

## Pertussis PCR testing at the Vermont Department of Health Laboratory

Pertussis is an endemic disease in Vermont. Between 2002 and 2006, confirmed cases per year ranged from 71 to 180 (mean 124), with a mean incidence of 20 cases per 100,000 population. Pertussis in Vermont is most frequently detected in children 10 to 19 years of age.

Laboratory diagnosis of pertussis by culture is important for confirming the presence of pertussis in the community. However, *Bordetella pertussis* is a fastidious organism and negative cultures do not rule out disease. Polymerase chain reaction (PCR) assay is now frequently used due to its improved sensitivity and more rapid results.

Beginning January 1, 2008, the Vermont Department of Health Laboratory (VDHL) will be offering *Bordetella pertussis* PCR testing. The fee for this test will be \$36. *Bordetella Pertussis* detection by culture will still be performed free of charge. All specimens submitted with the request for PCR testing will also be tested by culture. Preferred specimen type is a Dacron nasopharyngeal swab inoculated onto one Regan Lowe plate, then placed into a Regan Lowe transport tube (VDHL Kit #5). Both PCR and culture will be done from the same specimen. PCR testing will be routinely performed twice per week.

### About the Test:

The PCR test involves amplifying the *Bordetella pertussis* DNA and detecting a specific target sequence (IS481) using a probe. Detection of the target sequence occurs in real-time, allowing for faster analysis. There is no Food and Drug Administration approved PCR test for *Bordetella pertussis*. The performance characteristics of the VDHL test were validated internally.

Pertussis PCR testing should only be done on individuals with clinically compatible symptoms. PCR results are not intended to be used as the *sole* means for clinical diagnosis or patient management decisions. If a patient has a positive PCR result and is also experiencing clinical symptoms of pertussis (cough lasting  $\geq$  14 days AND at least one of the following: paroxysms, whoop, OR post-tussive vomiting), then that individual is considered to have confirmed pertussis even if the culture comes back negative.

The target for the *Bordetella pertussis* PCR reaction is also found in *Bordetella holmesii*. A false-positive result for *Bordetella pertussis* DNA may occur if *Bordetella holmesii* is present in the sample; however, *Bordetella holmesii* is found at a much lower prevalence than *Bordetella pertussis*.

Suspected cases of pertussis should be reported to Infectious Disease Epidemiology at (802)863-7240 or (800)640-4374 (VT). Pertussis specimen collection kits can be obtained by calling the Vermont Department of Health Laboratory at (802)863-7650. The order form is also available online at:

[http://healthvermont.gov/enviro/ph\\_lab/documents/MICRO501Rev3Sept2005microorderform.pdf](http://healthvermont.gov/enviro/ph_lab/documents/MICRO501Rev3Sept2005microorderform.pdf)

The Infectious Disease Bulletin can be viewed at:

<http://healthvermont.gov/pubs/IDB/index.aspx>

For questions & comments, please contact Mary Spayne at (802)863-7240

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Test now Available**

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Reportable  
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