Comprehensive Biological Agents Summary

The Hansen Clinic of Natural Medicine

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Anthrax

Alternative names

Wool sorter's disease

Organism

Bacillus anthracis bacteriia

Overview

Anthrax is an acute infectious disease caused by the spore-forming bacterium *Bacillus anthracis*. Anthrax most commonly occurs in hoofed farm mammals, including cattle, sheep, horses, swine and goats and can also infect humans. Symptoms of disease vary depending on how the disease was contracted, but usually occur within 5 days after exposure. There are three forms of human anthrax infection: cutaneous (skin) anthrax, inhalation (pulmonary) anthrax, and intestinal anthrax.

Carriers

Anthrax is carried by farm animals, especially cattle, horses and sheep (hence, wool sorter's disease). Anthrax cannot be transmitted through human-to-human contact.

Biological Weapons Use

Anthrax has been made into an aerosolized powder that can be deployed as a biological weapon. It is believed that several nations now possess powdered biological weapons or have the capability to manufacture them, including Russia, Iraq, Iran, Syria, Libya, China, and North Korea.

Toxicity

Once inside the body, Anthrax spores are engulfed by White Blood Cell Macrophages and carried to the lymph nodes. On the way the spores germinate and the bacterium divides and replicates. The bacteria make and release toxins that weaken the cells containing wall. Soon a few thousand anthrax bacteria burst out and slip into the blood stream, spreading throughout the body where they release more toxins. The toxins are not particularly poisonous in themselves, but they destroys the cell membranes of the macrophages, causing them to dump all of their inflammatory chemicals all at once.

A little inflammation normally helps the immune system respond to local disturbances and infections. Too many inflammatory chemicals, however, can cause widespread tissue destruction, respiratory congestion, leaky blood vessels, a drop in blood pressure, weakness, collapse and septic shock. By causing the Macrophages to release all of their inflammatory chemicals at once, Anthrax bacteria use the body's own immune arsenal to destroy itself. When the victim dies and the bacteria have consumed the body's cellular membranes until no more remain, the Anthrax bacteria turn back into spores and go back into dust where they can hide for decades or centuries until they are stirred again.

Contagiousness

Anthrax is not contagious. Direct person-to-person spread of anthrax is extremely unlikely, if it occurs at all. Therefore, there is no need to immunize or treat contacts of persons ill with anthrax, such as household contacts, friends, or coworkers, unless they also were also exposed to the same source of infection.

Incubation

The Incubation period is 12 hours to 5 days (usually 3-5 days); some recent reports say the spores may incubate for as long as 60 days before causing symptoms.

Types of Anthrax

Cutaneous anthrax is transmitted through a break in the skin. Following the incubation period of 3-5 days, a small, red, flat rash appears that resembles a flea bite. The rash then gets larger and becomes swollen creating a raised rash (papule). The rash progresses into a blister (vesicle) that is filled first with a thin bloody fluid and later a bloody pus, which imparts a dark purple or black color to the blister. After lesions form and the dead tissue and crusts fall off, infection may spread through the bloodstream and cause shock, cyanosis (blueness), sweating, and collapse.

Inhalation anthrax is often fatal. It is the most deadly form of the disease. It is contracted by inhaling anthrax spores, which are durable, hard-shelled "seeds" containing the bacterium. The spores are engulfed by white blood cells known as macrophages. Once inside the macrophages, anthrax spores germinate into dozens of bacteria that then release poisonous toxins, which burst the walls of the macrophage and escape into the bloodstream only to attack other macrophages and multiply its numbers.

In the process the macrophages are destroyed and their inflammatory chemicals are released into the body. A little inflammation helps the immune system respond to local infections, but the amount of inflammatory chemicals released in this exponential chain reaction causes blood vessels to leak, blood pressure to drop, septic fever, extensive cellular destruction and shock within hours. The initial symptoms, following a 3-5 day incubation period, resemble those of the common flu, including high fever, headache, malaise and fatigue. The inflammation of the lungs soon causes severe breathing difficulty, respiratory distress, cyanosis (blueness of the lips), shock and coma. Inhalation anthrax is usually (90%) fatal despite antibiotic therapy and intensive care.

Intestinal anthrax may follow the consumption of contaminated food and is characterized by an acute inflammation of the intestinal tract. Initial signs of nausea, loss of appetite, vomiting, and fever are followed by abdominal pain, vomiting of blood, and severe diarrhea.

Symptoms

- skin (cutaneous anthrax) develops vesicles (tiny blisters), ulcers, reddish brown sores that break open and discharge bloody fluid, then form black scabs

- swollen, painful lymph nodes
- fever
- chills
- general discomfort, uneasiness, or ill feeling (malaise)
- headache
- muscle pains
- nausea and vomiting
- shortness of breath
- cough
- congestion of the nose and throat
- difficulty breathing / respiratory distress
- blueness (cyanosis) of the lips
- pneumonia
- chest pain

Signs and tests

- blood cultures positive for anthrax
- chest X-ray
- serologic test for anthrax
- spinal tap for CSF culture and analysis

Prognosis

Pulmonary and meningeal anthrax is usually (90%) fatal despite antibiotic therapy and intensive care.

Prevention

The key to prevention is a healthy immune system. Since it is known that 10% of the population recovers from Pulmonary Anthrax even if untreated, a healthy immune response is your best defense. To make certain that you keep your immune system at its peak, Dr. Hansen recommends the following:

1. Take the oral homeopathic vaccine: **Influenzinum 9C** annually (This homeopathic medicine is a broad spectrum remedy that boosts immune responsiveness against flu-like symptoms such as fever, chills, headache, muscle pains, malaise, etc, which can be confused with the initial symptom Anthrax)
2. Take a high potency multi-vitamin (Dr. Hansen recommends Peak Advantage)
3. Avoid processed sugar (100 grams of Sugar suppresses the immune system by 50% for 5 hours)
4. Get a minimum of 7 ½ hours of sleep per night.
5. If you develop flu symptoms take **Flu Solution** (this is a very effective homeopathic medicine for the initial phase of fever, headache, muscle aches, general malaise, etc.)
6. Since Anthrax is already being deployed in the U.S. through the mail, Dr. Hansen recommends taking **Homeopathic Biological Defense A:** 1 tablet once per week for 4 weeks as a precaution to enhance your immune resistance.
7. For an exposure to Anthrax without confirmed infection: Take **Homeopathic Biological Defense A:** 1 tablet once daily for 21 days.

