



## Pertussis Testing Recommendations

1 October, 2004

Testing for pertussis is recommended for any person with symptoms consistent with suspect or probable pertussis. *Do NOT wait for test results prior to starting treatment in persons suspected of having pertussis.* Asymptomatic close contacts to pertussis cases do not need testing, but should receive prophylactic treatment. See Pertussis Case Definition and Management Guidelines documents for more details.

### **Diagnostic Tests for Pertussis**

PCR is supplanting culture as the test of choice for diagnosis of pertussis for the following reasons:

- Culture requires special media and incubation of up to 7 days
- Culture sensitivity decreases in older or previously immunized patients
- Culture sensitivity decreases in patients treated with antibiotics
- PCR can detect the presence of *B. pertussis* in a processed specimen in less than one hour

The Wisconsin State Laboratory of Hygiene (WSLH) now recommends PCR as the test of choice for laboratory diagnosis of pertussis. While culture was the gold standard for making a pertussis diagnosis, the sensitivity of culture in one public health laboratory study was only 15.2% as compared to 93.5% for PCR.

CDC and the WSLH also recommend culture whenever PCR is performed, as the culture is important to isolate the organism for antimicrobial resistance monitoring and for epidemiologic purposes. However, when culture cannot be performed at the same time it is advised to have the PCR performed without culture (rather than not testing the patient).

Direct immunofluorescence assay (DFA) has variable sensitivity and low specificity, requires experienced personnel for interpretation, and is not a reliable test for laboratory confirmation of pertussis.

Serology – no single serological test is diagnostic of pertussis.

### **Notes Regarding Pertussis Testing**

- A. Pertussis testing should be done with a nasopharyngeal swab using both PCR and culture if possible. If only one method is available, PCR is strongly preferred.
- B. Positive results are extremely reliable for both culture and PCR tests.
- C. Negative PCR results are reliable if NP swab taken from a symptomatic person up to day 7 of cough or day 4 of antibiotics; negative predictive value decreases steadily thereafter.
- D. Culture results are *not* reliable if negative.

If you have any questions regarding the above testing or treatment recommendations, please call your local health department, see [www.milwaukee.gov/health](http://www.milwaukee.gov/health), or call the City of Milwaukee Health Department Pertussis Hotline at (414) 286-3616.

*Thanks to the WI State Division of Public Health and the WI State Laboratory of Hygiene for much of the information contained in this memo.*

*The information on this page provided compliments of the WI State Laboratory of Hygiene.*  
**B. Pertussis Testing in Response to the Southeastern Wisconsin Outbreak**

The following information is being provided in response to questions about *B. pertussis* testing at the Wisconsin State Laboratory of Hygiene (WSLH) related to the current southeastern Wisconsin *B. pertussis* outbreak. If you have additional questions, please contact WSLH Customer Service at 1-800-862-1013.

▪ **Fees for Testing**

- Fee-exempt testing is available at the WSLH for Wisconsin residents who are being tested in response to the current outbreak of *B. pertussis* in southeastern Wisconsin. Fee-exempt testing should be approved in advance by the WSLH or the local health department, and the submitter must write “Fee Exempt” clearly on the requisition form submitted with the specimen.
- Specimen submitters should be aware that billing for specimen collection may not be allowed by third party payers if testing is fee-exempt.
- The WSLH will bill third party payers if billing information is provided on the requisition form.

▪ **Specimen Collection and Submission**

- Submit a nasopharyngeal swab (using a Dacron swab) or nasopharyngeal aspirate specimen in a sterile, dry tube for *B. pertussis* PCR testing. We request that you submit a second nasopharyngeal swab (preferably, a calcium alginate swab in charcoal-based medium, e.g., Regan-Lowe medium) or aspirate specimen for culture. Both specimens should be kept at refrigerator temperature during transit.
- When collecting the swab specimen, insert a flexible wire swab through the nostril deeply into the nasopharynx. Rotate the swab or hold in place for 10 seconds to ensure an adequate specimen and reduce the possibility of false negative results. Place the swab into the specimen container, cutting the shaft of the swab so that the cap of the specimen container can be securely tightened.
- The WSLH will receive specimens Monday through Saturday; specimens which may be subject to transport delays during weekends or holidays should be held at 2-8°C until they can be sent.
- Request WSLH test 623PCR, *B. pertussis* PCR (not culture) on the test requisition form.
- Specimen requisition forms and collection and transport supplies (WSLH kit #30) are available at no charge if you contact the WSLH Clinical Orders Department at 1-800-862-1088 or 608-265-2966.

▪ **Testing and Result Reporting**

- If the *B. pertussis* PCR test is positive, culture of the specimen for *B. pertussis* culture will be performed to confirm PCR results pulsed field gel electrophoresis (PFGE) testing will be performed on isolates for epidemiologic purposes; culture results will not be reported to the submitter and there will be no charge to the submitter for the culture testing.
- *B. pertussis* PCR testing will be performed daily Monday through Friday by the WSLH until the need has subsided.
- Positive *B. pertussis* PCR results will be telephoned to the submitter as soon as available, followed by a written report.
- Negative *B. pertussis* PCR results will be reported in written reports.
- If you wish to receive written reports by FAX instead of mail, contact Bill Kurth at 608-265-3290 to make arrangements.

▪ **Specimen Transport**

- Specimens should be packaged as “diagnostic specimens” with refrigerant packs.
- Delivery to the WSLH within 24 hours is preferred if possible.