

Pertussis (Whooping Cough) And Travel

Information about pertussis and the UK vaccination regime

Key Messages

Pertussis, or whooping cough, is a bacterial infection spread from person to person by the respiratory route.

The disease is present worldwide and despite sustained high vaccine coverage a number of countries have seen a resurgence of whooping cough in recent years.

Infants under 6 months are at highest risk of severe complications and death from whooping cough.

Pertussis vaccination for children under 10 years and pregnant women is currently recommended as part of the routine schedule.

Pertussis vaccination is not recommended in the UK for those over 10 years old, including those visiting newborns abroad.

Additional ways to protect young infants from respiratory illness include good hand and cough hygiene and avoiding close contact with those known to be infected.

Overview

Pertussis, also known as whooping cough, is a highly infectious disease caused by the bacterium *Bordetella pertussis*. It is usually transmitted via the respiratory route and starts with non-specific catarrhal ('common cold') symptoms. Typically, an intermittent uncontrollable cough then develops, causing spasms. Coughing fits, may end with an inspiratory whoop and vomiting. Young infants do not always develop a 'whoop' following the coughing spasms, but may instead experience difficulty breathing or even stop breathing for a short time.

Symptoms are worse at night and the illness can last for two to three months. Infants under six months are at highest risk of severe complications and death from pertussis. Milder symptoms may be observed in older children and adults who have previously been vaccinated.

Pertussis occurs worldwide and in recent years a number of countries with longstanding vaccine programmes have reported resurgences in disease, despite sustained high vaccine coverage [1]. There are likely to be a number of factors that have affected this, including changes in testing and reporting, but in a small number of countries including the UK and United States a true increase appears to have occurred. In the UK, a pertussis-containing vaccine has been routinely offered

since the 1950s. Since 1992, coverage has been consistently 92 percent or higher by the second birthday [2].

Routine pertussis vaccine in the UK

The main aim of the UK vaccination schedule is to reduce the risk of severe pertussis in infancy [2]. The primary UK vaccination course consists of three doses of an acellular pertussis-containing vaccine at eight, twelve and sixteen weeks of age. A reinforcing dose should be administered at around three years and four months [3].

For children who have [not completed a primary vaccination course or where there is an unreliable history of previous immunisation](#), Public Health England recommendations should be followed [4].

Adults and children aged 10 years and over

Pertussis vaccination is not routinely recommended for those aged 10 years and over, apart from pregnant women or as part of outbreak control [2].

A pertussis-containing vaccine can be considered as a post exposure measure for those aged more than 10 years old who have had close contact with suspected or confirmed cases of pertussis, based on the criteria set out in the national guidance for the public health management of pertussis, produced by Public Health England [5].

Vaccine recommendation for pregnant women

In April 2012, the Health Protection Agency declared a national pertussis outbreak. In September 2012, in response to the high number of infant cases and deaths, the Department of Health launched a new temporary vaccination programme for pregnant women [6].

The aim of this programme is to boost immunity in the mother during pregnancy to optimise transfer of antibodies from mother to unborn baby and thereby protect the infant from birth until they reach the age of routine immunisations (8 weeks). The programme has been shown to be highly effective and the risk of pertussis in babies born to mothers vaccinated at least one week before delivery was reduced by around 90 percent [7]. Vaccine effectiveness against infant deaths after maternal vaccination was estimated at 95 percent [8].

In June 2014, due to the continued circulation of pertussis in the population, the Joint Committee on Vaccination and Immunisation recommended this programme be extended for a further five years until 2019, when it will be reviewed [6].

A pertussis-containing vaccine is recommended for pregnant women ideally between 20 weeks (after their foetal anomaly scan) and 32 weeks gestation (although can be given from as early as 16 weeks gestation) [2]. Women may still be immunised after week 32 of pregnancy until delivery but this may not offer as high a level of passive protection to the baby.

The vaccine has been shown to be safe to pregnant women [9, 10].

Pertussis vaccine schedule in UK

Vaccine	Schedule and age range
Infanrix hexa (DTaP/IPV/Hib/HepB) the 6-in-1 vaccine: diphtheria, tetanus, pertussis, polio, Haemophilus influenza type b and hepatitis B	Three doses: given at 8, 12 and 16 weeks of age
Infanrix IPV (DTaP/IPV) or Repevax (dTaP/IPV) the 4-in-1 vaccine: Diphtheria, tetanus, pertussis and polio (DTaP/IPV or dTaP/IPV)	Single pre-school booster dose: given at 3 years, 4 months old or soon after
Boostrix-IPV or Repevax (dTaP/IPV) diphtheria, tetanus, pertussis and polio	Single booster dose: offered to pregnant women (ideally between 20-32 weeks)

Pertussis vaccine and overseas travel

Travellers over the age of 10 years are not routinely offered pertussis vaccination when travelling overseas, even those who have an incomplete vaccine history or have no record of having received a pertussis containing vaccine [2].

Visiting newborns

In response to large outbreaks of pertussis, several countries outside the UK have recommended pertussis vaccination for adults, family, and close contacts of newborns, with the rationale that vaccination might protect the infant. However, there is limited evidence of the effectiveness of this 'cocooning' approach [11]. Therefore vaccination of adults in these circumstances is not recommended for UK travellers.

Many countries now offer pertussis vaccination during pregnancy. Travellers planning to visit friends and relatives who are pregnant or recently delivered can be advised to check the pertussis vaccination status of the mother before visiting. Vaccinating pregnant women is more effective and favourable to cocooning [11].

Infants who have completed their primary schedule are well protected from pertussis. Additional measures that can be taken to protect children less than 12 months of age from respiratory illness include:

- Good hand hygiene
- Avoiding close contact with persons known to be infected and those with a respiratory or

coughing illness

- Ensuring individuals cover their nose and mouth when coughing or sneezing and promptly dispose of used tissues hygienically [12]

Immunity to pertussis

An antibody level that is known to be protective against pertussis has not been demonstrated, so blood tests cannot be used to determine immunity [13]. In those who have not recently been vaccinated, blood testing can however be used to determine evidence of recent pertussis infection [14].

Natural infection confers some immunity, which when boosted by frequent re-exposure to *B. pertussis*, may persist. However, long lasting immunity cannot be ensured after natural infection, so a history of infection is not specific enough for protection to be presumed [15].

Pertussis vaccination appears to confer protection until at least 10 years of age. There is evidence of waning protection 10 - 15 years after completing a primary vaccine course. However, pertussis vaccine prevents severe disease, so vaccinated individuals who subsequently develop symptomatic disease are unlikely to be at risk of serious complications [16].

Resources

- [Public Health England: Pertussis: guidance, data and analysis](#)

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Published Date: 01 May 2018

Updated Date: 01 May 2018