



California Department of Public Health – July 2013

# Laboratory Testing for Meningococcal Disease



The California Department of Public Health (CDPH) Immunization Branch and Microbial Diseases Laboratory (MDL) request submission of all *Neisseria meningitidis* isolates obtained from normally sterile sites for confirmation and serogrouping. In addition, culture-negative specimens from patients for whom there is a high clinical suspicion of meningococcal disease should be submitted for PCR testing.

## Criteria for high clinical suspicion

The criteria for high clinical suspicion are dependent on clinical assessment, but may include such clinical or laboratory findings as:

- clinically suspected meningitis with fever, headache, neck stiffness, or altered mental status
- petechial or purpuric rash with:
  - fever; or
  - suspected meningitis; or
  - septic shock
- purpura fulminans
- CSF or blood test results:
  - *N. meningitidis* antigen in CSF; or
  - gram-negative diplococci seen on Gram stain of CSF; or
  - *N. meningitidis* growing from blood or CSF specimens
- CSF laboratory abnormalities suggestive of bacterial meningitis, such as:
  - Low glucose (<34 mg/dL)
  - Elevated protein (>220 mg/dL)
  - Elevated total neutrophil count (>1180 cells/uL)
  - Elevated total leukocyte count (>2000 cells/uL)

Please note: meningococcal disease can still be present with lab values less extreme than these.

## Serogrouping and molecular subtyping

The MDL performs serogroup identification on all confirmed isolates and some clinical specimens to assist in surveillance of meningococcal disease. Molecular subtyping can be performed at CDC, when appropriate.

## Appropriate samples for testing

- Bacterial isolates of *N. meningitidis* from a normally sterile site; **or**
- 0.5 ml of EDTA-treated blood (purple top); **and/or** 0.5 ml of CSF
- Please send both blood and CSF, if available.

## Expedited testing

Please contact CDPH IZB and MDL if urgent PCR testing or serogroup identification is requested to assist in public health follow-up.

## Storage and shipping

Specimens should be stored at 4°C/39.2°F (refrigerator temperature) and shipped as soon as possible to:

Specimen Receiving  
Attn: Special Pathogens Unit  
CDPH Microbial Diseases Laboratory  
850 Marina Bay Parkway  
Richmond, CA 94804

Shipping and handling instructions on next page.

## Susceptibility testing

Due to concern about the emergence of resistance to chemoprophylaxis agents (rifampin and ciprofloxacin), CDPH encourages susceptibility testing of *N. meningitidis* isolates; however this testing is not available through MDL. Hospital laboratories may perform susceptibilities upon request. If susceptibilities are performed, please forward the report to MDL.

## CDPH contact information

Please contact the MDL Special Pathogens Unit at (510) 412-3903 for further information regarding laboratory testing for *N. meningitidis*.

Other questions regarding meningococcal disease or other vaccine preventable diseases may be directed to the CDPH Immunization Branch at (510) 620-3737.

### **MDL shipping information**

*N. meningitidis* isolates or sterile site clinical specimens may be shipped directly from clinical, hospital or public health laboratories to CDPH MDL.

- Complete appropriate submittal form:
  - For isolates: MDL-N-11 isolate submittal form (attached).
  - For specimens: MDL-SP-Form01 specimen submittal form (attached).
  - Include key information: patient identifiers, submitter information, specimen collection date and specimen information (including biochemical, molecular or serological testing).
  - ***Missing information may delay specimen processing and testing.***
  - Insert the appropriate submittal form between the inner and outer container.
- Please record shipping tracking number, this is particularly important if testing is being requested urgently.

