

Pertussis Guideline for Management of Cases and Contacts – Full Paediatric Clinical Guideline

Reference no.: CH CLIN G02/April 2022/v006

1. Introduction

Whooping cough is an acute bacterial infection caused by *Bordetella pertussis* (*B. pertussis*). Whilst adolescents and adults tend to display mild symptoms, infants younger than six months of age, who are not old enough to have received three doses of diphtheria-tetanus-pertussis (DTP) vaccine, are the most vulnerable group with the highest rates of complications and mortality.

Transmission of infection is by droplet and therefore as a result of close direct contact with an infected person. The incubation period is between 7-10 days (range 5-21). The usual clinical presentation is an initial catarrhal stage (coryza with an intermittent non-productive cough) with the cough then becoming paroxysmal. Paroxysms of cough usually increase in frequency and severity as the illness progresses and persist for 2–6 weeks. These paroxysms may end in vomiting, cyanosis and/or a characteristic inspiratory whoop. In young infants, the typical “whoop” may never develop and coughing spasms may be followed by periods of apnea. Symptoms slowly improve in the convalescent phase, which generally lasts 2–6 weeks but can persist for months.

Patients with pertussis are most infectious in the initial catarrhal stage and during the first three weeks after the onset of cough.

Pertussis remains a notifiable disease

2. Aim and Purpose

To outline the management of pertussis, which in most cases is supportive treatment, and to guide the required investigation and use of secondary prophylaxis. Secondary prophylaxis is to protect the vulnerable contacts of cases of pertussis.

3. Guideline

Prevention

Pertussis is immunized against in the UK routine childhood immunization schedule. The current schedule consists of:

- Primary:DTaP/Hib/IPV at 2,3 and 4 months
- Booster:dTaP/IPV or DTaP/IPV at 3 years 4 months to 5 years of age. (Ideally 3 years after completion of primary course)

This schedule can be implemented up to 10 years of age.

Diagnosis

Obtain detailed history including:

- Symptoms
- Date of onset of symptoms
- Vaccination history
- Details of household contacts and their vaccination status
- Contact with confirmed or suspected cases

Consider the diagnosis in any child with an acute cough lasting for 14 days or more, without an apparent cause plus one or more of the following:-

- Paroxysms of coughing
- Post-tussive vomiting
- Inspiratory whoop
- Apnoea in young infants
-

Investigation of a Suspected Case

If a diagnosis of pertussis is considered, appropriate investigation is as follows:

a) Culture for *B. pertussis* (test available at RDH)

i)- Pernal swab (blue swab)

ii)- NPA using a suction catheter and send in a universal container

- Both the above tests should be inoculated and incubated as soon as possible.
- Please request on the form to store at room temperature or incubate overnight (not to be kept in the fridge as this may affect the results).
- Please discuss with a senior colleague first.

It can take 7-10 days for results to be available. Cultures are unlikely to be positive after two weeks from the onset of the catarrhal stage or one week of paroxysmal cough or for more than a few days after commencing antibiotics, it is therefore important to emphasize that a negative culture does not exclude pertussis.

b) Serology for anti-pertussis IgG antibodies

- A single sample of 0.5-1 ml of serum should be taken.
- Sample goes to reference laboratory as test not available at RDH

Serology can be done if there is doubt about the diagnosis and provided it is >2 weeks after the onset of prolonged cough. It takes 2-10 days to get the result. ***This is usually used in older children as recent vaccination (primary or booster vaccination) within approximately one year of testing can confound the test results and infants less than three months may not develop measurable antibodies***

c) PCR for pertussis.

- Using the usual pernasal swab on the long flexible wire.
- DO NOT send in the black charcoal medium- the wire should be trimmed and the swab put into a sterile dry container (such as used for MSU's) or an empty plastic tube.

This is only required in an official outbreak. Sample goes to reference laboratory as test not available at RDH

For PCR and serology testing please discuss with the microbiologist first. If in doubt, discuss with the microbiologist as to the most appropriate test.

