



## Focus on pertussis

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Pertussis, also known as whooping cough, is an upper respiratory tract illness caused by a bacterium called *Bordetella pertussis*. The name “whooping cough” comes from the loud, high-pitched “whooping” sound people make when they gasp for air at the end of a coughing fit.

Although pertussis can affect people of all ages, young unvaccinated or partially-vaccinated infants, especially infants under six months of age, are the most vulnerable and at highest risk for developing serious disease and complications.

### How is pertussis spread?

Pertussis is a highly infectious illness. It is easily spread during the early stages of the disease (before showing typical symptoms of pertussis). The bacteria are spread through the air when a person with pertussis coughs or sneezes. A vulnerable person can get pertussis if he/she inhales respiratory droplets, or airborne droplets of respiratory secretions containing the bacteria.

### What are the signs and symptoms of pertussis?

The disease generally starts with symptoms that are similar to the common cold, which usually appear 7 to 10 days after exposure, but it may sometimes take as long as three weeks after exposure for a person to show symptoms (range from 5–21 days).

The clinical course of pertussis can be divided into three stages, namely catarrhal stage, paroxysmal stage and convalescent stage (Figure 1).

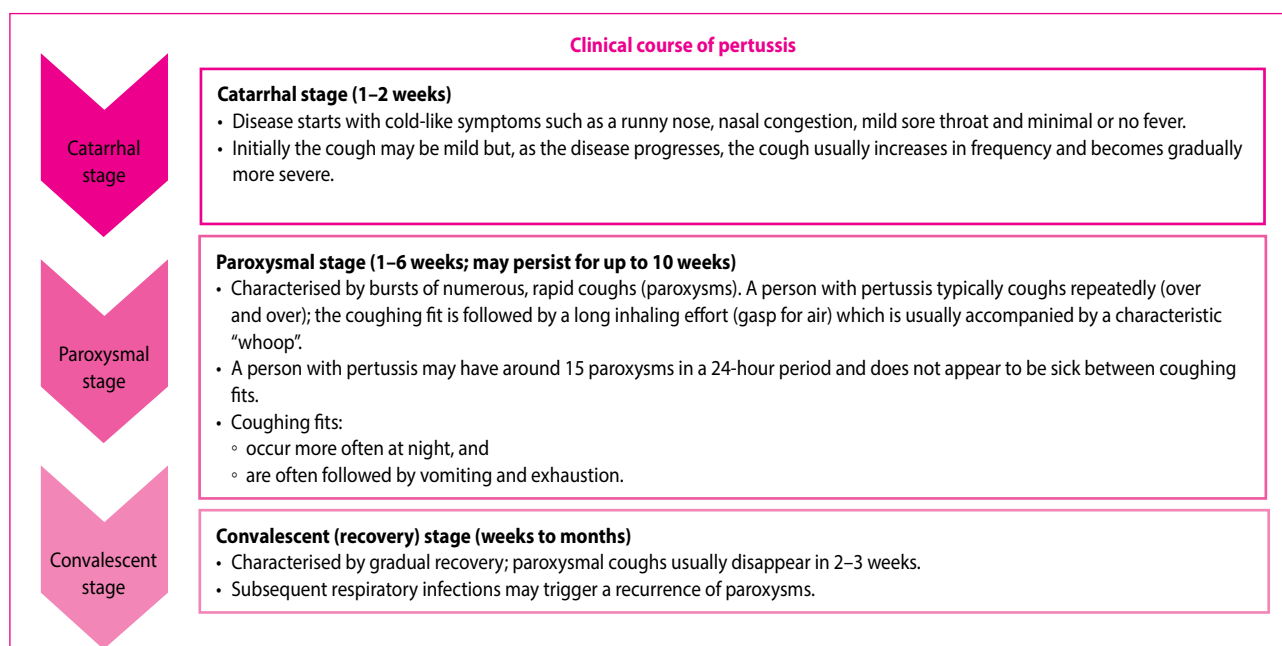


Figure 1: The clinical course of pertussis

## Not everyone with pertussis has a “whoop”

The “whooping” sound may not always accompany the cough, for example:

- Infants and young children often appear distressed and very ill; the cough may be insignificant or they may not cough at all; instead they may struggle to breathe, have life-threatening pauses in breathing (apnoea), turn blue (cyanotic) and vomit.
- Adults and previously-vaccinated adolescents and children may present with a persistent cough (i.e. lasting more than seven days). This is also why pertussis is sometimes referred to as the “100-day cough.”