Vaccines

An anthrax vaccine can prevent infection, however, vaccination against anthrax is not recommended for the general public to prevent disease and is not available. The anthrax vaccine must be given in a series of 6 staged vaccinations over 18 months and is associated with potential for significant side effects. The U.S. Department of Health and Human Services says it currently has no inventory of FDA approved vaccine for anthrax, but it does have enough antibiotics against anthrax to protect two million people for two months.

Since Anthrax has already been deployed in the U.S., Dr. Hansen recommends taking **Homeopathic Biological Defense A:** 1 tablet once per week for 4 weeks beginning immediately, as a precaution to boost immune resistance.

Treatment

Antibiotics can treat the anthrax infection only if given quickly. Anthrax is susceptible in the early phase to the antibiotics Cipro, Penicillin, Doxycycline, and fluoroquinolones. Cipro and Doxycycline are the only drugs approved for biological attacks – specifically for inhaled anthrax – although they had never been directly tested in humans until after the terrorist attacks of September 11, 2001 While antibiotics may kill the anthrax bacterium, they cannot inactivate the lethal toxin it produces. By the time symptoms of anthrax contracted by inhalation have appeared, it is generally too late to rescue an individual with antibiotics, because he or she will succumb to the toxin the bacteria has already produced. Pulmonary anthrax is usually (90%) fatal despite antibiotic therapy and intensive care.

In addition to the measures listed above, Dr. Hansen recommends taking **Homeopathic Biological Defense A**: 1 tablet 4 times daily, every 4 hours, for the symptomatic relief of fever, chills, headache, fatigue, swollen glands, black & blue blisters, cough and difficulty breathing due to an infection.

Homeopathic Biological Defense A

Homeopathic medicines are natural, over-the-counter (OTC) drugs that work via amplification of the body's own healing response. Homeopathic medicines have been used to treat symptoms similar to those of Anthrax for more than 100 years. Anthracinum 30C is the key homeopathic ingredient. It is made from the toxin of the anthrax bacillus. It is homeopathically diluted to $1X100^{-30}$.This minute amount of the anthrax toxin

stimulates the body to react to and counter the symptoms that the toxin would cause in a significant exposure.

Indications by Ingredient

The following is a list of indications for each Homeopathic medicine included in the formula for Homeopathic Biological Defense A as described in the approved Homeopathic Materia Medica recognized by the FDA and the Homeopathic Pharmacopoeia of the United States.

Anthracinum

- Systemic Symptoms of infection
- Swollen Glands
- Black & Blue Blisters
- Skin sloughing
- Easy Bleeding
- Tissue destruction

Carbo vegetabilis

- Fever with chills & exhausting sweats
- Malaise
- Weakness, Collapse
- Systemic Symptoms of infection
- Headache
- Cough
- Difficulty breathing
- Cyanosis
- Coughing of bloody mucous

Baptisia tinctoria

- Systemic Symptoms of infection
- Malaise
- Nausea
- Vomiting
- Weakness, Collapse
- Muscular soreness
- Headache
- Neck stiffness
- Difficulty breathing
- Bloody stools
- “Raises the natural bodily resistance to the invasion of the bacillus”

Bothrops lanceolatus

- Anthrax-like skin lesions
- Swollen lymph nodes
- Black spots on skin
- Systemic Symptoms of infection
- Lassitude
- Clotting disorders
- Lung cogestion

Botulism

Organism

Clostridium botulinum bacteria

Overview

Botulism is a rare but serious illness caused by a toxin produced by *Clostridium botulinum* bacterium. The botulinum toxin causes muscle paralysis of the face, lungs and other nervous tissue. Paralysis of the lungs causes respiratory failure by creating weakness in the muscles that control breathing. It can cause death in up to 7% of infected individuals.

Carriers

Contaminated foods, primarily canned vegetables, fish, fruit; secondarily beef, milk, pork and poultry. It could be spread through the air or by inadvertent or deliberately contaminated food.

Biological Weapons Use

Botulinum toxin could be applied to foods, dumped into water reservoirs, or sprayed from a crop duster. Experts maintain that "with modest facilities, an individual could produce in a relatively short period several hundred thousand lethal human doses" of botulinum toxin (Mullen, Robert K., "Mass Destruction and Terrorism." Journal of International Affairs 1978, 32:1, pg 74). On October 14, 1984, a Red Army Faction "safe house" that included a "primitive laboratory" (according to one source, a bathtub) was discovered in Paris, containing quantities of botulinal toxin. It is believed that Terrorists and several nations now possess biological weapons grade “Type A Botulinum Toxin” or have the capability to manufacture it in large quantities, including Russia, Iraq, Iran, Syria, Libya, China, and North Korea.

Toxicity

Botulinum toxin is the single most poisnous substance known. Type-A botulinal toxin, with a mean lethal dose estimated to be as low as a few tenths of a microgram (Kupperman and Trent 1979: 65), has been described as "the most lethal substance known" (Kupperman and Smith 1993: 40; Berkowitz et al. 1972: VIII-40). It has variously been estimated to be a thousand times (Kupperman and Trent 1979: 65) or a hundred thousand times (Kupperman and Trent 1979: 57) more deadly than nerve agents.[1] Theoretically, according to one source, a single ounce of BTX (botulinal toxin) is sufficient to kill 60 million people (Jenkins and Rubin 1978: 224). Another author states that "one-half ounce, properly dispersed, could kill every man, woman, and child in North America" (Livingstone 1982: 110).

Contagiousness

Botulism is not contagious. The bacterium may enter the body through wounds, or they may live in improperly canned or preserved food. Clostridium botulinum is found in soil and untreated water throughout the world. It produces spores that survive in improperly preserved or canned food, where they produce toxin. When eaten, even minute amounts of this toxin can lead to severe poisoning. Botulism may also occur if the organism enters open wounds and produces toxin there.

Incubation

The incubation period is usually 8-36 hours, but may be up to 4-8 days.

Symptoms

- difficulty swallowing and speaking
- progressive weakness with paralysis
- nausea, vomiting
- abdominal cramps
- dry mouth
- double vision
- breathing difficulty that may lead to respiratory failure
- breathing, absent temporarily
- no fever, usually
- in infants:
    - constipation
    - weakness, loss of muscle tone
    - weak cry
    - poor feeding and weak sucking
    - respiratory distress
    - appears alert but weak

Note: Symptoms usually appear between 8 to 36 hours after consuming contaminated food.

