

Bio Terror Bible

EXPOSING THE COMING BIO-TERROR PANDEMIC

BIOTERRORBIBLE.COM: The following glossary is to help facilitate further understanding of the complex terminology that surrounds the field of medical science which deals with vaccines, bio-terror and pandemics.

Abscess: A localized collection of pus resulting from an infection.

Adjuvant: A substance that is added to a vaccine to improve the immune response so that less vaccine is needed. Aluminum hydroxide is the only FDA licensed adjuvant in the United States.

Aerosol, aerosolized: A suspension of small (< 5µm) particles or droplets in the air. Aerosolized biological agents may remain suspended in air for long periods and may travel long distances. Aerosol (or airborne) transmission occurs when an aerosol containing a biological agent is inhaled by and infects another person. Aerosols are generated naturally by coughing, sneezing, talking or breathing. Certain medical procedures, such as endotracheal intubation, mechanical ventilation, and airway suctioning, can generate aerosols. Aerosols also can be produced intentionally to deliver a biological weapon.

Airborne precautions: Airborne precautions are actions taken to prevent the transmission of infectious agents that are suspended in the air (aerosols) and that are therefore infectious over long distances.

Aluminum: A naturally occurring element that makes up about 8% of the surface of the earth and is always found combined with other elements such as oxygen, silicon, and fluorine. Aluminum is the most common metallic element in the earth's crust but has no clear biologic role. Everyone is exposed to low levels of aluminum from food, air, and water. Exposure to high levels of aluminum may result in respiratory problems (aluminosis). Inhalation of bauxite (aluminum ore) fumes may cause pulmonary fibrosis. Aluminum in the bloodstream may lead to neurological symptoms and may be fatal.

Anthrax: A serious bacterial infection caused by *Bacillus anthracis* that occurs primarily in animals. Cattle, sheep, horses, mules, and some wild animals are highly susceptible. Humans and swine are generally quite resistant to anthrax. Humans become infected when the spores of *B. anthracis* enter the body by contact with animals infected with *B. anthracis* or from contact with contaminated animal products, insect bites, ingestion, or inhalation. Aerosolized ("weaponized") spores of *B. anthracis* can potentially be used (misused) for biological warfare and bioterrorism. Cutaneous anthrax is the most common form of the disease and is characterized by the development of a localized skin lesion with a central eschar surrounded by marked edema (swelling). Inhalation anthrax (wool-sorters' disease) typically involves hemorrhagic mediastinitis (bleeding into the mid-chest), rapidly progressive systemic (bodywide) infection, and carries a very high mortality rate. Gastrointestinal anthrax is much rarer but is also associated with a high mortality rate.

Antibiotic susceptibility: The vulnerability of a specific bacterial strain to antibiotic treatment. Some bacterial strains are resistant to specific antibiotics, so antibiotic susceptibility must be determined before drugs are chosen for prophylaxis or treatment.

Antibodies: Proteins that are produced by specialized cells of the immune system, called B cells, after stimulation by an antigen. Antibodies (also called immunoglobulins) act specifically against the antigen in an immune response.

Antibiotic: A drug used to treat infections caused by bacteria and other microorganisms. Originally, an antibiotic was a substance produced by one microorganism that selectively inhibits the growth of another. Synthetic antibiotics, usually chemically related to natural antibiotics, have since been produced that accomplish comparable tasks.

Antibiotic resistance: The ability of bacteria and other microorganisms to withstand an antibiotic to which they were once sensitive (and were once stalled or killed outright). Also called drug resistance.

Atypical: Not typical, not usual, not normal, abnormal. Atypical is often used to refer to the appearance of precancerous or cancerous cells.

Avian flu: See: Avian influenza.

Avirulent: Not virulent. A biological agent is avirulent when it does not cause disease.

Bacillus: A large family of bacteria that have a rod-like shape. They include the bacteria that cause food to spoil, and also those responsible for some types of diseases. Helpful members of the bacillus family are used to make antibiotics, or colonize the human intestinal tract and aid with digestion.