Importantly, adolescents and adults may not know that they have pertussis; nevertheless, they can still spread the disease to other susceptible persons. Studies have found that household contacts were in 74–96% of cases the source of pertussis infection for infants under six months of age. Mothers have been found to be the most common source (39%).

## Complications

Pertussis can be a serious illness, especially for infants. Approximately 50% of babies younger than one year of age with pertussis need to be hospitalised. The most common pertussis-related complication in babies and children is pneumonia, which is also the cause of most pertussis-related deaths.

Complications in teenagers and adults (especially those who have been vaccinated) are usually less serious. It is often the cough itself that is responsible for complications; for example, severe coughing may result in rib fractures and/or loss of consciousness (passing out).

## How is pertussis treated?

Treatment is mainly supportive. Doctors usually prescribe antibiotics. Antibiotics may help to lessen the severity of symptoms, if started early in the disease. Due to their ability to kill bacteria in secretions, antibiotics also play an important role in preventing the spread of pertussis. Antibiotics may also be prescribed as prophylaxis (to prevent illness) to close and vulnerable contacts (irrespective of their age and vaccination status) who have been exposed to someone with pertussis, for example, household members or persons with face-to-face exposures, and health care workers.

Supportive treatment is aimed at:

- Preventing dehydration. Children should be encouraged to drink plenty of fluids, i.e. water, soup, juice.
- Maximising nutrition, rest and recovery. It may be helpful to give small meals, every few hours.
- Limiting the number of paroxysms. Avoiding known triggers for coughing, if possible, for example, exercise and cold temperature. The home should also be kept free from irritants such as smoke and dust.

According to the National Institute for Communicable Diseases (NICD), there is insufficient evidence for the use of symptomatic therapies for pertussis-related cough and the “use of cough suppressants, e.g. codeine-containing products, is not indicated”.

Infants six months of age and younger, as well as patients with breathing difficulties or persistent nausea and post-tussive vomiting,

showing signs of dehydration or those who fail to thrive may need to be hospitalised. In addition, inpatient treatment is recommended for patients at high risk of severe disease, for example, patients with underlying lung or heart disease.

## How can pertussis be prevented?

Pertussis, as with many other respiratory illnesses, is spread through coughing and sneezing. A person with pertussis is most infectious during the catarrhal stage and the first two weeks after onset of the coughing spells (about 21 days).

It is important to practise good hygiene in order to prevent the spread of pertussis. Patients should be advised to:

- Use a tissue when coughing or sneezing; ensuring that the mouth and nose are covered.
- Discard the used tissue in a waste bin.
- Cough or sneeze into their elbows or upper sleeve, if they do not have a tissue. They should not cough or sneeze into their hands.
- Wash hands with soap and water for at least 20 seconds or use alcohol-based hand sanitiser.

A person is no longer infectious after five days of treatment with an appropriate antibiotic.

## The role of vaccination

Vaccination against pertussis plays an important role in preventing the disease. Since immunity acquired by natural infection is not lifelong, it is important to continue vaccinating children, who have recovered from pertussis, according to the routine schedule. The routine immunisation schedule is a series of three doses of a pertussis-containing vaccine administered four weeks apart, starting at age six weeks. According to the Expanded Programme on Immunisation in South Africa (SA-EPI), a booster dose is also recommended at 18 months of age. In the private sector, additional booster doses are recommended at six and 12 years of age (as per the vaccination schedule drawn up by the Paediatric Management Group).

Important points:

- Pertussis-containing vaccines, in South Africa, are only available in combination vaccines.
- Pertussis-containing vaccines for adolescents and adults are different to those used for routine childhood vaccination.

Unfortunately, as with natural infection, immunity following vaccination wanes over time. This is referred to as “waning immunity”. To ensure protective levels of immunity, booster doses of vaccine are recommended.

Additional vaccination strategies to protect infants from getting pertussis include:

- Vaccinating pregnant women with a pertussis-containing vaccine during pregnancy (during the third trimester).
- Ensuring that everyone around the baby (including fathers, grandparents, siblings, babysitters, etc.) are up to date with their pertussis vaccines. By vaccinating everyone around the baby, not only will they themselves be protected, they may also indirectly protect the baby from getting pertussis (cocooning strategy).

## Conclusion

Pertussis is a highly contagious vaccine-preventable disease. Infants (especially infants six months of age or younger) are at greatest risk of having serious complications and are also most likely to die from pertussis. Routine childhood vaccination and booster doses are recommended to ensure protective levels.

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