Pertussis – advice for clinicians

April 2015

Pertussis – whooping cough

Pertussis is highly infectious. Transmission is by respiratory droplets and direct contact with discharges from respiratory mucous membranes of infected persons. Secondary attack rates of 80% among susceptible household contacts have been reported.

Infants under 6 months of age are at highest risk of complications and death.

The incubation period is 4 to 21 days usually 7-10 days. A patient is infectious from onset of catarrhal symptoms and considered non-infectious at 3 weeks from onset of cough or following completion of 5 days of a course of an appropriate antibiotic.

Pertussis is a prolonged coughing illness with clinical manifestations that vary by age. An initial catarrhal phase is characterised by the insidious onset of runny nose, sneezing, low-grade fever, and a mild occasional cough. The cough gradually becomes paroxysmal (after 1–2 weeks), and may end in vomiting, cyanosis and/or a characteristic high-pitched inspiratory “whoop”. Infants are less likely to have the inspiratory whoop and a significant catarrhal stage and are more likely to present with gagging, gasping, cyanosis, apnoea or non-specific signs such as poor feeding or seizures. Vaccinated persons may still develop pertussis however illness is usually milder and they are less likely to present with the typical whoop.

Diagnosis

Nucleic Acid Testing (NAT/PCR)

NAT/PCR should be considered the diagnostic method of choice, and can be positive for up to 4 weeks after the onset of illness. After the fourth week of cough, sensitivity declines as the amount of bacterial DNA in the nasopharynx diminishes. Nasopharyngeal swabs or aspirate are the best specimens to obtain within 21 days of cough onset.

Serology

The sensitivity and specificity of serology is low. Serology may be useful if a clinically compatible illness has been present for more than two weeks but it is not recommended in children <2 years of age. IgA and IgG may be elevated for an unknown period (possibly 2 years) in adults and adolescents after vaccination.

Pertussis can also be diagnosed on a clinical basis if the patient has an acute coughing illness lasting 14 days or longer without other apparent cause and any one of paroxysms, whoop, or post-tussive vomiting. However, laboratory confirmation should be sought.

Testing

Testing of cases with contacts < 6 months of age is particular important to limit potential transmission. Infants who appear well but with a history of cough, choking, gasping and difficulty catching breath should also be reviewed for pertussis.

Treatment of cases

Antibiotics given early in the catarrhal stage may ameliorate the disease but may have little effect on symptoms if given later. Importantly antibiotics reduce the period of communicability and should be initiated as soon as possible. Roxithromycin is not recommended. The current recommended treatment is a course of azithromycin, clarithromycin, or erythromycin (only azithromycin should be used in a child under one month of age).
In babies under one month of age, erythromycin is not recommended because of concerns it may cause pyloric stenosis, and clarithromycin is not recommended because safety data are not available.

For more details please refer to the latest edition of *Therapeutic Guidelines: Antibiotic*

A person who has been coughing for more than 21 days is no longer infectious; therefore antibiotic treatment and school/child care exclusion are not required anymore.

**Prophylaxis for contacts**

Close contacts are family and household members, people who stayed overnight in the same room as the case and people with face-to-face exposure (within 1 metre) to an infectious case for at least 1 hour.

There is little evidence that antibiotic prophylaxis reduces secondary transmission outside of household settings. Therefore antibiotic prophylaxis should be limited to high risk contacts, including pregnant women in the last month of pregnancy and infants <6 months of age, or household contacts who may transmit pertussis to these high risk contacts. Antibiotic prophylaxis is only useful if given as soon as possible after first contact with an infectious index case and no later than 2 weeks after first contact.

In any setting high risk contacts include:
- healthcare staff who have had face-to-face contact with a case within 1 metre for at least 1 hour and who work in a setting where women in the last month of pregnancy or infants aged <6 months are present
- childcare staff who have not had a pertussis containing vaccine in the last 10 years and look after infants aged <6 months
- women in their last month of pregnancy (as they may be infectious at time of delivery and pose a risk to other new parents and neonates).

Recommended antibiotics for prophylaxis are the same as for treatment.

**Exclusion of cases and contacts**

Under the Public Health and Wellbeing Regulations 2009:

Cases must be excluded from primary schools and children’s services centres for 21 days after the onset of cough or until they have completed five days of antibiotic treatment. If cases have been coughing for longer than 21 days exclusion is no longer required.

It is recommended that all other age groups self-exclude from work, educational and recreational activities until they have completed five days of antibiotic treatment.

Primary Schools and Children’s Services contacts aged less than seven years who have been in the same room as the case and have not received three effective doses of pertussis vaccine should be excluded for 14 days after the last exposure to the infectious case, or until they have taken five days of a course of effective antibiotic prophylaxis.

**Immunisation**

If the patient has already been infected then vaccination will not prevent illness. However, complete vaccination remains the most important preventive measure for pertussis control. Please check the immunisation status of all children and catch-up any missed doses. The routine recommended schedule for pertussis vaccination is at two (from six weeks of age), four, and six months, four years of age (from 3.5 years of age) and at 12-16 years of age in 2015. From 2016 it will be recommended for 12-13 year olds.

An adult pertussis containing vaccine (Adacel® or Boostrix®) is recommended from 10 years of age as a single dose for the following groups, regardless of their diphtheria, tetanus, pertussis vaccination history:
- in 2015 adolescents aged 12-16 years. From 2016 for adolescents aged 12-13 years
- pregnant women in the third trimester of *every* pregnancy (from 28 weeks gestation)
- women immediately postpartum who gave birth on or after 1 June 2015, and up to the time when their baby turns 6 months of age, if they have not received a pertussis containing booster in the past 10 years
• all other parents/guardians from the third trimester of pregnancy, up to the time when their baby turns 6 months of age (for babies born on or after 1 June 2015), if they have not received a pertussis containing booster in the past 10 years
• adults working with or caring for young children, especially health care workers and child care workers in contact with infants
• adults ≥ 65 years of age should be offered a single booster if they have not received one in the previous 10 years
• any adult wishing to receive a dose of an adult pertussis booster vaccine to reduce the chance of contracting pertussis.

From 1 June 2015 Boostrix® will be provided for free by the Victorian Government for pregnant women and new parents in line with the above recommendations.

For more information visit http://immunise.health.gov.au

Notification and further information

Please notify all cases (either suspected or laboratory confirmed) to the Department's Communicable Disease Prevention and Control Section on telephone 1300 65 11 60 or fax 1300 65 11 70. An information fact sheet for cases and contacts is available at http://ideas.health.vic.gov.au/diseases/pertussis-facts.asp

For further information please visit the http://ideas.health.vic.gov.au/

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