Signs and tests

- speech impairment
- muscle function/feeling loss
- eyelid drooping
- absent or decreased gag reflex
- absent or decreased deep tendon reflexes
- paralyzed bowel
- severe constipation
- urine retained in bladder with inability to urinate
- blood test to identify toxin
- laboratory analysis of suspected food
- stool culture

Prognosis

Prompt treatment significantly reduces the risk of death. Most patients eventually recover after weeks to months of supportive care.

Complications

- aspiration pneumonia and infection
- respiratory distress
- long-lasting weakness
- nervous system dysfunction for up to one year

Prevention

The key to prevention of Botulism is the ensuring the safety of the general food supply and your own personal food supply. Sterilize home canned foods by pressure-cooking at 250 degrees Fahrenheit for 30 minutes. A healthy immune system may improve your chances. To make certain that you keep your immune system at its peak, Dr. Hansen recommends the following:

1. If Botulism toxins are deployed in the U.S., Dr. Hansen recommends taking **Homeopathic Biological Defense B:** 1 tablet once per week for 4 weeks as a precaution.
2. For an exposure to Botulism without symptoms, take **Homeopathic Biological Defense B:** 1 tablet once daily for 10 days.

Vaccines

There are currently no vaccines available for Botulism.

Treatment

A supply of antitoxin against botulism is maintained by CDC. The antitoxin is effective in reducing the severity of symptoms if administered early in the course of the disease. The objective of treatment is to establish a clear airway, provide aid with breathing, give botulinus antitoxin, and provide supportive therapy. Emergency hospitalization is recommended for immediate detection of respiratory mpairment. Antibiotics are often given, but have not been shown to be beneficial.

If breathing difficulty develops, intubation (a tube inserted through the nose or mouth into the trachea to provide an airway for oxygen) and mechanical ventilation are given. Intravenous fluids can be given while swallowing difficulties persist. Also, naso-gastric tube (tube inserted in the nose to the stomach) feeding may be initiated.

Additionally, Dr. Hansen recommends taking **Homeopathic Biological Defense B**: 1 tablet 4 times daily, every 4 hours. (Note: For an possible exposure without confirmed infection: Dr. Hansen recommends taking **Homeopathic Biological Defense B:** 1 tablet once daily for 8 days as a precaution. If symptoms occur, begin taking 1 tablet 4 times daily, every 4 hours)

Homeopathic Biological Defense B

Homeopathic medicines are natural, over-the-counter (OTC) drugs that work via amplification of the body's own healing response. Homeopathic medicines have been used to treat the symptoms of Botulism for more than 100 years. Botulinum is the key homeopathic ingredient. It is made from the toxin of Bacillus Botulinum. It is homeopathically diluted beyond the point of which any actual Botulinum Toxins are present in the final preparation.

Homeopathic Biological Defense Remedy Indications

Botulinum

- Eye symptoms: droopy eyelids, blurred or double vision
- Difficulty swallowing
- Difficulty breathing
- Weakness and uncertainty in walking
- Dizziness
- Weakness of facial muscles
- Cramping pain in the stomach
- Constipation

Baryta carbonicum

- Dizziness
- Paralysis of the tongue
- Spasm of the esophagus, gagging sensation
- Pain in abdomen, which is hard, distended
- Constipation

Gelsemium

- Droopy heavy eyelids
- Blurred or double vision
- Twitching of muscles of the eyes or face
- Tongue feels numb, thick paralyzed
- Difficulty swallowing
- Slowness of breathing, tightness of the chest
- Great weakness
- Weak, slow pulse
- Loss of power of muscular control
- Fatigue after slight exercise

Hemorrhagic Fever

Alternative names

Ebola hemorrhagic fever (Ebola fever), Marburg Hemorrhagic Fever, Crimean-Congo Hemorrhagic Fever

Organism

Ebola Virus, Marburg Virus, or Crimean-Congo Virus

Overview

Viral Hemorrhagic Fever is the name of a rare group of viral infections, including Ebola, Marburg, and the Crimean-Congo viruses, that cause similar symptoms and pathology. The first known case of the Crimean-Congo Hemorrhagic Fever was among Russian soldiers serving in the Crimea in 1944 and then among villagers living near the Congolese city of Kisangani in 1956. Not until 1969 were scientists able to isolate the single virus common to both. Ebola virus first emerged in two major disease outbreaks, which occurred almost simultaneously in Zaire and Sudan in 1976. Over 500 cases were reported, with mortality rates of 88% in Zaire and 53% in Sudan. The most recent Ebola outbreak occurred in Uganda between August 2000 to Jan 2001. It affected 425 individuals and killed 223 (53%). Marburg virus was first recognized in laboratory workers in Marburg, Germany, and Belgrade, Yugoslavia, simultaneously in 1967. These workers had been exposed to tissues and blood from African green monkeys (*Cercopithecus aethiops*) imported from Uganda. There were 25 primary cases and six secondary cases in the outbreak. Seven of the primary cases died. Since then, sporadic, virologically confirmed Marburg disease cases have occurred in Zimbabwe, South Africa and Kenya

All of the Hemorrhagic Fevers cause severe bleeding and a high fever and are often fatal. The incubation period appears to be 5-10 days, at which time the patient develops fatigue, malaise, headache, backache, vomiting, and diarrhea. Within a week, a raised (papular) rash appears over the entire body; the rash is often hemorrhagic (containing blood). The disease affects the capillaries in the body and causes excessive bleeding through the eyes, nose, mouth and gastrointestinal tract. Symptoms become increasingly severe and may include jaundice, inflammation of the pancreas, severe weight loss, delirium, shock, liver failure, massive hemorrhaging, and multi-organ dysfunction. Mortality is high, reaching 90%.

The largest outbreak of the highly contagious Crimean-Congo Virus in history was just confirmed October 4, 2001, on Pakistan's frontier with Afghanistan. At least 75 people have caught the disease so far and eight have died. Evidence suggests the outbreak of Crimean-Congo Hemorrhagic Fever emanates from within Afghanistan, raising fears of an epidemic as thousands of refugees flee across the frontier into Pakistan. Dr Akhlaq Hussain, medical superintendent at the Pakistani hospital where most of the victims have been isolated in Quittel, Pakistan, said: "The first cases came in June. There were a number of deaths, but at first we did not know what was the cause." A number of blood samples were sent to Pakistan's national virology testing center in Islamabad and to South Africa's National

Institute of Virology in Johannesburg, which confirmed the diagnosis of Crimean-Congo Hemorrhagic Fever. Although there have been a number of cases since, the outbreak at the Afghanistan-Pakistan border is the largest ever seen.