Bacillus anthracis: The bacterium that causes anthrax. Anthrax differs from most bacteria in that they exist in an inactive (dormant) state called spores. The spores are found in soil, animal carcasses and feces (including sheep, goats, cattle, bison, horses, and deer), and animal products (e.g., hides and wool). Some animals (cats, dogs, rats, and swine) are very resistant to anthrax. Remarkably, anthrax spores can remain dormant in soil for many years, perhaps decades. Likened somewhat to eggs that have the ability to hatch, spores can transform (germinate) into active bacteria under appropriate conditions.

Bacteria: Single-celled microorganisms which can exist either as independent (free-living) organisms or as parasites (dependent upon another organism for life).

Bacterial: Of or pertaining to [bacteria](#). For example, a bacterial lung [infection](#).

Bioterrorism: Terrorism using biologic agents that are harmful to humans. Biological diseases and the agents that might be used for terrorism have been listed by the US Centers for Disease Control and Prevention (CDC). These agents include viruses, bacteria, rickettsiae (microorganisms that have traits common to both bacterial and viruses), fungi, and biological toxins. The biological disease agents are classified into three categories, according to the degree of danger each agent is felt to pose.

Biovar: Formerly called a biotype, a biovar is group of bacterial strains distinguishable from other strains of the same species on the basis of physiological characteristics.

Botulism: An uncommon but potentially very serious illness, a type of food poisoning, that produces paralysis of muscles, via a nerve toxin called botulinum toxin ("botox") that is manufactured by bacteria named *Clostridium botulinum*.

Brucellosis: An infectious disease due to the bacteria *Brucella* that causes rising and falling (undulant) fevers, sweats, malaise, weakness, anorexia, headache, myalgia (muscle pain) and back pain.

BSL-3: Biosafety level 3. A level of laboratory precaution suitable for work with most pathogens transmitted through inhalation.

BSL-4: Biosafety Level 4. This level is required for work with the most dangerous (highly lethal) agents that pose a high risk of aerosol transmission. Examples of agents requiring this level are the Ebola virus and variola (the smallpox virus).

CDC: The Centers for Disease Control and Prevention, the US agency charged with tracking and investigating public health trends. The stated mission of the CDC is "To promote health and quality of life by preventing and controlling disease, injury, and disability." The CDC is a part of the U.S. Public Health Services (PHS) under the Department of Health and Human Services (HHS).

Centers for Disease Control and Prevention: The US agency charged with tracking and investigating public health trends. The stated mission of the Centers for Disease Control and Prevention, commonly called the CDC, is "To promote health and quality of life by preventing and controlling disease, injury, and disability."

Chlamydia: A type of bacteria one species of which causes an infection very similar to gonorrhea in the way that it is spread, the symptoms it produces, and the long-term consequences.

Cholera: A devastating and sometimes lethal disease with intense vomiting and profuse watery diarrhea leading to dehydration which, unless immediately treated, may be fatal.

Clostridium: A group of anaerobic bacteria (bacteria that thrive in the absence of oxygen). There are 100+ species of Clostridium. They include, for examples, Clostridium difficile, Clostridium perfringens (also called Clostridium welchii), and Clostridium botulinum.

Clostridium botulinum: A group of rod-shaped bacteria commonly found in the soil that grow best under low oxygen conditions. The bacteria form heat-resistant spores which allow them to survive in a dormant state until exposed to conditions that can support their growth. Clostridium botulinum produces botulinum toxin, a highly potent neurotoxin and the basis of the disease botulism.

Clostridium perfringens: A type of bacteria that is the most common agent of gas gangrene and can also cause food poisoning as well as a fulminant form of bowel disease called necrotizing colitis.

Cough: A rapid expulsion of air from the lungs typically in order to clear the lung airways of fluids, mucus, or material. Also called tussis.

Cryptosporidiosis: An intestinal infection characterized by diarrhea caused by a microscopic parasite, Cryptosporidium parvum. The parasite lives in the small intestine of humans and animals who pass it in their feces. The parasite is protected by an outer shell that allows it to survive outside the body for long periods of time and makes it resistant to chlorine disinfection. Both the disease and the parasite are popularly known as "Crypto." The disease is also called cryptosporidium enteritis.

Cryptosporidium: See: Cryptosporidiosis.

Cryptosporidium parvum: The [parasite](#) that causes the disease cryptosporidiosis. See: Cryptosporidiosis.