Management

The mainstay of therapy in children with active pertussis infection is supportive and most children with pertussis can be managed at home. The goals of therapy include limiting the number of paroxysms, providing assistance when necessary, and maximizing nutrition, rest, and recovery. Patients should be advised that the symptoms will slowly improve over a course of 2-6 weeks but may last months.

Admission should be strongly considered for patients at risk of severe disease and complications, including infants younger than 3 months; premature young infants; and infants or children with underlying pulmonary, cardiac, or neuromuscular disease.

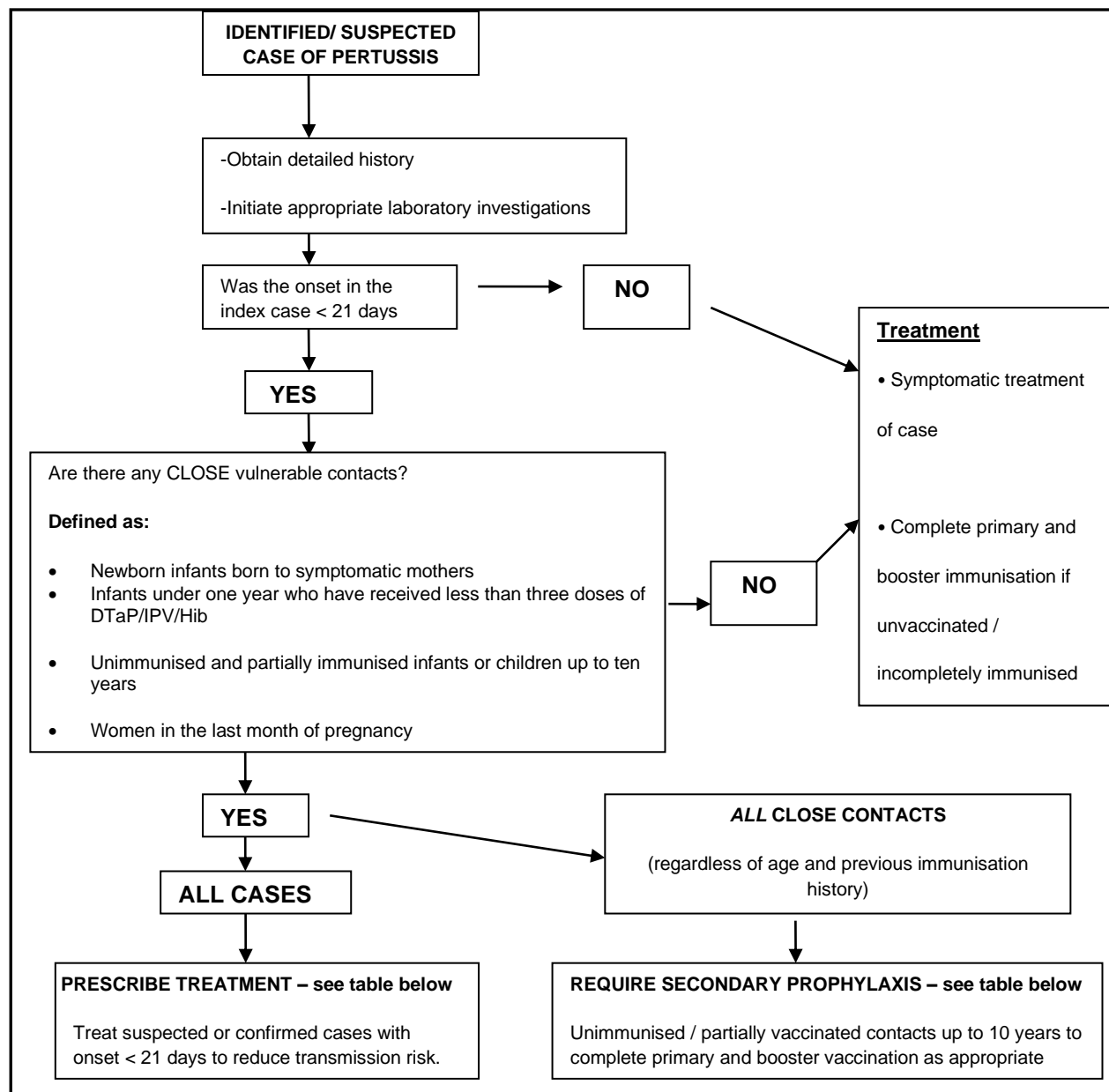
For the hospitalised patient, in addition to standard precautions, droplet precautions are recommended for 5 days after initiation of chemoprophylaxis (see below) or until 3 weeks after the onset of paroxysms if appropriate antimicrobial therapy is not given.

