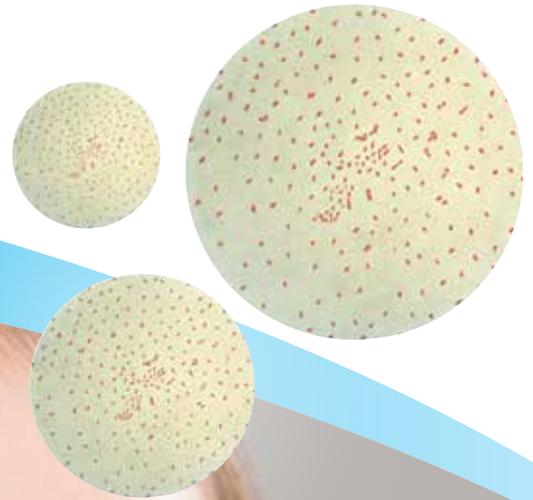


## **Whooping Cough (Bordetella Pertussis)** Essential Information



# Whooping Cough (Bordetella Pertussis)

## Origins

Whooping cough is a highly contagious respiratory infection caused by the Gram negative bacteria *Bordetella pertussis*, which attaches to the lining of the upper respiratory system (sinuses, nose, and throat). The infection is primarily transmitted through person to person contact by breathing in or swallowing infected respiratory secretions that contain the bacteria. The bacteria may also be transmitted at a lesser rate through hand and surface contact with secretions. Once infected, the bacteria attach to the small hair-like extensions (cilia) of the upper respiratory tract and produce a toxin that damages the cilia and causes swelling.

Outbreaks of pertussis were first identified in the 16th century. The bacteria causing pertussis was formally isolated and identified in 1906. Once a common childhood disease, the invention of vaccinations to prevent pertussis infections has dramatically reduced the societal impact. However the WHO estimates that there are still 16 million cases of pertussis each year resulting in 200,000 deaths, primarily in developing countries where children are not immunized.

Infants are at the greatest risk of getting pertussis and once infected about half require hospitalization. Of those infants hospitalized, 1-2% die from the infection. Many infants that become infected with pertussis are infected by parents, older siblings, or caregivers that may not even know they are carrying the bacteria. Pertussis occurs worldwide but appears to be only a human disease. There are no known animal or insect sources.



## Diagnosis

A person infected with pertussis will develop symptoms in 4-21 days, with a typical range of 7-10 days after exposure, but can take as long as 6 weeks to develop symptoms. Other estimates of the incubation period are 6-20 days with 9-10 days being the typical time before symptoms develop. Initial symptoms include:

- Cold-like symptoms (mild coughing, sneezing, stuffy/runny nose)
- Mild fever

After 1-2 weeks, coughing fits often develop where a series of severe rapid coughs is followed by a high pitched “whoop” sound, vomiting, and exhaustion after the coughing fit. This condition can persist for 10 weeks or more with the coughing fits becoming more severe and occurring at night as the illness progresses and recovery occurring slowly. After having pertussis, other respiratory infections can trigger the same type of coughing fits for a period of time (months).

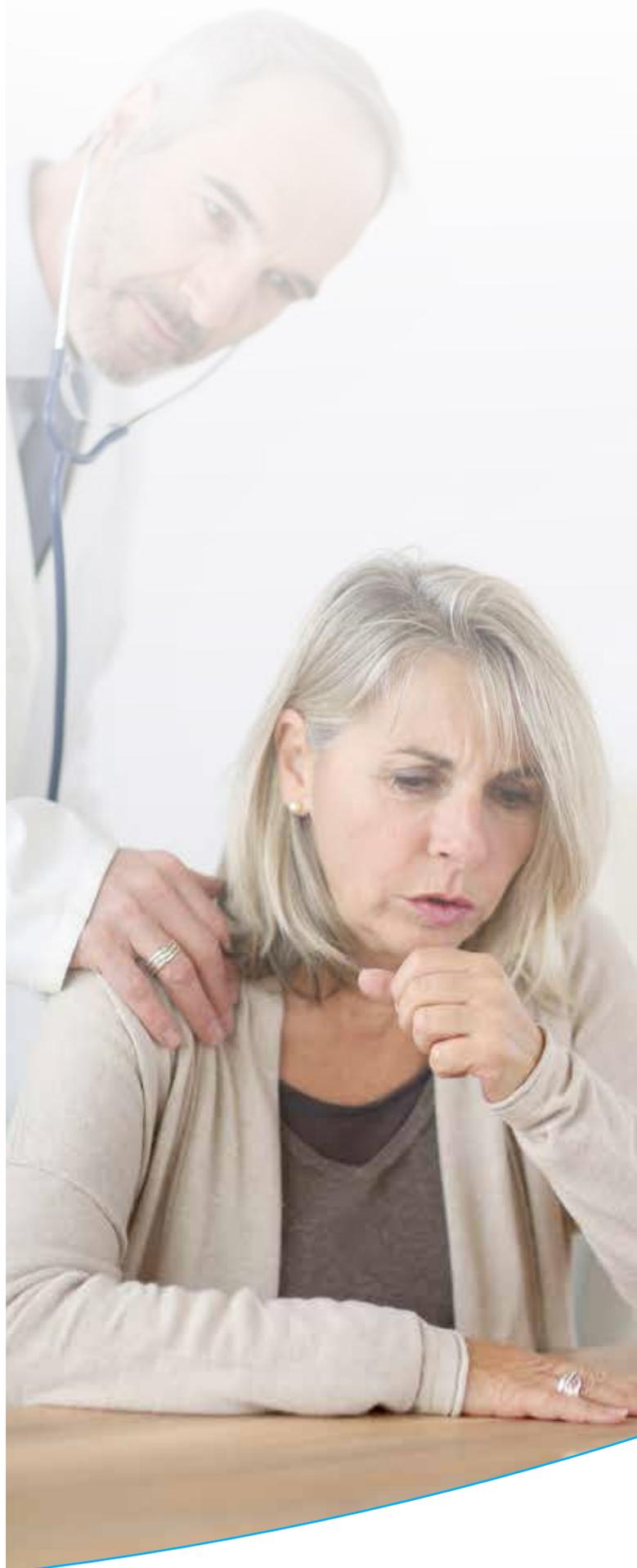
Some infants develop little to no cough, so this is not always an indicator of a pertussis infection. Older children, teens, and adults that are vaccinated but still become infected typically have milder symptoms and the “whoop” part of the cough may be absent. Infants may also develop apnea, which is a pause in the breathing pattern. The most common complication of pertussis is pneumonia (5% of all cases, 12% of cases with infants younger than 6 months), which is also the cause of most pertussis related deaths, approximately 80% of which are infants under 6 months of age.

