Pertussis (whooping cough) and travel

Information about pertussis and the UK vaccination regime

Key messages

- **Pertussis, or whooping cough, is a respiratory infection, spread easily from person to person.**
- **It is present worldwide and although vaccination rates are high, many countries saw a rise in whooping cough cases in the years before the COVID-19 pandemic. Whilst whooping cough cases were very low when COVID-19 control measures were in place, many countries, including the UK, have seen a resurgence in 2023/2024.**
- **Infants under three months are at greatest risk of serious problems and sometimes death from whooping cough.**
- **Pertussis vaccination at 8, 12 and 16 weeks of age and 18 months of age with a booster dose three years later and for pregnant women is currently recommended as part of the UK routine immunisation schedule.**
- **Pertussis vaccination is recommended for some healthcare workers.**
- **Pertussis vaccination is not currently recommended in the UK for most people over 10 years of age, including those visiting newborns abroad.**
- **Protect young infants from respiratory illnesses by handwashing, covering your mouth and nose when coughing/sneezing and avoiding close contact with those known to be infected.**

Overview

Pertussis, also known as whooping cough, is a highly contagious respiratory infection caused by a bacteria called *Bordetella pertussis* [1].

People with whooping cough can easily spread the infection to another person when coughing or sneezing. The illness starts with symptoms similar to a 'common cold'. A week or two later, an intermittent, uncontrollable cough lasting for a few minutes at a time develops. As someone with whooping cough tries to take a breath there may be a 'whoop' sound between coughs, although this is less common in young babies and adults [2]. Some babies may have trouble breathing or even stop breathing for a short time; the cough may also cause vomiting [1, 3].

Symptoms are worse at night and coughing can last for two to three months. Infants under six months of age are at highest risk of serious complications and death from whooping cough. Milder symptoms may be seen in older children and adults who have previously had whooping cough or been vaccinated [2].

Pertussis occurs worldwide and in recent pre-COVID-19 pandemic years some countries with successful vaccine programmes have seen an increase in whooping cough cases [1]. There are many reasons for this including, the natural cycle that whooping cough follows with cases numbers peaking every three to five years and falling vaccination rates [4]. After a period with very low whooping cough activity whilst COVID-19 population control measures were in place, many countries, including the UK, have seen a resurgence of cases in 2023/2024.

Routine pertussis vaccine in the UK

The main aim of the UK routine immunisation schedule is to reduce the risk of serious illness in young babies [5]. The schedule consists of three doses of a pertussis-containing vaccine at eight, twelve and sixteen weeks of age. A further dose is offered as part of the preschool booster at around three years and four months of age [1].

UK Health Security Agency recommendations should be followed for children who have not had their vaccines, or if vaccination history is unclear [6].

Adults and children aged 10 years and over

A whooping cough vaccine is not usually recommended for anyone aged 10 years and over, apart from:

- Pregnant women.
- Healthcare workers who have regular contact with pregnant women or young babies (see UK Health Security Agency guidance).
- To help control an outbreak of whooping cough, when UK Health Security Agency guidance should be followed [1, 7].

Vaccine recommendation for pregnant women

Most hospitalisations because of whooping cough are in babies under the age of six months who have either not received any or all their primary pertussis-containing vaccines [1]. In 2011/12 a

national whooping cough outbreak was declared in England and Wales and in October 2012, the UK Department of Health launched a pertussis vaccination programme for pregnant women [1].

The aim of the programme is to boost immunity in the mother during pregnancy to pass protection to the baby in the womb. The baby is then protected in the first few months of life when they are most vulnerable to serious infection and before they are old enough to receive their own vaccine [8].

The programme has been shown to be highly effective in reducing the risk of whooping cough in babies born to mothers who have received a pertussis-containing vaccine [9-11].

Whooping cough vaccine is normally offered around the time of the mid-pregnancy scan (usually 20 weeks) but it can be given from 16 weeks. To give babies the best protection, it is best to get the vaccine by 32 weeks. Having the vaccine by 32 weeks allows time for you to develop protection and for this to pass to your baby in the womb. It also means if your baby comes early, they are more likely to be protected.

Women who have missed out can still have the vaccine later and may be offered a pertussis containing vaccine up until the baby receives their own vaccine at eight weeks, as this may protect the mother from whooping cough infection which could be passed onto the baby [8].

A large UK study which considered the safety of maternal pertussis vaccination did not find any safety concerns [9].

Pertussis vaccine schedule in UK

The Green book and vaccine Summary of Product Characteristics should be consulted prior to administration of any vaccine.

Vaccine	Schedule and age range
The 6-in-1 vaccine: diphtheria, tetanus, acellular pertussis, polio, *Haemophilus influenzae* type b and hepatitis B (DTaP/IPV/Hib/HepB)	Three doses: given at 8, 12 and 16 weeks of age and a fourth dose at 18 months of age
The 4-in-1 vaccine: diphtheria, tetanus, acellular pertussis and polio (dTaP/IPV)	Single pre-school booster dose: given at 3 years, 4 months old or soon after
Diphtheria, tetanus, and acellular pertussis (Tdap) From July 2024, a non-polio (IPV) containing pertussis vaccine is preferred but the diphtheria, tetanus, acellular	Single booster dose: offered to pregnant women 16 to 32 weeks gestation*

pertussis, polio vaccine (dTaP/IPV) can be used for pregnant women if Tdap is contraindicated or unavailable [8]	

***Recommended for pregnant women between 16 to 32 weeks to protect unborn child against whooping cough (pertussis). Women may still be immunised after week 32 of pregnancy, but this may not offer as high a level of protection to the baby.**

Information about vaccination for eligible healthcare workers is available from the UK Health Security Agency.

Pertussis vaccine and overseas travel

The travel consultation is an ideal opportunity to ensure that travellers are up to date with the routine UK immunisation schedule.

Travellers over the age of 10 years are not currently offered pertussis vaccination routinely, even those who have an incomplete vaccine history or who have no record of having received a pertussis containing vaccine [1, 6]. Vaccine advice for pregnant travellers can be found in the section above.

Visiting newborns

Many countries outside the UK recommend pertussis vaccination for adults, family, and close contacts of newborns (cocooning) as a way of avoiding passing whooping cough onto the newborn [12, 13].

However, offering a vaccine to the mother during pregnancy is thought to be more effective than cocooning [12, 13] and many countries now offer a pertussis-containing vaccine to women during pregnancy [14].

Vaccination of adults, family and close contacts visiting newborns overseas is not currently recommended for travellers from the UK. Pertussis vaccine (on the NHS) is reserved for the routine vaccination schedule, pregnant women, certain healthcare workers and for pertussis outbreak responses.

Infants who have completed their primary schedule are well protected from pertussis. The UK Health Security Agency give advice about how to protect against respiratory infections including the importance of:

- Good hand hygiene.
- Covering your mouth and nose when sneezing/coughing.
- Wearing a face covering if unwell or in contact with someone who is unwell.
- Avoiding close contact with people if they have signs of a respiratory infection.

Immunity to pertussis

Neither vaccination nor natural infection with whooping cough are guaranteed to give long-lasting immunity (protection) against future infection [13]. However, previously infected or vaccinated people may have a milder infection [2].

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].

Resources

- UKHSA: Immunisation against infectious disease: Pertussis
- UKHSA: Pertussis: guidance, data and analysis
- WHO: Pertussis
- Further details on the vaccines can be found on the Summary of Product Characteristics (SPC) on the electronic medicines compendium
- UK Health Security Agency: Living safely with respiratory infection, including COVID-19

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