Nasopharyngeal e-swab collection for Bordetella pertussis culture

Purpose

Although the rapid turnaround time of a PCR test means that this is the mainstay of diagnostic testing, conventional culture for *Bordetella pertussis* is important in public health surveillance. Culture allows for antibiotic susceptibility testing and additional genotyping to track outbreaks of this important disease.

An additional nasopharyngeal e-swab (flocked swab with liquid amies transport media – blue top – see Figure 1) is required to culture this organism.

Indications

- **PCR Positive or High Suspicion of Whooping Cough:**
  If the patient is PCR-positive or clinically suspected of having whooping cough (e.g., persistent cough with whoop, post-tussive vomiting, or apnoea in infants), an additional e-swab for culture can be collected. Culture may still be positive following commencement of antibiotics.

E-swab Collection

- **Collection method**
  - Collect the E-swab **IN ADDITION** to the Flocked swab for PCR (the tests require different handling). This can occur at the same time the Flocked swab for PCR is collected or following the return of the positive PCR result. Use the standard technique for a nasopharyngeal swab – (see PCH collection manual).
  - Once collected place the swab into the vial of transport medium and break the swab stick at the designated moulded breakpoint into the tube before replacing the cap and screwing on securely.
- **Storage and request form**
  - **E-swabs are stored in the PCH Emergency department only** [PCH ED Store room]. Additional supply are available from the Pathwest QEII Microbiology laboratory.
  - A pre-printed request form (located with swabs) must accompany the specimen, including patient information, date/time, and collector signature.
- **Transport**
  - Transport the e-swab promptly to the laboratory to ensure viability of the culture.

Results

- Bordetella pertussis grows slowly - results usually available within 2 weeks.
- PCR positive but culture negative results are usually due to lower sensitivity of culture.
- Further characterisation of isolates including susceptibilities are not routinely reported.

Treatment and infection control

- Management should be based on clinical information and PCR results.
- Ensure appropriate transmission-based precautions and PPE during collection.

Important notes

- **Optional Test:** Parents or guardians may decline the additional e-swab. However, it is encouraged for antimicrobial resistance and public health surveillance.
- This test is associated with no additional costs for patients or requesting department.
- The parent information sheet is included for reference – Appendix 1.

Contact us

For any questions regarding collection, handling, or results, contact **PathWest Microbiology**:

T: (08) 6383 4553 (M-F, 9am-5pm)
T: (08) 6383 4505 (after business hours and weekends).

Feedback	andrew.walczak@health.wa.gov.au		
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Appendix 1: Information sheet for parents and guardians: nasopharyngeal e-swab for Bordetella pertussis culture

What is Pertussis?
Pertussis, commonly known as whooping cough, is a highly contagious infection caused by the bacteria *Bordetella pertussis*. It affects a child's breathing and can cause severe coughing fits. More severe disease and complications can occur in very young children.

What is this test for?
This test is recommended for children who:

- Have tested positive for pertussis on a PCR (rapid) test.
- Are likely to have pertussis based on their symptoms.

How is it collected?
The test involves taking a nasopharyngeal e-swab (a sample from the back of the nose) to culture the bacteria. The sample is collected the same way as a sample for PCR. Different swabs are needed for each test which is why a second sample is needed.

Why is the additional test important?

- **Characterisation:** While the PCR test can rapidly detect the bacteria, culture enables further testing to better understand the organism.
- **Susceptibility Testing:** Testing the bacteria helps us find out if they are resistant to certain antibiotics. This information can improve general treatment recommendations for everyone and may help doctors choose the best treatment for the individual patient.
- **Public Health Monitoring:** Culturing the bacteria allows us to better understand its spread. This is essential for guiding community health interventions at a state and national level.

When will results be available?
The bacteria are difficult to culture and grow slowly. PCR results may be positive even if the culture is negative. If successful, culture results are usually available within 2 weeks. If you are interested in finding out about the result discuss with your child's healthcare team.

Can I decline this test?
Yes, you can choose not to have the culture test. The PCR test provides valuable information, and the culture is optional. There is no cost associated with the test.

If you have any questions or concerns, please don't hesitate to ask your child's healthcare team.