Cyanosis: A bluish discoloration of the skin due to inadequately oxygenated blood.

Dengue: Also known as [Dengue fever](#), an acute mosquito-borne viral illness of sudden onset that usually follows a benign course with [headache](#), [fever](#), prostration, severe joint and [muscle pain](#), swollen glands

(lymphadenopathy) and [rash](#). The presence (the "dengue triad") of fever, rash, and headache (and other pains) is particularly characteristic of dengue. Dengue is endemic throughout the tropics and subtropics. It goes by other names including breakbone or dandy fever. Victims of dengue often have contortions due to the intense joint and muscle pain. Hence, the name "breakbone fever." Slaves in the West Indies who contracted dengue were said to have "dandy fever" because of their postures and gait.

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Denture: An artificial set of teeth that can be removed.

Diagnosis: **1** The nature of a disease; the identification of an illness. **2** A conclusion or decision reached by diagnosis. The diagnosis is rabies. **3** The identification of any problem. The diagnosis was a plugged IV.

Eastern equine encephalitis: Abbreviated EEE. A mosquito-borne viral disease. The EEE virus normally is found in freshwater swamp birds and mosquitoes that do not bite people. However, the virus is occasionally transmitted to other types of mosquitoes capable of biting horses and people. The risk of contracting EEE is highest in mid-to-late summer. The mosquitoes are killed by frost.

Encephalitis: Inflammation of the brain. Encephalitis occurs, for example, in 1 in 1,000 cases of measles. It may start (up to 3 weeks) after onset of the measles rash and present with high fever, convulsions, and coma. It usually runs a blessedly short course with full recovery within a week. Or it may eventuate in central nervous system impairment or death.

Epidemic: The occurrence of more cases of a disease than would be expected in a community or region during a given time period. A sudden severe outbreak of a disease such as SARS. From the Greek "epi-", "upon" + "demos", "people or population" = "epidemos" = "upon the population." See also: Endemic; Pandemic.

Endemic: A disease that is constantly present to a greater or lesser degree in a human population in a specific geographic location. Enzootic is the comparable term referring to diseases associated with animal populations.

Escherichia coli: Full term for E. coli, the colon bacillus.

Essential: **1.** Something that cannot be done without. **2.** Required in the diet, because the body cannot make it. As in an essential amino acid or an essential fatty acid. **3.** Idiopathic. As in essential hypertension. "Essential" is a hallowed term meaning "We don't know the cause."

FDA: The Food and Drug Administration, an agency within the U.S. Public Health Service, which is a part of the Department of Health and Human Services.

Fever: Although a fever technically is any body temperature above the normal of 98.6 degrees F. (37 degrees C.), in practice a person is usually not considered to have a significant fever until the temperature is above 100.4 degrees F (38 degrees C.).

Flu: Short for [influenza](#). The flu is caused by viruses that infect the respiratory tract which are divided into three types, designated A, B, and C. Most people who get the flu recover completely in 1 to 2 weeks, but some people develop serious and potentially life-threatening medical complications, such as [pneumonia](#). Much of the illness and death caused by influenza can be prevented by annual influenza vaccination.

Food and Drug Administration: The FDA, an agency within the U.S. Public Health Service, which is a part of the Department of Health and Human Services.

Food poisoning: A common flu-like illness typically characterized by nausea, vomiting and diarrhea, due to something the victim ate or drank that contained noxious bacteria, viruses, parasites, metals or toxins.

Germ: **1.** A cell or group of cells (called a primordium) capable of developing into an organ, a part or an organism in its entirety. Eggs and sperm are germ cells. **2.** A pathogenic a microorganism. A microbe capable of causing disease. The germ theory of disease held, correctly, that these minute bodies can cause disease. **3.** The figurative source or wellspring. Dr. Watson told Holmes he had the germ of an idea.

Glanders: A bacterial infection that causes a chronic debilitating disease of equids (horses, mules, and donkeys) as well as some members of the cat family and is transmissible to people. The bacterium responsible for glanders is *Burkholderia mallei* (formerly called *Pseudomonas mallei*).

Headache: A pain in the head with the pain being above the eyes or the ears, behind the head (occipital), or in the back of the upper neck. Headache, like chest pain or back ache, has many causes.

