

CDC, 2011: Diagnosis of Pertussis

(Adapted from: <http://www.cdc.gov/pertussis/clinical/diagnostic-testing/diagnosis-confirmation.html>)

Several tests are available to test for *B. pertussis*. Culture is considered the gold standard because it is the only 100% specific method for identification. Other tests that can be performed include polymerase chain reaction (PCR) and serology.

Culture

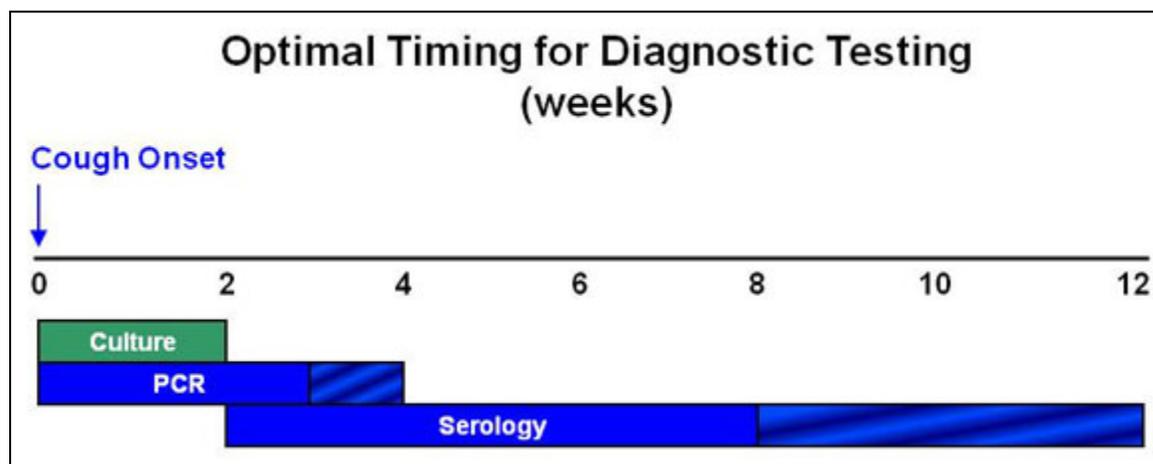
Since culture is considered the gold standard, it is particularly important to isolate the bacterium and confirm the pertussis diagnosis if an outbreak is suspected. Many other respiratory pathogens have similar clinical symptoms to pertussis and co-infections are common. Culture will help identify strains of *Bordetella pertussis*. Identifying which strains of *Bordetella pertussis* are causing disease is of public health importance. Culture is best done from nasopharyngeal (NP) specimens collected during the first 2 weeks of cough when viable bacteria are still present in the nasopharynx.

PCR

PCR allows for confirmation and speciation among *Bordetella* species. Results should be interpreted along with the clinical symptoms and epidemiological information. PCR tests vary in specificity, so obtaining culture confirmation of pertussis for at least one suspicious case is recommended any time there is suspicion of a pertussis outbreak. PCR should ideally be tested from NP specimens taken at 0-3 weeks following cough onset, but may provide accurate results for up to 4 weeks of cough in infants or unvaccinated persons. After the fourth week of cough, the amount of bacterial DNA rapidly diminishes, which increases the risk of obtaining falsely-negative results.

Serology

Serologic assays can be useful for confirming diagnosis, especially during suspected outbreaks. There are many different serologic tests used in laboratories. Generally, serologic tests are more useful for diagnosis in later phases of the disease. For a single point serology, the optimal timing for specimen collection is 2 to 8 weeks following cough onset, when the antibody titers are at their highest; however, serology may be performed on specimens collected up to 12 weeks following cough onset. Positive serological results are not considered confirmatory for reporting purposes.



For more information, see the [Pertussis Laboratory Information](#) page or the [Pertussis Laboratory Testing](#) section of the Manual for the Surveillance of Vaccine-Preventable Diseases. <http://www.cdc.gov/vaccines/pubs/surv-manual/chpt10-pertussis.htm#7>