Shipping address is:

Specimen Receiving  
Attn: Special Pathogens Unit  
CDPH Microbial Diseases Laboratory  
850 Marina Bay Parkway  
Richmond, CA 94804

### Bacterial Sepsis/Meningitis Specimen Test Request

Please print or type

MDL Accession Number:

Date Received:

<b>Patient's name</b> (last, first)	Age or DoB	Gender
<b>Patient's address</b>		
<b>Physician's name</b> , phone and fax numbers		
<b>Clinical condition</b> or suspected disease		
<b>Antibiotics</b> administered before specimen collection? (Circle one): Y            N		
<b>Submitter</b>		
Name:		
Address:		
ZIP code:		
Phone and fax numbers:		
<b>Major clinical findings</b> , travel history (optional)		

<b>Description of Specimen</b>
<b>Date collected</b>
<b>Specimen Source</b>
<input type="checkbox"/> <b>Blood</b> preservative: _____
<input type="checkbox"/> <b>CSF</b> volume: _____
<input type="checkbox"/> <b>Other</b> (specify): _____
Original specimen <b>Gram stain results</b>
<b>Date of culture</b>
<b>Final culture results and date reported</b>
<b>For CSF only</b>
WBC count: _____
Protein: _____
Glucose: _____
<b>Test requested</b>

**Do not write below this line**

<b>Final Report of State Laboratory Investigation</b>	
<input type="checkbox"/> <i>Neisseria meningitidis</i> <b>DNA detected by PCR</b>	<input type="checkbox"/> <i>Streptococcus pneumoniae</i> <b>DNA detected by PCR</b>
<input type="checkbox"/> Serogroup <b>B</b>	<input type="checkbox"/> <i>Streptococcus pneumoniae</i> <b>DNA <u>not</u> detected by PCR</b>
<input type="checkbox"/> Serogroup <b>C</b>	<input type="checkbox"/> <i>Streptococcus pneumoniae</i> <b>PCR not performed</b>
<input type="checkbox"/> Serogroup <b>Y</b>	
<input type="checkbox"/> Serogroup <b>undetermined</b>	
<input type="checkbox"/> <i>Neisseria meningitidis</i> <b>DNA <u>not</u> detected by PCR</b>	
<input type="checkbox"/> <i>Neisseria meningitidis</i> <b>PCR not performed</b>	<input type="checkbox"/> Inadequate specimen for testing. Please submit new sample.
<b>Comments</b>	
<b>Disclaimer:</b> This test was developed and its performance characteristics determined by the Microbial Diseases Laboratory of the California Department of Public Health. It has not been cleared or approved by the U.S. Food and Drug Administration.	
<b>Date reported</b>	<b>Report approved by</b>

# BACTERIAL CULTURE FOR IDENTIFICATION

(Include Actinomyces-like Cultures; Exclude Mycobacteria Cultures)

State Laboratory number

Please print or type.

Patient's name (last, first)	Age	Sex	<b>Description of Specimen</b>
Address			Date collected
Physician's name			Check source: <input type="checkbox"/> Human <input type="checkbox"/> Animal—species: _____ <input type="checkbox"/> Other (specify): _____
Clinical condition or suspected disease		Date of onset	Origin of specimen: <input type="checkbox"/> Blood <input type="checkbox"/> Serum <input type="checkbox"/> Sputum <input type="checkbox"/> CSF <input type="checkbox"/> Throat <input type="checkbox"/> Urine <input type="checkbox"/> Feces <input type="checkbox"/> Skin
<input type="checkbox"/> Case <input type="checkbox"/> Epidemic <input type="checkbox"/> Sporadic <input type="checkbox"/> Contact <input type="checkbox"/> Carrier			
Return report to: Name			Tissue, type: _____
Address			Pus, source: _____
ZIP code			Exudate, source: _____
			Wound, location: _____
			Other, specify: _____
			Submitter's identification of organism

Antimicrobial agents:     None

Types	Dosage	Date Begun	Date Completed

**Important:** Enter your laboratory findings on *reverse*.

Brief but complete case history, therapy, outcome (*print or type*)

**Report of State Laboratory Investigation**

**DO NOT WRITE IN THIS SPACE**

<p><b>KEY</b></p> <p>A = acid                  K = alkaline                  S = strong                  Gr. = growth                  NGr. = no growth                  G = gas                  * = vial for gas detection                  + = positive                  - = negative                  ( ) = number of days                  blank = not done</p>	<p>Other tests or comments:</p>	<p>Organism identified as:</p>		
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Date received</td> <td style="width:50%;">Date reported</td> </tr> </table>	Date received	Date reported
Date received	Date reported			

