

New York State Department of Health

Diphtheria

Updated: September 2008

What is diphtheria?

Diphtheria is a highly contagious and potentially life-threatening bacterial disease caused by *Corynebacterium diphtheriae*. There are two types of diphtheria: respiratory and cutaneous. Respiratory diphtheria involves the nose, throat and tonsils, and cutaneous diphtheria involves the skin. Cutaneous diphtheria is discussed below.

What is respiratory diphtheria?

Respiratory diphtheria presents as a sore throat with low-grade fever and a membrane attached to the tonsils, pharynx, or nose. Neck swelling is usually present in severe disease. Respiratory diphtheria can lead to severe breathing problems, heart failure, blood disorders, paralysis, coma and even death.

Who gets respiratory diphtheria?

Respiratory diphtheria is extremely rare in the United States because of widespread immunization. Most of the infrequent cases of diphtheria in the U.S. are among unvaccinated or inadequately vaccinated persons, particularly those who travel to areas where diphtheria is common and those who come into close contact with travelers from such areas.

How is diphtheria spread?

Diphtheria is transmitted from person to person through close contact with the discharge from an infected person's eyes, nose, throat or skin.

What are the symptoms of respiratory diphtheria?

Symptoms include sore throat, low-grade fever, muscle weakness, loss of appetite and enlarged lymph nodes located in the neck. A grayish colored membrane may form over the nose, throat and tonsils blocking the airway and making it difficult to swallow. Persons may develop a barking cough and hoarseness with extensive involvement of the throat.

How soon do symptoms appear?

Symptoms usually appear two to five days after infection, with a range of one to ten days.

What are the complications of untreated respiratory diphtheria?

Death occurs in approximately five to ten percent of all respiratory cases with higher death rates (of up to 20 percent) among persons younger than five and older than 40 years of age.

What is the treatment for respiratory diphtheria?

Diphtheria demands immediate medical attention; any delay in treatment can result in death. A person with diphtheria should be hospitalized, isolated and treated with diphtheria antitoxin and antibiotics, such as penicillin and erythromycin.

When and for how long is a person able to spread respiratory diphtheria?

Untreated patients who are infected with the diphtheria germ may be contagious for up to four weeks. If the patient is treated appropriately, the contagious period can be limited to less than four days.

Does past infection with diphtheria make a person immune?

Recovery from diphtheria is not always followed by lasting immunity.

Is there a vaccine for diphtheria?

Diphtheria vaccine for children is combined with tetanus and acellular pertussis to form a triple vaccine known as DTaP (diphtheria, tetanus, acellular pertussis). In 2005, a new vaccine was approved as a single booster vaccination for adolescents and adults called Tdap (tetanus, diphtheria and acellular pertussis). Td (tetanus and diphtheria) is also a vaccine used as a booster vaccination in adolescents and adults, however, it does not contain the pertussis vaccine.

DTaP should be given at two, four, six, 15 to 18 months of age, and between four and six years of age.

The preferred age for Tdap vaccination is 11 to 12 years. However, all adolescents aged 11 to 18 years should receive a single dose of Tdap instead of the Td for booster immunization if they have completed the recommended childhood DTaP vaccination series and have not received Td or Tdap. An interval of five years between Td and Tdap is encouraged; however an interval of less than five years between Td and Tdap administration can be used. Thereafter, Td should be given every ten years to maintain immunity.

Adults aged 19 to 64 years should receive a single dose of Tdap to replace a single dose of Td for active booster vaccination if they received their last dose of Td greater than ten years earlier. Thereafter, Td should be given every ten years to maintain immunity.

In New York State, diphtheria vaccine is required for all children in pre-kindergarten programs and schools.

What can be done to prevent diphtheria?

The single most effective control measure is maintaining the highest possible level of immunization in the community. Other methods of control include prompt treatment of cases and a community surveillance program.

What is cutaneous (skin) diphtheria?

In the United States, cutaneous diphtheria, although rare, is most often seen among persons with poor hygiene who live in crowded conditions. Skin infections with diphtheria are still common in tropical countries and are even more contagious than respiratory diphtheria. Skin wounds are characterized by a scaling rash, sores or by blisters which can occur anywhere on the body. Skin wounds may be painful, swollen and reddened. The skin infection is treated by thorough cleansing with soap and water and appropriate antibiotics.

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