Carriers

Viral Hemorrhagic Fever is transmitted by a tick, H*yaloma marginata*, which thrives on sheep and cattle. Infected humans can spread the disease by blood, saliva or airborne droplets from sneezing.

Biological Weapons Use

Viral Hemorrhagic Fever has been made into an aerosolized powder by the former Soviet Union Biopreparat that could be deployed as a biological weapon. It is believed that several nations now possess powdered biological weapons or have the capability to manufacture them, including Russia, Iraq, Iran, Syria, Libya, China, and North Korea. It is not known whether the most recent outbreak of Crimean-Congo Hemorrhagic Fever in Afghanistan is due to natural transmission or possibly due to a terrorist laboratory or manufacturing accident.

Toxicity

Viral Hemorrhagic Fever causes a horrifying terrible death. In 1988, a Russian scientist named Nikolai Ustinov, working at the Biopreparat facility called Vector, accidentally pricked himself in the finger with a syringe that contained the Marburg virus. On about the fourth day, Ustinov developed a headache, and his eyes turned red. Tiny hemorrhages were occurring in them. He requested a laboratory notebook, and he began writing a diary in it, every day. He was a scientist, and he was determined to explain how he was dying. For a while, he maintained a small hope that he wouldn't die, but when his skin developed spontaneous bruises he understood what the future held. When Ustinov began to vomit blood and pass bloody black diarrhea, the doctor gave him transfusions, but as they put the blood into him it came out of his mouth and rectum. The final pages of Dr. Nikolai Ustinov's scientific journal are smeared with unclotted blood. His skin developed starlike hemorrhages in the underlayers. Incredibly -- the Vector scientists had never seen this -- he sweated blood directly from the pores of his skin, and left bloody fingerprints on the pages of his diary.

An autopsy was performed in the spacesuit morgue of the biocontainment hospital. If this was indeed the Popp strain of Marburg virus -- and who could say? -- it was incredibly lethal. It produced effects in the human body that were stunning, terrifying. Alibek says that a pathology team removed Ustinov's liver and his spleen. They sucked a quantity of his destroyed blood out of a leg vein using large syringes. They froze the blood and the body parts. They kept the Ustinov strain alive and continually replicating in the laboratories at Vector. They named the strain Variant U, after Ustinov, and they learned how to mass-produce it in simple bioreactors, flasks used for growing viruses. They dried Variant U, and processed it into an inhalable dust. The particles of Variant U were coated to protect them in the air so that they would drift for many miles.

In late 1990, Biopreparat researchers tested airborne Variant U on monkeys and other small animals in special explosion-test chambers at the Stepnagorsk plant. Marburg Variant U proved to be extremely potent in airborne form. They found that just one to five microscopic particles of Variant U lodged in the lungs of a monkey were almost guaranteed to make the animal crash, bleed, and die. With normal weapons-grade anthrax, in comparison, it takes about eight thousand spores lodged in the lungs to pretty much guarantee infection and death.

Contagiousness

Initial infection can arise from contact with infected animals or could be spread by airborne distribution like the common cold or flu virus. The Soviet's Biological research program produced both powdered Ebola and Marburg viruses for deployment as biological weapons either in a warhead or via aerosolized dissemination. Humans to human transmission of the virus can occur by direct contact with the blood and/or secretions of an infected person. This is why the virus has often been spread through the families and friends of infected persons: in the course of feeding, holding, or otherwise caring for them, family members and friends would come into close contact with such secretions. People can also be exposed to Ebola virus through contact with objects, such as needles, that have been contaminated with infected secretions.

Incubation

The incubation period appears to be 5-10 days.

Symptoms

Early:

- malaise
- fatigue
- headache
- sore throat
- backache (low)
- nausea
- vomiting
- diarrhea
- arthritis

Late:

- conjunctivitis (eye inflammation)
- generalized rash, hemorrhagic
- roof of mouth looks red
- genital swelling (labia and scrotum)
- depression
- increased sense of pain in skin

- gastrointestinal bleeding (from mouth and rectum)
- bleeding from eyes, ears, and nose
- blood that does not clot

Signs

There may be signs and symptoms of:

- disseminated intravascular coagulation
- shock
- coma

Tests used in the diagnosis of Ebola fever include:

- coagulation studies (tests of how well the blood will clot)
- serologic studies to demonstrate the Ebola virus
- CBC demonstrates low white blood cell count (leukopenia) and low platelet count (thrombocytopenia)
- electrolytes

Complications

Survivors may have unusual problems such as hair loss and sensory changes.

Prognosis

Prognosis is poor. There is a high fatality rate for this disorder (30% for Crimean-Congo Hemorrhagic Fever to 90% for Ebola Hemorrhagic Fever).

Prevention

The key to prevention is a healthy immune system. Since it is known that 10-70% of the population recovers from Viral Hemorrhagic Fever even if untreated, a healthy immune response is your best defense. To make certain that you keep your immune system at its peak, Dr. Hansen recommends the following:

1. Take the Oral Homeopathic Vaccine: **Influenzinum 9C** annually (This homeopathic medicine is a broad spectrum vaccine that boosts immune responsiveness against flu-like symptoms such as fever, chills, headache, muscle pains, malaise, etc, which can be confused with the initial symptoms of the Plague)
2. Take a high potency multi-vita/min (Dr. Hansen recommends Peak Advantage)
3. Avoid processed sugar (100 grams of Sugar suppresses the immune system by 50% for 5 hours)
4. Get a minimum of 7 ½ hours of sleep per night.
5. If you develop flu symptoms take **Flu Solution** (this is a very effective homeopathic medicine for the initial phase of fever, headache, muscle aches, general malaise, etc.)
6. If Hemorrhagic Fever is found in the U.S., Dr. Hansen recommends taking **Homeopathic Biological Defense H:** 1 tablet once per week for 4 weeks as a precaution.
7. For an exposure to Hemorrhagic Fever without symptoms: Take **Homeopathic Biological Defense H:** 1 tablet once daily for 14 days.

Vaccines

There is no conventional vaccine for any of the viral hemorrhagic fevers. If Hemorrhagic Fever is found in the U.S., or if you plan to travel in the Sudan, Uganda, Afghanistan, or Pakistan, Dr. Hansen recommends taking **Homeopathic Biological Defense H:** 1 tablet once per week for 4 weeks as a precaution to boost immune resistance.