Hemorrhagic: Pertaining to bleeding or the abnormal flow of blood.

HEPA: Acronym that stands for High-Efficiency Particulate Air and for High-Efficiency Particulate Arrestor.

Hygiene: The science of preventive medicine and the preservation of health. From the name of Hygeia, the daughter of Asklepios, the Greek god of medicine (whose staff with entwined snake is the symbol of medicine). Asklepios (known to the Romans as Aesculapius) had a number of children including not only Hygeia but also Panacea, the patroness of clinical medicine. Hygeia also followed her father into medicine. As the patroness of health, Hygeia was charged with providing a healthy environment to prevent illness. In Greek, "hygieia" means health.

Immunogenic: Relating to or producing an immune response.

Incubation period: The time from infection to the appearance of symptoms in infected persons.

Infection: The growth of a parasitic organism within the body. (A parasitic organism is one that lives on or in another organism and draws its nourishment therefrom.) A person with an infection has another organism (a "germ") growing within him, drawing its nourishment from the person.

Infectious dose: The amount of pathogen (measured in numbers of organisms) required to cause infection in the host.

Influenza: The flu is caused by viruses that infect the respiratory tract which are divided into three types, designated A, B, and C. Most people who get the flu recover completely in 1 to 2 weeks, but some people develop serious and potentially life-threatening medical complications, such as [pneumonia](#). Much of the illness and death caused by [influenza](#) can be prevented by annual influenza vaccination.

Injure: To harm, hurt, or wound. The word injure may be in physical or emotional sense. Treadmill machines may injure anyone who gets on one. Sexual molestation injures children. From the Latin injuria meaning injury.

Inoculation: The introduction of a substance into a body in order to induce an immune response.

Isolate: A group in which mating is always between members of the group. For example, the Amish.

Isolated, isolation, and quarantine: Public health measures that are implemented to stop the spread of communicable disease. Isolation refers to the separation and restriction of movement of people who are sick with an infectious illness from those who are not infected. Quarantine refers to the separation and restriction of movement of persons who are not currently sick but have been exposed to an infectious agent and may become sick and/or spread illness to others. In most cases, isolation and quarantine are voluntary. However, federal, state, and local governments do have the authority to enforce the isolation and quarantine of those who are sick and those who are suspected of being exposed to an infectious disease.

Israel: The state of Israel is the only modern nation that has not signed the 1972 [Biological Weapons Convention](#) (refusal to engage in offensive biological warfare, stockpiling, and use of biological weapons). Israel is also the only modern nation that has signed but not ratified the 1993 [Chemical Weapons Convention](#) (refusal to produce, stockpile and use chemical weapons). Should a future biological terror attack hit America or any other nation, the state of Israel will be the prime suspect.

Lethal: Deadly, fatal, capable of causing death, death-dealing. The word "lethal" comes from the Latin "letum" meaning "death or destruction."

Measles: An acute and highly contagious viral disease characterized by fever, runny nose, cough, red eyes, and a spreading skin rash. Measles, also known as rubeola, is a potentially disastrous disease. It can be complicated by ear infections, pneumonia, encephalitis (which can cause convulsions, mental retardation, and even death), the sudden onset of low blood platelet levels with severe bleeding (acute thrombocytopenic purpura), or a chronic brain disease that occurs months to years after an attack of measles (subacute sclerosing panencephalitis).

Melioidosis: An infectious illness, also called Whitmore's disease, that is most frequent in Southeast Asia and Northern Australia and is caused by a bacteria called "Pseudomonas pseudomallei" found in soil, rice paddies and stagnant waters. Humans catch the disease by inhalation of contaminated dust or when soil contaminated by the bacteria comes in contact with abraded (scraped) skin.

Morbidity: The incidence of disease; the rate of sickness.

Mortality: The number of deaths in a given time or place; the proportion of deaths to population.

Mycobacterium: A large family of bacteria that have unusually waxy cell walls that are resistant to digestion.

Nausea: [Nausea](#), is the urge to vomit. It can be brought by many causes including, systemic illnesses, such as [influenza](#), medications, pain, and inner ear disease. When nausea and/or vomiting are persistent, or when they are accompanied by other severe symptoms such as [abdominal pain](#), [jaundice](#), fever, or bleeding, a physician should be consulted.

