

Laboratory Quick Sheet

Pertussis in adolescents and adults: Unrecognized pertussis cases in adolescents and adults often are the source from which infants and children become infected.

The following symptoms in an adult should raise suspicion that pertussis is the diagnosis: Acute illness that starts like a cold but cough quickly becomes the main feature and lasts for over 1-2 weeks; the cough comes in paroxysms; the coughing attacks worsen at night; the cough is non-productive (dry) or occasionally resulting in sticky mucus production; and between coughing attacks the case has no symptoms and feels well.

Adults have been previously exposed to *B. pertussis* antigens by immunization, natural infection or both, and this tends to modify the illness. Thus, compared with unimmunized children, adolescents and adults with pertussis are more likely to have milder illness. Inspiratory whoop is uncommon and not all pertussis infections result in a severe cough illness.

III Laboratory Diagnosis

Culture: Isolation of *Bordetella pertussis* is still the gold standard for making a pertussis diagnosis. All suspected cases of pertussis should have a nasopharyngeal aspirate or swab obtained for culture from the posterior nasopharynx preferably within 2 weeks of cough onset. A positive culture confirms diagnosis of pertussis. A negative culture result does not rule out pertussis since the sensitivity of culture is not high.

In the absence of appropriate antibiotic treatment, the culture positivity rate may be as high as 50% for culture within 3 weeks of cough onset. Among pertussis cases, older persons are less likely to have positive culture results than are younger children. Similarly, a smaller proportion of vaccinated children with pertussis have positive culture results compared with unvaccinated children.

Polymerase chain reaction: Numerous studies have demonstrated the potential for polymerase chain reaction (PCR) assays of nasopharyngeal swabs or aspirates to detect *Bordetella* with greater sensitivity and more rapidly than culture. Currently, PCR is only available in certain laboratories and more direct comparisons with culture and serology results are necessary before it can be widely used for laboratory confirmation of *B. pertussis* infection.

Serologic tests: Serologic tests are not yet standardized enough to be highly reliable and should not be used for routine clinical diagnosis.

Direct fluorescent antibody testing: Direct fluorescent antibody testing (DFA) should not be relied on as a criterion for laboratory confirmation since studies have documented that DFA of nasopharyngeal secretions has low sensitivity and variable specificity.