

# Pertussis

## Frequently Asked Questions

### 1. What is pertussis?

Pertussis, also known as whooping cough, is a highly infectious disease that affects the respiratory tract. It is caused by the bacterium *Bordetella pertussis*.

### 2. Who can get pertussis?

Persons who are not immune to the bacterium *Bordetella pertussis* through vaccination or previous infection can get pertussis at any age. However, some individuals are at increased risk. Infants and young children who are not vaccinated or partially vaccinated are at high risk for infection and severe disease. Individuals with a weakened immune system and those with chronic lung disease are also at high risk for severe disease. Previously vaccinated individuals including older children, adolescents and adults are also at risk of getting pertussis as immunity wanes over time. Infants ≤6 months of age are most likely to develop complications and to die from pertussis.

### 3. Where does pertussis occur in South Africa?

In South Africa, the true burden of pertussis disease is unknown. Many cases are not recognised and/or reported. However cases have been reported from all nine provinces in South Africa through surveillance activities recently commenced by the National Institute for Communicable Diseases. Testing of 460 sequential children <13 years symptomatic for respiratory infection (tachypnoeic, apnoeic) at Red Cross Children's hospital in 2012 yielded pertussis in only 32 (7%). Pertussis outbreaks have also been reported. During the period April 2008 to March 2009, an outbreak of pertussis was reported in Bloemfontein, Free State Province.

### 4. How is pertussis transmitted?

Pertussis is spread from person-to-person through respiratory excretions when an infected person coughs, sneezes etc. and a vulnerable individual inhales the bacteria. Pertussis is highly transmissible during the early stages of disease when most cases are not yet recognised.

### 5. How does pertussis affect animals?

*Bordetella pertussis* does not infect animals. A related organism called *Bordetella bronchiseptica* is responsible for 'kennel cough' in dogs, which presents with persistent, irritating dry cough.

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

Pertussis can cause a wide range of symptoms which may vary from person to person. The onset of disease is gradual and disease may be mild or severe. Symptoms usually appear 7 to 10 days after

exposure; however onset can range from 5 to 21 days. Initial signs and symptoms are similar to the common cold and may include nasal congestion, runny nose, mild sore throat, mild dry cough and minimal or no fever. Days later, the cough can become more severe and is characterised by episodes of paroxysms followed by a whooping sound and/or vomiting after coughing. Paroxysmal cough may last 1 to 2 months. In infants, the cough may be insignificant or not present at all, however, infants may present with cessation of breathing and bluish discolouration of the skin. Adolescents and adults who are previously vaccinated may also present differently with minimal symptoms such as a sore throat or persistent cough.

## **7. How is pertussis diagnosed?**

Pertussis can be diagnosed clinically by a medical practitioner and by conducting laboratory testing which involves collecting a specimen from the back of the patient's throat (through the nose) or asking the patient to cough into a bottle to collect sputum. Even though laboratory confirmation can be challenging, pertussis can be confirmed by various diagnostic methods including culture, PCR and serology. Culture for *B. pertussis* remains the gold standard. However, it may not detect cases, as the organism is difficult to grow. Persons presenting late in the disease course may be culture negative as the organism is no longer present or present in small numbers only. PCR is highly sensitive and is most commonly used. Serology can be of value in individuals who present late in the course of disease, when both culture and PCR are likely to be negative.

## **8. How is pertussis treated?**

Antibiotics known as the 'macrolides' have been shown to be effective in reducing the infectious period. Antibiotics are unlikely to alter the course of the illness unless taken in the early stage of the disease. However they will eradicate *B. pertussis* from the nasopharynx of infected persons. Erythromycin should be given for 7 days, and azithromycin for 5 days.

## **9. How can pertussis be prevented?**

Pertussis can be prevented by active immunisation with pertussis-containing vaccines. In South Africa, the Expanded Programme on Immunisation (SA-EPI) schedule includes four doses of acellular pertussis vaccine. The primary series is given in three doses at 6, 10 and 14 weeks of age in combination with other antigens. The fourth dose (booster) is given at 18 months. However immunity after vaccination is not lifelong and wanes over time; as a result boosters are recommended after 4 to 8 years to ensure protective levels. When a case of pertussis is diagnosed, close contacts (persons with face-to-face exposure including health care workers) of the patient should receive prophylaxis regardless of age or vaccination status with erythromycin for 7 days, or azithromycin for 5 days. The prophylactic and treatment dose and duration are the same.

## **10. Where can I find out more information**

For medical or clinical enquiries: contact the NICD Hotline +27 82 883 9920 (for use by healthcare professionals only). For laboratory related queries contact the Centre for Respiratory Diseases and Meningitis: Linda de Gouveia 011-555-0327 ([lindad@nicd.ac.za](mailto:lindad@nicd.ac.za)); Nicole Wolter 011-555-0352 ([nicolew@nicd.ac.za](mailto:nicolew@nicd.ac.za)) or Mignon du Plessis 011-555-0387 ([mignond@nicd.ac.za](mailto:mignond@nicd.ac.za)). Guidelines and other useful resources are available on the NICD website [www.nicd.ac.za](http://www.nicd.ac.za)