Negative pressure isolation room: A hospital room, generally used with tuberculosis patients, that isolates infected patients and is designed to direct air flow from outside corridors and rooms into the room, preventing the chance for contaminated air to flow to other parts of a building.

Nephritis: Inflammation of the kidney caused by infection, a degenerative process, or vascular disease.

Of concern: Biological agents that have specific characteristics—including high infectious properties, easy person-to-person transmission, lack of countermeasures, and easy weaponization or aerosolization—that qualify them as high priority threats, or biological agents “of concern.”

Pandemic: An epidemic (a sudden outbreak) that becomes very widespread and affects a whole region, a continent, or the world.

Parenteral: The administration of medication through intravenous, intramuscular, or subcutaneous injection.

Percutaneous: Through the skin.

Pestis: The plague. An infectious disease due to a bacteria called *Yersinia pestis*.

Phase I clinical trial: The first stage of testing unlicensed drugs and vaccines in humans. Phase I studies are designed to determine the metabolic and pharmacologic actions of a drug in humans, the side effects associated with increasing the doses, and, if possible, to gain early evidence of effectiveness. Phase 1 studies also evaluate drug metabolism, structure-activity relationships, and the mechanism of action in humans.

Phase II clinical trial: Controlled clinical studies that are conducted to evaluate the effectiveness of a drug for a particular indication(s) in patients with the disease or condition under study, and to determine the common short-term side effects and risks.

Phase III clinical trial: Expanded controlled and uncontrolled studies that are conducted following the collection of preliminary evidence suggesting effectiveness of a drug. Phase III clinical trials are intended to gather additional information to evaluate the overall risk-versus-benefit relationship of a drug, and to provide an adequate basis for physician labeling.

Phase IV clinical trial: Postmarketing studies conducted to obtain additional information about a drug such as its risks, benefits, and optimal use.

Plague: The plague is an infectious disease due to a bacteria called *Yersinia pestis*.

Pleural effusion: An accumulation of fluid in the space surrounding the lungs.

Poisoning: Taking a substance that is injurious to health or can cause death. Poisoning is still a major hazard to children, despite child-resistant (and sometimes adult-resistant) packaging and dose-limits per container.

Postexposure prophylaxis: Administration of a therapeutic agent (usually a drug) after exposure to a pathogen in order to reduce the likelihood of illness.

Preclinical trial: Experimental testing of drugs in test tubes or animals. These trials are conducted before testing in humans.

Prescription: A physician's order for the preparation and administration of a drug or device for a patient. A prescription has several parts. They include the superscription or heading with the symbol "R" or "Rx", which stands for the word recipe (meaning, in Latin, to take); the inscription, which contains the names and quantities of the ingredients; the subscription or directions for compounding the drug; and the

signature which is often preceded by the sign "s" standing for signa (Latin for mark), giving the directions to be marked on the container.

Public health: The approach to medicine that is concerned with the health of the community as a whole. Public health is community health. It has been said that: "Health care is vital to all of us some of the time, but public health is vital to all of us all of the time."

Q fever: An acute febrile illness due to *Coxiella burnetii* (*C. burnetii*), a species of bacteria. Q fever is a zoonotic disease (contracted from animals). Aside from sudden onset of fever, there is headache, malaise, and pneumonia but no rash.

Quarantine: The period of isolation decreed to control the spread of infectious disease. Before the era of antibiotics, quarantine was one of the few available means for halting the spread of infectious diseases. It is still employed as needed. The list of quarantinable diseases in the US includes cholera, diphtheria, infectious tuberculosis, plague, smallpox, yellow fever, and viral hemorrhagic fevers (such as Marburg, Ebola and Congo-Crimean disease). In 2003, SARS (severe acute respiratory syndrome) was added as a quarantinable disease.

Radiation: 1. Rays of energy. Gamma rays and [X-rays](#) are two of the types of energy waves often used in medicine. 2. The use of energy waves to diagnose or treat disease. See also: [Irradiation](#).