Treatment

There is no known cure for this disorder at this time. There are no drugs to treat viral hemorrhagic fever, and treatment currently consists of preventing shock and providing supportive care. The patient should be hospitalized and will likely need intensive care. Supportive measures for shock will be used (including medications and intravenous fluids). There should be an attempt to correct bleeding abnormalities, often including transfusions of platelets and/or fresh blood. Medical care is complicated by the need to protect medical and nursing personnel. Convalescence is slow, often taking five weeks or more, and is marked by weight loss and amnesia in the early stages of recovery.

Additionally, Dr. Hansen recommends taking **Homeopathic Biological Defense H**: 1 tablet 4 times daily, every 4 hours. (Note: For an exposure without symptoms: Take **Homeopathic Biological Defense H:** 1 tablet once daily for 14 days as a precaution. If symptoms occur, begin taking 1 tablet 4 times daily, every 4 hours)

Homeopathic Biological Defense H

Homeopathic medicines are natural, over-the-counter (OTC) drugs that work via amplification of the body's own healing response. Homeopathic medicines have been used to treat the symptoms of Hemorrhagic diseases for more than 100 years.

Homeopathic Biological Defense Remedy Indications

Crotalus horridus

- headache
- disorganization of the blood
- bleeding from eyes, nose, mouth, intestines
- cough with bloody expectoration
- fever with bloody sweat
- pustular skin eruptions
- purple blood filled eruptions

Mercurius cyanatus

- headache
- great prostration

- tendency to easy bleeding
- pneumonia
- rapid respiration
- sore, raw throat
- easy tissue damage
- nausea
- bloody vomiting
- bloody stools, black stools

Arnica montana

- sore, lame bruised feeling
- headache pinching
- head hot, body cold
- blood from ears
- dark fluid bleeding from nose
- vomiting of blood
- bloody putrid stool
- bloody expectoration
- shortness of breath
- coughing up of blood
- black and blue skin
- crops of small boils
- extreme weakness & drowsiness

Plague

Alternate names

Bubonic plague; Pneumonic plague

Organism

Yersinia pestis bacteria

Overview

Plague is an infectious disease of animals and humans caused by the bacterium *Yersinia pestis*, which is found in rodents and their fleas in many areas around the world. There are two types of plague, bubonic and pneumonic. Bubonic plague is spread by the bite of an infected animal or flea; pneumonic plague is spread by infectious droplets from the cough of an infected person. As a biological weapon, plague would be most effectively delivered as an aerosol spray, which would infect the lungs causing severe breathing difficulties. The first signs of illness in pneumonic plague are fever, headache, weakness, and cough that produces a bloody or watery sputum. The pneumonia progresses rapidly over 2 to 4 days and may cause septic shock and death unless treatment is begun immediately.

Carriers

The Plague is carried by wild rodents such as rats, mice and squirrels, or their fleas. The plague can also be transmitted through human to human spread of infected droplets by coughing.

Biological Weapons Use

The Plague bacterium has been made into an aerosolized powder that can be deployed as a biological weapon. The former Soviet Union's Biopreparat stockpiled large quantities of the powder, which was designed to be loaded into MIRV warheads to be launched via missiles. Once over their target, the biological warheads would be parachuted down to a designated altitude where they would break apart. Each warhead would then release a hundred oval bomblets the size of small cantaloupes, which would fly out a distance and then split in overlapping patterns, releasing a haze of biopartilces that would quickly become invisible and float to the ground. It is believed that several nations now possess powdered biological weapons or have the capability to manufacture them, including Russia, Iraq, Iran, Syria, Libya, China, and North Korea.

Toxicity

There were three major epidemics of the Plague, in the 6th, 14th, and 17th centuries. The death rate was 90% for those exposed to the bacterium. It was transmitted by the fleas from infected Old English black rats. From the time of infection to death was less than one week. The death toll reached 137 million victims. As a result, the plague is considered to be the worst epidemic of all time.

Contagiousness

Person-to-person transmission of pneumonic plague occurs through respiratory droplets, which can only infect those who have face-to-face contact with the ill patient by coughing, sneezing, or simply talking. Endemic areas in the U.S. are California, Utah, Arizona, Nevada, and New Mexico, where a low level is spread among animals by rats and squirrels.

Incubation

The incubation period is 2 to 12 days but may be as short as a few hours for pneumonic plague.

Symptoms

BUBONIC PLAGUE

- Sudden onset of high fever
- Chills
- General discomfort, uneasiness, or ill feeling (malaise)
- Muscular pains
- Severe headache
- Smooth, oval, reddened, painful swellings of swollen lymph glands called buboes in the groin, armpits, neck, or elsewhere in the body. Pain may occur in the area before the swelling; the most common area is in the groin
- Seizures

PNEUMONIC PLAGUE

- Severe cough
- Frothy, bloody sputum

- Difficulty breathing

SEPTICEMIC PLAGUE

- Fever
- Extreme illness
- Nausea, vomiting, diarrhea and abdominal pain
- Low blood pressure
- Blood clotting problems
- Failure of several or all organ systems

Signs and tests

These tests may indicate a plague infection:

- Culture of bubo
- Culture of sputum
- Blood culture
- Lymph node culture

Prognosis

Half of bubonic plague victims die if not treated, and almost all victims of pneumonic plague die if not treated. Treatment reduces the death rate to 5%.

Prevention

The key to prevention is a healthy immune system. Since it is known that 50% of the population recovers from the Plague even if untreated, a healthy immune response is your best defense. To make certain that you keep your immune system at its peak, Dr. Hansen recommends the following:

1. Take the oral homeopathic vaccine: **Influenzinum 9C** annually (This homeopathic medicine is a broad spectrum remedy that boosts immune responsiveness against flu-like symptoms such as fever, chills, headache, muscle pains, malaise, etc, which can be confused with the initial symptoms of the Plague)
2. Take a high potency multi-vita/min (Dr. Hansen recommends Peak Advantage)
3. Avoid processed sugar (100 grams of Sugar suppresses the immune system by 50% for 5 hours)
4. Get a minimum of 7 ½ hours of sleep per night.
5. If you develop flu symptoms take **Flu Solution** (this is a very effective homeopathic medicine for the initial phase of fever, headache, muscle aches, general malaise, etc.)
6. If the Plague is found in the U.S.: Take **Homeopathic Biological Defense P:** 1 tablet once per week for 4 weeks as a precaution
7. For an exposure to the Plague without confirmed infection: Take **Homeopathic Biological Defense P:** 1 tablet once daily for 14 days as a precaution.

