

## Health Alert Network

July 11, 2016

## Health Advisory

### **Best Practices for Using PCR to Diagnose *Haemophilus influenzae* and *Neisseria meningitidis* and Identify Serotype or Serogroup**

The North Dakota Department of Health (NDDoH) is forwarding the following information from the Centers for Disease Control and Prevention (CDC) regarding best practices for using PCR to diagnose *Haemophilus influenzae* and *Neisseria meningitidis* and identify serotype or serogroup.

The North Dakota Public Health Lab (NDPHL) offers *H. influenzae* serotyping. The cost is \$41. If the isolate cannot be typed, it is sent on to the Minnesota Department of Health for serotyping.

The NDPHL forwards isolates of *N. meningitidis* on to the Minnesota Department of Health for serogrouping. There is no charge for *N. meningitidis* testing.

Isolates for both bacteria are required to be sent to the NDPHL, and cases should be reported to the NDDoH. Cases of *N. meningitidis* should be reported immediately, when suspected. Gram staining for *N. meningitidis* is used as a reliable and rapid method for presumptive identification. Intracellular gram-negative diplococci in cerebrospinal fluid (CSF) can be considered meningococci until proven otherwise and should be reported to the NDDoH immediately.

Please contact the NDDoH Division of Disease Control, at 701.328.2378 or toll-free at 800.472.2180 with any questions or concerns regarding this issue.

#### *Categories of Health Alert messages:*

- *Health Alert conveys the highest level of importance; warrants immediate action or attention.*
- *Health Advisory provides important information for a specific incident or situation; may not require immediate action.*
- *Health Update provides updated information regarding an incident or situation; no immediate action necessary.*
- *Health Information provides general information that is not necessarily considered to be of an emergent nature.*

*This message is being sent to local public health units, clinics, hospitals, physicians, tribal health, North Dakota Nurses Association, North Dakota Long Term Care Association, North Dakota Healthcare Association, North Dakota Medical Association, and hospital public information officers.*

This is an official  
**CDC HEALTH ADVISORY**

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## **Best Practices for Using PCR to Diagnose *Haemophilus influenzae* and *Neisseria meningitidis* and Identify Serotype or Serogroup**

### **Summary**

Determining serotype for *Haemophilus influenzae* (Hi) and serogroup for *Neisseria meningitidis* (Nm) is crucial for identifying potential outbreaks and determining appropriate public health responses. Several new commercial multiplex polymerase chain reaction (PCR) assays capable of simultaneously testing a single specimen for an array of pathogens that cause blood infections, meningitis, or encephalitis are available. These assays can rapidly identify Hi and Nm species, but most do not determine serotype or serogroup. Laboratories should continue to perform culture and use validated, specific real-time PCR assays capable of detecting and differentiating all six serotypes (a-f) of Hi and six serogroups (A, B, C, W, X, and Y) of Nm; otherwise, additional steps need to be taken including performing a reflex culture or at a minimum retaining a clinical sample for further testing.

### **Background**

CDC is aware of recent instances in which it was not possible to determine whether cases of Nm were part of a cluster due to the lack of serogroup data. For these cases, multiplex PCR assays capable of simultaneously testing a single specimen for an array of pathogens that cause blood infections, meningitis, or encephalitis were used. While such assays can rapidly identify Hi and Nm species, most do not determine serotype or serogroup. Detecting serotype and serogroup are important for identifying potential outbreaks and determining appropriate public health responses.

### **Recommendations**

Clinical, commercial, and state public health laboratories considering PCR for Hi and Nm should select assays capable of detecting and differentiating all Hi serotypes (serotypes a-f) and all Nm serogroups common in the United States (serogroups B, C, W, and Y). If a public health laboratory is not able to perform serotyping or serogrouping by PCR and a culture isolate is not available, the laboratory should send specimens to the CDC Bacterial Meningitis laboratory or one of the Association of Public Health Laboratories (APHL) Vaccine Preventable Diseases Reference Laboratories for serotype/serogroup testing (see links in the For More Information section).

All laboratories with Hi and Nm PCR capacity are strongly encouraged to continue performing culture or to save clinical specimens for further testing and submission to state health departments and CDC. Hi and Nm culture isolates are valuable not only for serotyping or serogrouping but also for monitoring antimicrobial susceptibility and for conducting whole genome sequencing, which is necessary for strain comparisons during outbreak investigations and to monitor vaccine effectiveness over time.

All laboratories that use assays that do not determine serotype or serogroup should perform either a simultaneous culture or a reflex culture if Hi or Nm is identified. At a minimum, adequate clinical sample for further testing at a laboratory with a PCR assay that can detect serotype or serogroup should be maintained.

### **For More Information**

- Best Practices for Use of PCR for Diagnosing *Haemophilus influenzae* and *Neisseria meningitidis* and Importance of Identifying Serotype/Serogroup (<http://www.cdc.gov/meningococcal/laboratory/pcr-guidance-mening-hflu.html>)
- CDC Bacterial Meningitis Laboratory (<http://www.cdc.gov/meningococcal/laboratory.html>)
- Association of Public Health Laboratories (APHL) Vaccine Preventable Diseases Reference Laboratories ([http://www.aphl.org/programs/infectious\\_disease/Pages/VPD.aspx](http://www.aphl.org/programs/infectious_disease/Pages/VPD.aspx))

*The Centers for Disease Control and Prevention (CDC) protects people's health and safety by preventing and controlling diseases and injuries; enhances health decisions by providing credible information on critical health issues; and promotes healthy living through strong partnerships with local, national, and international organizations.*