Resistance: Opposition to something, or the ability to withstand it. For example, some forms of staphylococcus are resistant to treatment with antibiotics.

Respiratory droplet transmission: Droplet transmission occurs when relatively large particles (>5 microns) containing a biological agent are propelled from an infected person over relatively short distances (3-6 feet) and deposited onto the mucous membranes (usually mouth or nose) of another person or onto an environmental surface.

Respiratory droplet precautions: The use of gowns, gloves, eye protection, and surgical masks to protect against respiratory droplets.

Ricin: A potent protein toxin made from the waste left over from processing castor beans. The castor plant, which is called *Ricinus communis*, is found throughout the world. Ricin is fairly easy to extract. Worldwide a million tons of castor beans are processed annually in the production of castor oil. The waste mash from this process is 5% ricin by weight.

Rickettsia: A member of a group of microorganisms that (like viruses) require other living cells for growth but (like bacteria) use oxygen, have metabolic enzymes and cell walls, and are susceptible to antibiotics. Rickettsiae cause a series of diseases named for the American pathologist Howard Ricketts who discovered that ticks spread Rocky Mountain spotted [fever](#) and then isolated from the blood of infected animals and eggs of infected ticks the microorganism responsible for Rocky Mountain spotted fever, [typhus](#), trench fever and other similar conditions. While in Mexico in 1910 studying a typhus epidemic, Ricketts contracted the disease and died at age 39. (See Rickettsial diseases).

Salmonella: A group of bacteria that cause typhoid fever and a number of other illnesses, including food poisoning, gastroenteritis and enteric fever from contaminated food products.

Septic shock: A condition in which an infection initiates a complex cascade of physiological effects that can result in inadequate blood pressure, organ failure, and death.

Shigella: A group of bacteria that normally inhabit the intestinal tract and cause infantile [gastroenteritis](#), summer [diarrhea](#) of childhood and various forms of dysentery including epidemic and opportunistic bacillary dysentery. Named for the Japanese bacteriologist Kiyoshi Shiga (1870-1957).

Smallpox: Also known as variola, a highly contagious and frequently fatal viral disease characterized by a biphasic fever and a distinctive skin rash that left pock marks in its wake. Because of its high case-fatality rates and transmissibility, smallpox now represents a serious bioterrorist threat. The disease is caused by the variola virus. The incubation period is about 12 days (range: 7 to 17 days) following exposure. Initial symptoms include high fever, fatigue, and head and back aches. A characteristic rash, most prominent on the face, arms, and legs, follows in 2-3 days. The rash starts with flat red lesions that evolve at the same rate. Lesions become pus-filled and begin to crust early in the second week. Scabs develop and then separate and fall off after about 3-4 weeks.

Standard precautions: Protective actions that are taken in a healthcare setting (such as the use of gowns and gloves) to prevent skin and mucous membrane exposure when contact with blood or other body fluids is anticipated. Standard precaution guidelines are based on the principle that all blood, body fluids, secretions, nonintact skin, mucous membranes, and excretions (except sweat) may contain transmissible infectious agents.

Subcutaneous: Under the skin.

Sunscreen: A substance that blocks the effect of the sun's harmful rays. Using lotions that contain sunscreens can reduce the risk of [skin cancer](#), including [melanoma](#).

Supportive care: Treatment given to prevent, control, or relieve complications and side effects and to improve the patient's comfort and quality of life.

Supportive therapy: A medical treatment that relieves symptoms or maintains basic functioning, but which is not specific to the underlying disease. Examples include intravenous fluids, pain medication, oxygen, fever control, and nutrition.

Surveillance and containment: This refers to the detection of disease cases through various reporting mechanisms and, in the case of smallpox and other communicable diseases, the isolation of infected individuals and vaccination of potentially exposed persons.

Tachycardia: Relatively rapid heartbeat.

Tachypnea: Increased rate of respiration.

Toxin: One of a number of poisons produced by certain plants, animals, and bacteria.