Vaccines

There is no vaccine against the Plague. If the Plague is found in the U.S. Dr. Hansen recommends taking **Homeopathic Biological Defense P:** 1 tablet once per week for 4 weeks as a precaution.

Treatment

Early treatment of pneumonic plague is essential. Without early treatment most people die. Several antibiotics are effective, including streptomycin, tetracycline, and chloramphenicol. Antibiotic treatment for 7 days will protect persons who have been exposed to *Yersinia* through face-to-face contact with infected patients. Oxygen, intravenous fluids, and respiratory support are additional treatments. Patients with pneumonic plague are strictly isolated from other patients. People who have had contact with anyone infected by pneumonic plague are observed closely and are given antibiotics as a preventive measure.

Note: Oral tetracycline is usually not prescribed for children until after all the permanent teeth have erupted. It can permanently discolor teeth that are still forming.

Additionally, Dr. Hansen recommends taking **Homeopathic Biological Defense P**: 1 tablet 4 times daily, every 4 hours. (Note: For an exposure without confirmed infection, Dr. Hansen recommends taking **Homeopathic Biological Defense P:** 1 tablet once daily for 14 days as a precaution.)

Homeopathic Biological Defense P

Homeopathic medicines are natural, over-the-counter (OTC) drugs that work via amplification of the body's own healing response. Homeopathic medicines have been used to treat the symptoms of the Plague for more than 100 years. There are multiple historical references that praise the use of these homeopathic remedies during epidemic outbreaks. In 1901, John Henry Clarke, M.D. wrote, "The recent outbreak of plague in the East has recalled the fact that ***Ignatia amara*** has earned a reputation as curative even in that disease (plague). Honigberger relates that when plague was raging in Constantinople, he administered "minute doses" of it (Ignatia) to patients affected with plague with the best success. Later on he himself caught the disease in India, and cured himself with the same remedy." (H.W. xxxiii.51).

Homeopathic Biological Defense Remedy Indications

Belladonna

- sudden onset of symptoms
- high fever with burning steaming heat
- rapid but weakened pulse
- tender swelling of glands in neck
- restless
- delirium
- headache, throbbing
- face flushed red, or bluish-red
- respiration oppressed, quick
- dry cough
- expectoration of blood

Mercurius vivus

- bursting headache
- fever with profuse perspiration
- heat and shuddering alternately
- glands are inflamed, hardened and swollen
- lymphatic glands of the neck, groin and underarm are all affected
- trembling, weariness, prostration
- restless, anxious
- liver enlarged and sore
- cough with yellow mucous and/or coagulated blood

Phosphorus

- sudden onset of symptoms
- fever with profuse perspiration and chill every evening
- delirium
- dizziness with faintness
- cough, congestion of lungs
- lung congestion
- repeated spitting of bloody sputum
- great drowsiness
- ecchymosis of skin (dark purple spots)

Ignatia amara

- Fever with chills
- Congestive headache as if nail were driven out the side
- Cramps in stomach
- Colicky, gripping pains
- Hollow spasmodic cough
- Much sighing
- Hysteria, lump in the throat
- Trembling, Incoordination

Smallpox

Alternate Names

Variola, Smallpox

Organism

Variola virus

Overview

Smallpox is highly contagious, disfiguring and deadly. Vaccines are credited with eradicating the natural infection. The last vaccines were given in 1972. The last infection of smallpox was recorded in 1977. It is perhaps the most feared biological threat because it can be spread from person to person like the flu and there is no treatment. About 30% of the people who get the disease die. Currently the only confirmed sources of small pox are languishing in two laboratories, one in the U.S. and one in Russia. However, U.S. intelligence officials believe that Russians, Iraqis, and North Koreans have undisclosed stores of smallpox for weapons purposes. Russian Biopreparat defector, Ken Alibek acknowledged that the Soviets built up large stockpiles of smallpox in the 1980's for use in bioweapons, and terrorism experts worry that some of these stockpiles may have been sold to rogue governments and terrorists around the world.

Smallpox begins with a high fever, fatigue, malaise, head and backache. 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 into raised lesions (1-4 days), then vesicles or blisters (1-4 days) and finally become pus-filled (2-6 days). The pustules then rupture and begin to crust early in the second week yielding scabs that fall off after about 3-4 weeks leaving scars or "pox". The majority of patients with smallpox recover, but death occurs in up to 30% of cases.

Carriers

Smallpox is carried by airborne distribution like the common cold or flu virus. It can be transmitted through human-to-human contact by droplets spread when an infected individual breathes or coughs.

Biological Weapons Use

Smallpox has been made into an aerosolized powder that can be deployed as a biological weapon. If deployed in the air conditioning or ventilation system of a domed sports stadium it could expose 50,000 to 70,000 spectators within 3 hours. If deployed in a large international airport such as La Guardia or O'Hare it could easily spread around the entire world before being detected. The former Soviet Union's Biopreparat stockpiled large quantities of the powder (never less than twenty tons of weapons-grade dry smallpox was stockpiled in bunkers). According to Russian defector, Ken Alibek and others, it is possible that smallpox has left Russia for parts unknown, travelling in the pockets of mercenary biologists. "Iran, Iraq, probably Libya, probably Syria, and North Korea could have smallpox."

Toxicity

Smallpox is an extremely lethal virus, and it is highly contagious in the air. When a child with chicken pox appears in a school classroom, many or most of the children in the class may go on to catch chicken pox. Smallpox is as contagious as chicken pox. One case of smallpox can give rise to twenty new cases. Each of those cases can start twenty more. In Yugoslavia, in 1972, a man with a severe case of smallpox visited several hospitals before dying in an intensive-care unit. To stop the resulting outbreak, twenty thousand people went into isolation and Yugoslav health authorities had to vaccinate virtually the entire population of the country within three weeks. Smallpox can start the biological equivalent of a runaway chain reaction. About a third of the people who are infected with smallpox will die from it. The skin puffs up with blisters the size of hazelnuts, especially over the face. A severe case of smallpox can essentially burn the skin off one's body.

Contagiousness

Smallpox is extremely contagious. It is spread from one person to another by infected saliva droplets that expose a susceptible person who comes into direct face-to-face contact with the ill person. The virus can also be spread

through contaminated clothing, sheets, pillowcases or other bed linen. Persons with smallpox are most infectious late in the incubation period before any symptoms have appeared and during the first week of symptoms, because that is when the largest amount of virus is present in saliva. However, some risk of transmission lasts until all scabs have fallen off (about 4 weeks). One person with smallpox will typically infect twenty additional individuals before symptoms ever appear. This chain of contagiousness and replication can infect more than a million people in just a few short weeks.