During admission, monitor heart rate, respiratory rate, and oxygen saturation continuously, especially in relation to coughing paroxysms. Coughing, feeding, vomiting, and weight changes should be recorded and in some cases support for these may be needed.

Secondary Prophylaxis

Although antimicrobial agents initiated during the paroxysmal stage do not affect the duration and severity of illness, they can hasten the eradication of *Bordetella pertussis* in the respiratory tract and help prevent spread.

Please see flow chart to assess whether secondary prophylaxis is required.



Note:

- Close “household” contact means person living within the same household or institutional setting (ward or residential home).

- The dose of antibiotics for use as secondary prophylaxis is the same as for the treatment of cases (see Table 1).
- Secondary prophylaxis is **NOT** required where there are no vulnerable close contacts.
- If there are only non-vulnerable contacts in the house, complete the vaccination as necessary.

Recommended antibiotic treatment and secondary prophylaxis doses:

Age/ Weight	Antibiotic	Dose	Frequency	Duration
Up to 12 yrs				
< 8kg	Clarithromycin	7.5mg/kg	BD	7 days
8-11kg	Clarithromycin	52.5mg	BD	7 days
12-19kg	Clarithromycin	125mg	BD	7 days
20-29kg	Clarithromycin	187.5mg	BD	7 days
30-40kg	Clarithromycin	250mg	BD	7 days
12 - 18yrs	Clarithromycin	500mg	BD	7 days

Exclusion from School/Nursery

Children who are cases should be excluded from school or nursery for 5 days after commencing treatment, or for at least 3 weeks if untreated. Contacts without symptoms do not need excluding.

Immunisation

It is important that unvaccinated and partially immunised cases up to ten years of age complete their course of primary immunisation and booster vaccine, once they have recovered from their acute illness, according to the recommended UK schedule.

For more information on immunization, refer to the “Green Book” on www.dh.gov.uk or the NHS immunization website at www.immunisation.org.uk .

Contact

For further enquiries, please visit HPT website on www.hpa.org.uk/localservices or

Phone number Telephone 0344 2254 524 (option 1)

Out of hours advice 0344 2254 524

4. References (including any links to NICE Guidance etc.)

1. HPA Guidelines for the Public Health Management of Pertussis [PHE Guidelines for the public health management of pertussis \(May 2018\)](https://www.gov.uk/government/publications/pertussis-guidelines-for-public-health-management)
<https://www.gov.uk/government/publications/pertussis-guidelines-for-public-health-management>
2. NICE management of whooping cough –updated August 2021: [Whooping cough | Health topics A to Z | CKS | NICE](#)
3. Salisbury D., Ramsay M and Noakes K. Immunisation against Infectious Disease “the green book”, 2006; 277-293.

4. Altunaiji S, Kukuruzovic R, Curtis N, Massie J., Antibiotics for whooping cough (pertussis). Cochrane Database of Systematic Reviews 2007, Issue 3. Art. No.:CD004404. doi:10.1002/14651858.CD004404. pub3.
5. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/762782/Pertussis_brief_for_healthcare_professionals.pdf

5. Documentation Controls

Development of Guideline:	Dr D Traves
Consultation with:	Consultant Microbiologist, Consultant of Communicable Disease Control, Antimicrobial Pharmacist), Antimicrobial sub-group. Paediatric Consultants.
Approved By:	<i>Paediatric Business Unit Guidelines Group, Women and Children's Division. April 26th 2022</i>
Review Date:	April 2025
Key Contact:	Dr D Traves