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Center For Disease Control Guidelines for Responding to "Anthrax Threats"

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Your Life Your Health

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The following information is taken from a public health release issued by the Center for Disease Control in Atlanta, Georgia. It details how to respond to an anthrax threat. The reality of Anthrax requires judgment and balance. Yes, it is a real threat; no, it is not the end of the world. Yes, it is a serious illness, but it can be treated. And, it absolutely can be cured. Should you feel insecure if you do not have a "stash" of Cipro on hand? No! If you have a credible exposure to Anthrax and particularly if you have a positive test and/or a diagnosis of the illness, you WILL without any doubt get the necessary medication to be successfully treated. That is one of the blessings of America. In many countries around the world, which are at much higher risk of contracting Anthrax, that is not the case.

What are the facts of Anthrax? First, how should you handle a potential exposure?

Dealing with a suspicious package

If you have a suspicious parcel or letter, follow these steps:

- Do not open the letter.
- If the letter has already been opened and **powder spills out, do not clean it up.**
- **Keep others away from the area.**
- Double bag the letter; plastic is best (use plastic/rubber gloves and a particulate mask if available).
- Immediately wash your hands with soap and water.
- Notify your supervisor, law enforcement officials, and the FBI
- Notify local, county, and state health officials
- Evacuate the area
- Ensure that all persons who have handled the letter wash their hands
- Start a list of names and telephone numbers all persons who have handled the letter
- Give potentially exposed persons information about the signs and symptoms of illness associated with the biologic agent and about whom to contact and where to go should they develop illness.

- Place all clothing items worn when in contact with the letter into plastic bags
- Keep these bags with you, so that they are available for law enforcement officials
- As soon as possible shower with soap and water

How should a clinician deal with an asymptomatic patient WITHOUT known exposure?

- Provide reassurance to the patient about the rarity of infection without known exposure.
- Recommend the patient see a health care provider for further concerns and/or diagnostic tests.
- It's important for people to know that there is no screening test indicated for the detection of anthrax infection in an asymptomatic person. Nasal swabs should not be used for diagnosis. Nasal swabs and blood serum tests are used as an epidemiological tool to characterize an outbreak when there is a known biologic agent.

How should a clinician deal with an asymptomatic patient WITH known exposure?

- Conduct an individual risk assessment with public health officials and refer to a health care provider if post-exposure prophylaxis is necessary. Rapid screening assays, which can be performed directly on clinical specimens and environmental samples, are being made available for restricted use in Laboratory Response Network "B" and "C" level laboratories.

What is Anthrax?

Anthrax is a zoonotic disease that is transmissible to humans through handling or consumption of contaminated animal products. The etiologic agent of anthrax, *Bacillus anthracis*, is a spore forming gram-positive bacillus. Although anthrax can be found globally in temperate zones, it is more often a risk in countries with less standardized and less effective public health programs. Areas currently listed as high risk are South and Central America, Southern and Eastern Europe, Asia, Africa, the Caribbean, and the Middle East. In these regions, herbivorous wildlife mammals, such as deer, wildebeest, elephants, and domesticated livestock, such as goats, sheep, cattle, horses, and swine, are at highest risk for disease. These animals usually become infected while grazing on contaminated land, eating contaminated feed or drinking from contaminated water holes.

B. anthracis spores can remain viable in soil for many years. Anthrax infrequently occurs in livestock in North America; however, anthrax outbreaks have been reported among deer from Louisiana and Texas up through the Midwest and among wood buffalo in the Northwest Territory in Canada. Animal infections in the United States are reported most often in Texas, Louisiana, Mississippi, Oklahoma, and South Dakota. Birds, amphibians, reptiles, and fish are not directly susceptible to anthrax infection. However, some carnivorous mammals, such as dogs, lions, and omnivorous mammals such as swine, may be susceptible to anthrax infection through consumption of meat from infected animals.

Human infection

Humans can become infected with *B. anthracis* by handling products or consuming undercooked meat from infected animals. Infection may also result from inhalation of *B. anthracis* spores from contaminated animal products such as wool or the intentional release of spores during a bioterrorist attack. Human-to-human transmission has not been reported. Three forms of anthrax occur in humans: cutaneous, gastro-intestinal, and inhalational.

Cutaneous anthrax

Cutaneous infections occur when the bacterium or spore enters a cut or abrasion on the skin, such as when handling contaminated wool, hides, leather or hair products (especially goat hair) from infected animals. Skin infection begins as a raised itchy bump or papule that resembles an insect bite. Within 1-2 days, the bump develops into a fluid-filled vesicle, which ruptures to form a painless ulcer (called an eschar), usually 1-3 cm in diameter, with a characteristic black necrotic (dying) area in the center. Pronounced edema is often associated with the lesions because of the release of edema toxin by *B. anthracis*. Lymph glands in the adjacent area may also swell. Approximately 20% of untreated cases of cutaneous anthrax result in death either because of the infection becomes systemic or because of respiratory distress caused by edema in the cervical and upper thoracic regions. Deaths are rare following appropriate antibiotic therapy, with lesions becoming sterile within 24 h and resolving within several weeks.

Gastrointestinal anthrax

The gastrointestinal form of anthrax may follow the consumption of contaminated meat from infected animals 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. The mortality rate is difficult to determine for gastrointestinal anthrax but is estimated to be 25%-60%.

Inhalation anthrax

This form of anthrax results from inhaling *B. anthracis* spores, and is most likely following an intentional aerosol release of *B. anthracis*. After an incubation period of 1-6 days (depending on the number of inhaled spores), disease onset is gradual and nonspecific. Fever, malaise, and fatigue may be present initially, sometimes in association with a nonproductive cough and mild chest discomfort. These initial symptoms are often followed by a short period of improvement (ranging from several hours to days), followed by the abrupt development of severe respiratory distress with dyspnea (labored breathing), diaphoresis (perspiration), stridor (high-pitched whistling respiration), and cyanosis (bluish skin color). Shock and death usually occur within 24-36 h after the onset of respiratory distress, and in later stages, mortality approaches 100% despite aggressive treatment. Physical findings are usually nonspecific. The chest X-ray

is often pathognomonic (disease-specific) revealing a widened mediastinum with pleural effusions, but typically without infiltrates.

B. anthracis can be detected by Gram stain of the blood and by blood culture with routine media, but often not until late in the course of the illness. Only vegetative encapsulated bacilli are present during infection. Spores are not found within the blood, partially because CO₂ levels in the body inhibit sporulation. Studies of inhalation anthrax in non-human primates (i.e., rhesus monkeys) showed that bacilli and toxins appear in the blood within 2-3 days of exposure. The appearance of toxins coincides with the appearance of bacilli in the blood, and tests are available to rapidly detect the toxins.

Antibiotic therapy

Most *B. anthracis* strains are sensitive to a broad range of antibiotics. Penicillin, ciprofloxacin, or doxycycline are usually recommended for the treatment of anthrax. To be effective, treatment should be initiated early. If left untreated, the disease is highly fatal.