The symptoms likely to present early in the illness are often seen in patients with other commonly occurring diseases, such as colds and influenza. Diagnosis and treatment should only be performed by a trained physician who can rule out other potential diseases. Because the early stage symptoms are similar to other illnesses, diagnosis of pertussis often does not occur until more severe symptoms occur. Antibiotics can reduce the severity of the illness and the amount of time a person is contagious.

## Method of Transmission/ Contagiousness

Pertussis is considered highly contagious. The disease is spread primarily by airborne droplets and has an incubation period, with infected people generally showing symptoms in 7-10 days, although it can take several weeks for some people to show symptoms. Infected people are most contagious up to about 2 weeks after the cough begins. When an infected person sneezes or coughs, small droplets that contain the bacteria can be spread. Inhaling or swallowing these droplets can cause infection.

Some experts suggest that transmission can occur, although less frequently, through contact with contaminated objects. Droplets of respiratory secretions from an infected person can settle on surfaces and objects, where people can pick the bacteria on their hands and by touching their mouth, nose, or eyes, become infected.



# Whooping Cough (Bordetella Pertussis)

## Prevention

### Vaccination

Pertussis vaccinations have a high degree of effectiveness in protecting people from getting a pertussis infection, but no vaccine is 100% effective. There is always a chance that vaccinated people of any age can still become infected with pertussis, but the infection is generally much less severe in a person that has received the vaccination. Children not receiving the vaccination are 8 times more likely to get pertussis than those that are vaccinated and one infected person can infect up to 12-15 other people by Centers for Disease Control and Prevention (CDC) estimates.

The best way to prevent pertussis is through a full vaccination series. In the US, the pertussis vaccination is included in a combination vaccination called DTaP, which protects against pertussis, Diphtheria, and Tetanus. The vaccination offers excellent protection, but does fade with time. Adults who receive the vaccination can receive booster vaccinations every 10 years to help increase their immunity. Tetanus booster shots are today often replaced with the DTaP booster so that adults increase their immunity to all three infections.

### Reduce Contact

Non-immunized infants and other people at high risk for pertussis complications should avoid or minimize contact with people who have an active pertussis infection.

### Hand Hygiene

While the bacteria that causes pertussis is not believed to be primarily spread through hand to hand or hand to surface to hand contact, frequent hand washing with soap and water or the use of alcohol hand gel can reduce the risk of this type of transmission.



### Respiratory Hygiene

People with active pertussis infections should cover their mouth with a tissue or use their elbow when they cough or sneeze. Dispose of the tissue once used. They should wash their hands or use alcohol hand gel after sneezing or coughing. As this bacteria is primarily transmitted via respiratory droplets, infected people should take steps to protect those around them that are not immunized.

### Surface Disinfection

While the bacteria that causes pertussis is not believed to be primarily transmitted via environmental surfaces, an environmental hygiene program should always include regular cleaning and disinfection of commonly touched environmental surfaces (door handles, light switches, elevator buttons, keyboards, phone, etc.) because the bacteria can live for 2-3 days on environmental surfaces and the risk posed by environmental surfaces can be reduced through proper cleaning and disinfection.

### Protocol Staff Members

Staff members with active pertussis infections should stay away from work until cleared by a doctor to return.

### Good Health Practices

Practicing good health is also helpful in preventing the development of many illnesses. The strength of a person's immune system is often related to their overall health. Get plenty of sleep, eat healthy, be physically active, manage stress, and drink plenty of fluids to keep your immune system strong.

### References and useful websites

Much of the Information used in the development of this brochure was taken from the sites listed below.

<http://www.cdc.gov/pertussis/>

<http://www.who.int/topics/pertussis/en/>

[www.sealedair.com](http://www.sealedair.com)