosis of the liver or liver cancer in later years.

Hepatitis C: Hepatitis C is a less common, and less severe, form of hepatitis. An estimated 170 million people worldwide are infected with hepatitis C virus (HCV); 3–4 million more are infected every year. The majority of HCV cases are asymptomatic, even in people who develop chronic infection.

HIV/AIDS: See [Understanding AIDS](#).

Influenza: Several influenza epidemics in the 20th century caused millions of deaths worldwide, including the worst epidemic in American history, the Spanish influenza outbreak that killed more than 500,000 in 1918. Today influenza is less of a public health threat, though it continues to be a serious disease that affects many people. Approximately 20,000 people die of the flu in the United States every year. The influenza virus attacks the human respiratory tract, causing symptoms such as fever, headaches, fatigue, coughing, sore throat, nasal congestion, and body aches.

Japanese Encephalitis: Japanese encephalitis is a mosquito-borne disease endemic in Asia. Around 50,000 cases occur each year; 25% to 30% of all cases are fatal.

Leishmaniasis: Leishmaniasis is a disease spread by the bite of the sandfly. It is found mostly in tropical countries. There are several types of leishmaniasis, and they vary in symptoms and severity. Visceral leishmaniasis (VL, or *kala azar*) is the most severe; left untreated, it is always fatal. Its symptoms include fever, weight loss, anemia, and a swelling of the spleen and liver. Mucocutaneous leishmaniasis (MCL, or *espundia*) produces lesions that affect the nose, mouth, and throat and can destroy their mucous membranes. Cutaneous leishmaniasis (CL) produces skin ulcers, sometimes as many as 200, that cause disability and extensive scarring. Diffuse cutaneous leishmaniasis (DCL) is similar to CL, and infected people are prone to relapses. Approximately 12 million cases of leishmaniasis exist today.

Malaria: Malaria is a mosquito-borne disease that affects 300–500 million people annually, causing between 1 and 3 million deaths. It is most common in tropical and subtropical climates and is found in 90 countries—but 90% of all cases are found in Sub-Saharan Africa. Most of its victims are children. The first stage consists of shaking and chills, the next stage involves high fever and severe headache, and in the final stage the infected person's temperature drops and he or she sweats profusely. Infected people also often suffer from anemia, weakness,

and a swelling of the spleen. Malaria was almost eradicated 30 years ago; now it is on the rise again.

Measles: Measles is a disease that has seen a drastic reduction in countries where a vaccine is readily available, but it is still prevalent in developing countries, where most of the 777,000 deaths (out of 30 million cases) it caused in 2001 occurred. Symptoms include high fever, coughing, and a maculo-papular rash; common complications include diarrhea, pneumonia, and ear infections.

Meningitis: Meningitis, often known as spinal meningitis, is an infection of the spinal cord. It is usually the result of a viral or bacterial infection. Bacterial meningitis is more severe than viral meningitis and may cause brain damage, hearing loss, and learning disabilities. An estimated 1.2 million cases of bacterial meningitis occur every year, over a tenth of which are fatal. Symptoms include severe headache, fever, nausea, vomiting, lethargy, delirium, photophobia, and a stiff neck.

Onchocerciasis (“river blindness”): Onchocerciasis is caused by the larvae of *Onchocerca volvulus*, a parasitic worm that lives in the human body for years. It is endemic in Africa, where nearly all of the 18 million people infected with the disease live. Of those infected, over 6.5 million have developed dermatitis and 270,000 have gone blind. Symptoms include visual impairment, rashes, lesions, intense itching, skin depigmentation, and lymphadenitis.

Pneumonia: Pneumonia has many possible causes, but it is usually an infection of the streptococcus or mycoplasma bacteria. These bacteria can live in the human body without causing infection for years, and only surface when another illness has lowered the person's immunity to disease. *Streptococcus pneumoniae* causes streptococcal pneumonia, the most common kind, which is more severe than mycoplasmal pneumonia. *S. pneumoniae* is responsible for more than 100,000 hospitalizations for pneumonia annually, as well as 6 million cases of otitis media and over 60,000 cases of invasive diseases such as meningitis.

Rotavirus: Rotavirus is the most common cause of viral gastroenteritis worldwide. It kills more than 600,000 children each year, mostly in developing countries. Symptoms include vomiting, watery diarrhea, fever, and abdominal pain.

Schistosomiasis: Schistosomiasis is a parasitic disease that is endemic in many developing countries. Roughly 200 million people worldwide are infected with the flukeworm, whose eggs cause the symptoms of the disease. Some 120 million of those infected are

symptomatic, and 20 million suffer severely from the infection. Symptoms include rash and itchiness soon after becoming infected, followed by fever, chills, coughing, and muscle aches.

Shigellosis: Shigella infection causes an estimated 600,000 deaths worldwide every year. It is most common in developing countries with poor sanitation. Shigella bacteria cause bacillary dysentery, or shigellosis. Symptoms include diarrhea with bloody stool, vomiting, and abdominal cramps.

Strep Throat: Strep throat is caused by the streptococcus bacteria. Several million cases of strep throat occur every year. Symptoms include a sore throat, fever, headache, fatigue, and nausea.

Tuberculosis: Tuberculosis causes nearly 2 million deaths every year, and WHO estimates that nearly 1 billion people will be infected between 2000 and 2020 if more effective preventive procedures are not adopted. The TB bacteria are most often found in the lungs, where they can cause chest pain and a bad cough that brings up bloody phlegm. Other symptoms include fatigue, weight loss, appetite loss, chills, fever, and night sweats.

Typhoid: Typhoid fever causes an estimated 600,000 deaths annually, out of 12–17 million cases. It is usually spread through infected food or water. Symptoms include a sudden and sustained fever, severe headache, nausea, severe appetite loss, constipation, and sometimes diarrhea.

Yellow Fever: Yellow fever causes an estimated 30,000 deaths each year, out of 200,000 cases. The disease has two phases. In the “acute phase,” symptoms include fever, muscle pain, headache, shivers, appetite loss, nausea, and vomiting. This lasts for 3–4 days, after which most patients recover. But 15% will enter the “toxic phase,” in which fever reappears, along with other symptoms, including jaundice; abdominal pain; vomiting; bleeding from the mouth, nose, eyes, and stomach; and deterioration of kidney function (sometimes complete kidney failure). Half of all patients in the toxic phase die within two weeks; the other half recover.

Hemorrhagic Fever: His eyes are the color of rubies, and his face is an expressionless mass of bruises. The red spots, which a few days before had started out as starlike speckles, have expanded and merged into huge, spontaneous purple shadows: His whole head is turning black-and-blue. The muscles of his face droop. The connective tissue in his face is dissolving, and his face appears to hang from the underlying bone, as if the face is detaching itself from the skull.

He opens his mouth and gasps into the bag, and the vomiting goes on endlessly. It will not stop, and he keeps bringing up liquid, long after his stomach should have been empty

So goes Richard Preston's description of an Ebola sufferer in his account of the Ebola outbreaks in Zaire, *The Hot Zone*. Ebola is a *hemorrhagic* disease or fever, meaning it is characterized by bleeding. Other hemorrhagic diseases include Marburg and hantavirus (discussed later in this section).

Disease Diction

A **hemorrhagic fever** is one characterized by severe bleeding, often from the mouth, stomach, and digestive tract. The term comes from the Greek *Haima* meaning blood and *rhegnynai* meaning to burst forth.

These diseases are very contagious and are passed through contact with the blood or body fluids of someone who is infected, or by touching a contaminated surface. Fortunately, neither Ebola nor Marburg have been seen in the United States yet.