Incubation

The incubation period is about 12 days, with a range of 7 to 17 days.

Symptoms

- fever
- severe headache
- backache, joint pains
- malaise
- fatigue, weakness, prostration
- rash on the skin, starting on the face and trunk and spreading outwards
- vomiting and diarrhea
- excessive bleeding

Signs and tests

- low white blood cell count initially, that increases later in the disease
- low platelet count
- DIC panel can be positive in cases of hemorrhage
- virus can be seen by electron microscope and by culture
- antibodies turn positive soon after the infection is complete

Complications

- bacterial infections at the skin at the sites of the lesions
- arthritis and bone infections
- pneumonia
- severe bleeding
- eye infections
- brain inflammation (encephalitis)
- death

Prognosis

The majority of patients with smallpox recover, but death occurs in up to 30% of cases.

Prevention

The key to prevention is a healthy immune system. Since it is known that 70% of the population recovers from Smallpox even if untreated, a healthy immune response is your best defense. To make certain that you keep your immune system at its peak, Dr. Hansen recommends the following:

1. Take the oral homeopathic vaccine: **Influenzinum 9C** annually (This homeopathic medicine is a broad spectrum remedy that boosts immune responsiveness against flu-like symptoms such as fever, chills, headache, muscle pains, malaise, etc, which can be confused with the initial symptoms of the Smallpox)
2. Take a high potency multi-vita/min (Dr. Hansen recommends Peak Advantage)
3. Avoid processed sugar (100 grams of Sugar suppresses the immune system by 50% for 5 hours)
4. Get a minimum of 7 ½ hours of sleep per night.
5. If you develop flu symptoms take **Flu Solution** (this is a very effective homeopathic medicine for the initial phase of fever, headache, muscle aches, general malaise, etc.)
6. If a Smallpox outbreak occurs anywhere in the world, or as an advance precaution, take **Homeopathic Biological Defense S:** 1 tablet once per week for 4 weeks.
7. For an exposure to Smallpox without symptoms: Take **Homeopathic Biological Defense S:** 1 tablet once daily for 21 days as a precaution.

Vaccines

Vaccination against Smallpox is not recommended to prevent the disease in the general public. It is associated with some risk for adverse reactions; the two most serious include severe brain swelling (encephalitis), which occurs in approximately one out of every 300,000 vaccine recipients, is fatal in 40% of the cases, and causes permanent neurological damage in others. Routine vaccination against smallpox ended in 1972. The level of immunity, if any, among persons who were vaccinated before 1972 is uncertain at best, but it is presumed that these persons are now susceptible since vaccine immunity is not permanent and wears off within 1-2 decades.

At the present time the U.S. Department of Health and Human Services says it has only a very limited emergency supply (15.4 million doses) of smallpox vaccine. The vaccine is owned by the federal government and is managed by Wyeth-Ayerst, which is the company that made it, twenty-five to thirty years ago. It is stored in glass vials. The vials contain freeze-dried nuggets of live vaccinia virus. Vaccinia is a virus that causes symptoms similar to but milder than smallpox. When you are infected with it by vaccination, it causes a pustule to appear, and stimulates temporary

immunity to smallpox that may last anywhere from 3 to 20 years.
The government is testing that supply and believes that it can dilute the vaccine to make 77 million effective doses. The government has ordered an additional 209 million vaccine doses to bring the total to 286 million doses, enough to vaccinate every man woman and child in the U.S. The vaccine is scheduled to be delivered in the fall of 2002, but the manufacturer will not be able to submit the vaccine to the FDA for approval until mid 2003.

Treatment

There is no proven treatment for smallpox but research to evaluate new antiviral agents is ongoing. Patients with smallpox can benefit from supportive therapy (intravenous fluids, medicine to control fever or pain, etc.) and antibiotics for any secondary bacterial infections that occur. In people exposed to smallpox, the smallpox vaccine can lessen the severity of, or even prevent illness if given within 4 days after exposure.

Additionally, Dr. Hansen recommends taking **Homeopathic Biological Defense S**: 1 tablet 4 times daily, every 4 hours. (Note: For an exposure without confirmed infection: Dr. Hansen recommends taking **Homeopathic Biological Defense S:** 1 tablet once daily for 21 days as a precaution.)

Homeopathic Biological Defense S

Homeopathic medicines are natural, over-the-counter (OTC) drugs that work via amplification of the body's own healing response. Homeopathic medicines have been used to treat the symptoms of Smallpox for more than 100 years. Variolinum 30C is key homeopathic ingredient. It is made from the smallpox pustule. It is homeopathically diluted beyond the point of which any actual viral organisms are present in the final preparation.

Homeopathic Biological Defense Remedy Indications

Variolinum
- "Used for internal vaccination. Seems to be efficacious in protecting against, modifying and aiding in the cure of smallpox"
- Headache
- High Fever, Profuse Perspiration
- Skin Eruption of Pustules
- Excruciating backache
- Aching in legs
- Tired all over with restlessness
- Oppressed breathing
- Cough
- Expectoration of thick bloody mucous

Sarracenia purpurea
- A remedy for Variola, aborts the disease, arrests pustulation
- Congestion of head; sick headache
- Photophobia
- Vomiting
- Backache
- Weakness of limbs
- Bruised pains

Thuja occidentalis 9C

- Variola, aborts the pustule and prevents the suppurating fever
- Headache
- Heat in face with burning redness
- Pustules-Smallpox- eruptions burn violently after scratching
- Boenninghausen "found Thuja both preventive and curative in an epidemic of smallpox

Antimonium tartaricum
- Smallpox
- Headache
- Nausea, retching and vomiting
- Diarrhea
- Cough with great rattling of mucus
- Difficulty breathing
- Edema and impending paralysis of lungs
- Pustular eruption, leaving a bluish-red mark
- Fever with intense heat
- Copious perspiration
- Lethargy, great drowsiness, faintness

Rhus toxicodendron
- Headache
- Diarrhea of blood, slime, and reddish mucous
- Backache
- Joint pains
- Fever, Adynamic
- Skin red, swollen, vesicles, pustules
- Glands swollen

Lachesis

- Headache
- Fever with hot flushes and hot perspiration yet feet icy cold
- Profound prostration
- Bluish, purplish skin
- Boils, carbuncles, ulcers
- Dark blisters, blue-black swellings
- Easy bleeding

Tularemia

Alternative names

Deerfly fever; Rabbit fever

Organism

Francisella tularensis *bacteria*

Overview

Tularemia is an infection that occurs in wild rodents caused by the organism *Francisella tularensis*. It is transmitted to humans by contact with animals, infected animal tissues, or ticks. Tularemia occurs most commonly in parts of Europe and Asia and is uncommon in America. In a biological attack, the bacteria would most likely be spread through an aerosol spray. Following a short incubation, flu-like symptoms begin with sudden onset of fever, chills, profuse sweats, generalized muscle aches and pains extreme weakness and marked prostration. Shortly following these symptoms a severe atypical pneumonia ensues with widespread lymph node swelling and spleen enlargement. The illness may continue for several weeks after the onset of symptoms.