Tuberculosis: A highly contagious infection caused by the bacterium called *Mycobacterium tuberculosis*. Abbreviated TB. Tubercles (tiny lumps) are a characteristic finding in TB. Diagnosis may be made by skin test, which if positive should be followed by a chest X-ray to determine the status (active or dormant) of the infection. Tuberculosis is more common in people with immune system problems, such as AIDS, than in the general population. Treatment of active tuberculosis is mandatory by law in the US, and should be available at no cost to the patient through the public health system. It involves a course of antibiotics and vitamins that lasts about six months. It is important to finish the entire treatment, both to prevent reoccurrence and to prevent the development of antibiotic-resistant tuberculosis. Most patients with tuberculosis do not need to be quarantined, but it is sometimes necessary.

Tularemia: A bacterial disease caused by infection with a bacterium called *Francisella tularensis* that usually occurs in wild and domestic animals, most often rabbits, and can be transmitted to humans by contact with animal tissues or ticks and fleas. Also called rabbit fever and deerfly fever.

Variola: [Smallpox](#), a highly contagious and frequently fatal viral disease characterized by a biphasic (double-humped) [fever](#) and a distinctive skin [rash](#) that (if the patient survived) left pock marks in its wake. The English physician Edward Jenner (1749-1823) exploited the fact that cowpox created immunity to smallpox and successfully developed an attenuated (weakened) virus vaccine for smallpox. Thanks to vaccination, smallpox has been eradicated. It was so named because the pocks were small and the disease was seen as less than the "great pox" (syphilis).

Vibrio: A group of bacteria that includes *Vibrio cholerae*, the agent of [cholera](#), (a devastating and sometimes lethal disease with profuse watery [diarrhea](#)) and *Vibrio comma* (which is shaped like a comma). *Vibrio* move about actively. The word "vibrio" in Latin means "to quiver."

Vibrio cholerae: One of the *Vibrio* bacteria, *V. cholerae* (as the name implies) is the agent of cholera, a devastating and sometimes lethal disease with profuse watery diarrhea.

Viral: Of or pertaining to a virus.

Viral encephalitis: Inflammation of the brain as a result of virus infection. There are many viruses that cause viral encephalitis.

Virion: A complete virus particle, including genetic material and protein coat, as it would exist outside of a cell.

Virulent: A biological agent is virulent when it has the ability to overcome the host's immune defenses and cause disease. Virulence is a measure of the severity of disease that an agent is capable of causing.

Virus: A microorganism smaller than a bacteria, which cannot grow or reproduce apart from a living cell. A virus invades living cells and uses their chemical machinery to keep itself alive and to replicate itself. It may reproduce with fidelity or with errors (mutations)-this ability to mutate is responsible for the ability of some viruses to change slightly in each infected person, making treatment more difficult.

Viruses: Small living particles that can infect cells and change how the cells function. Infection with a virus can cause a person to develop symptoms. The disease and symptoms that are caused depend on the type of virus and the type of cells that are infected.

Weaponized: In the context of biological weapons, 'weaponization' refers to the act of adapting a biological agent for use as a weapon. When a biological agent is referred to as having been weaponized, it usually means that it has been manipulated or treated in such a way as to improve its effectiveness as a weapon by making it more virulent, more easily disseminated as an aerosol, or more stable.

West Nile encephalitis: A febrile disease caused by the West Nile virus that is transmitted from birds to the common *Culex* mosquito and then to people. The virus is named after the area it was first found in Uganda.

Yersinia: A group of bacteria that appear rod-like under the microscope and include *Yersinia pestis* (the cause of the bubonic and pneumonic plague), *Yersinia enterocolitica* (the cause of a disease called yersinosis), and *Yersinia pseudotuberculosis* (which causes a condition called mesenteric adenitis, particularly in immunocompromised patients). Both *Y. enterocolitica* and *Y. pseudotuberculosis* have also been implicated in a viral form of arthritis. Infection with *Yersinia* bacteria can be treated with antibiotics. See the entire [definition of Yersinia](#)

Yersinia pestis: The bacteria that causes the bubonic plague which in the year 1347 (as the Black Death) and later in the Middle Ages decimated Europe. The effects of the plague are described in the nursery rhyme "We all fall down."

See the entire [definition of Yersinia pestis](#)

Zoonosis, zoonotic disease: A disease that can be spread from wild or domesticated animals to humans. Examples of zoonotic diseases include anthrax, plague, and tularemia. Much of the world's emerging infectious diseases are zoonotic.