Carriers

The carriers include infected animals, birds, arthropods, such as spiders and insects, as well as contaminated water. Human to human transmission has not been recorded, even in the presence of severe cases of Tularemia pneumonia.

Biological Weapons

Tularemia is extremely infectious, readily available and far fewer organisms are needed to cause onset of symptoms than for Anthrax or Botulism, but it is also difficult to grow and is quite delicate when disseminated. It is the least likely of the six CDC Category A biological agents to be deployed by Terrorists.

Toxicity

Tularemia can cause severe tissue destruction within a very short time, but it is usually limited to local areas. Entire lobes of the lung may become solidified with dead tissue and inflammatory pus. The acute phase of the infection usually begins to subside within two to three weeks after the onset of fever, or sooner if appropriately treated, although patients are frequently sick for as long as one to two months and occasionally experience recurring relapses and chronic lymph node swelling.

Contagiousness

Humans can contract the disease from direct contact with an infected animal or carcass via broken skin; from the bite of an infected flea or tick; or from ingesting infected meat (rare).

Incubation

The incubation period is 1-21 days, but most often symptoms develop within 2-4 days.

Symptoms

- red spot on the skin, enlarging to an ulcer if infected by the bite of an animal
- enlarged lymph nodes of groin or armpits
- headache
- muscle pains
- possible conjunctivitis
- shortness of breath
- fever (103-104 F)
- chills
- sweating
- weight loss
- joint stiffness

Complications

- meningitis
- pneumonia
- pericarditis
- osteomyelitis

Signs and tests

- serology for tularemia
- blood culture for tularemia
- chest x-ray

This disease may also alter the results of febrile/cold agglutinins.

Prognosis

Tularemia is fatal in about 5% of untreated cases, and in less than 1% with treatment.

Does past infection with Tularemia make a person immune?

Long term immunity will follow recovery from Tularemia, however, re-infection has been reported.

Prevention

The key to prevention is a healthy immune system. Since it is known that 95% of the population recovers from the Tularemia even if untreated, a healthy immune response is your best defense. To make certain that you keep your immune system at its peak, Dr. Hansen recommends the following:

1. Take the oral homeopathic vaccine: **Influenzinum 9C** annually (This homeopathic medicine is a broad spectrum remedy that boosts immune responsiveness against flu-like symptoms such as fever, chills, headache, muscle pains, malaise, etc, which can be confused with the initial symptoms of the Plague)
2. Take a high potency multi-vita/min (Dr. Hansen recommends Peak Advantage)
3. Avoid processed sugar (100 grams of Sugar suppresses the immune system by 50% for 5 hours)
4. Get a minimum of 7 ½ hours of sleep per night.
5. If you develop flu symptoms take **Flu Solution** (this is a very effective homeopathic medicine for the initial phase of fever, headache, muscle aches, general malaise, etc.)
6. If Tularemia is found in the U.S.: Take **Homeopathic Biological Defense jT:** 1 tablet once per week for 4 weeks as a precaution.
7. For an exposure to Tularemia without confirmed infection: Take **Homeopathic Biological Defense T:** 1 tablet once daily for 14 days.

Vaccines

A vaccine is currently being developed, but is not available to the general public. Dr. Hansen recommends taking the Oral Homeopathic Vaccine: **Influenzinum 9C**: 3 granules once per week for 4 weeks. This homeopathic medicine is a broad-spectrum vaccine that boosts immune responsiveness against flu-like symptoms such as fever, chills, headache, muscle pains, malaise, etc.

If Tularemia is found in the U.S., Dr. Hansen recommends taking **Homeopathic Biological Defense T:** 1 tablet once per week for 4 weeks as a precaution.

Treatment

Streptomycin and tetracycline are commonly used in this infection. Other antibiotics such as gentamycin and tobramycin have also been reported to be effective. If antibiotic therapy is not started early, the disease is often fatal. Note: oral tetracycline is usually not prescribed for children until after all the permanent teeth have erupted. It can permanently discolor teeth that are still forming.

Additionally, Dr. Hansen recommends taking **Homeopathic Biological Defense T**: 1 tablet 4 times daily, every 4 hours. (Note: For an exposure without confirmed infection: Dr. Hansen recommends taking **Homeopathic Biological Defense T:** 1 tablet once daily for 14 days as a precaution. If symptoms occur, begin taking 1 tablet 4 times daily, every 4 hours)

Homeopathic Biological Defense Remedy Indications

Homeopathic medicines are natural, over-the-counter (OTC) drugs that work via amplification of the body's own healing response.

Arsenicum album

- Headache
- High fever with cold sweats
- Great exhaustion and weakness
- Anxious and restlessness
- Nausea and vomiting
- Skin eruption, bumps and ulcers with pus
- Air passages constricted
- Burning in chest
- Dry cough

Phosphorus

- Sudden onset
- Fever with profuse perspiration
- Chills every evening
- Weakness & difficulty walking, lightheadedness
- Purplish skin eruptions and ulcers
- Cough with congestion of lungs and burning pains

Cinchona officinalis

- Intense throbbing of head
- Face flushed
- Intermittent fever with debilitating night sweats
- Chilliness over the whole body
- Nausea and vomiting
- Abdomen bloated, cold
- Liver and spleen swollen and enlarged
- Labored, slow respiration
- Suffocative congestion and rattling in chest
- Skin ulcers

Bryonia alba

- Bursting, splitting headache
- Dry, parched lips with excessive thirst
- Extreme weakness
- Easy, profuse perspiration
- Chill with external coldness
- Nausea & faintness when rising up
- Liver region swollen, sore
- Dry, hacking cough
- Difficult, quick respiration – worse every movement
- Rust colored sputum

This Comprehensive Biological Agents Summary has been provided by:

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