

Laboratory Testing for Meningococcal Disease

February 2022



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. Culture-negative specimens from patients for whom there is a high clinical suspicion of meningococcal disease should also be submitted for PCR testing. In addition, eye specimens from meningococcal conjunctivitis cases should be submitted for serogrouping.

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,

including in patients who have received recent antibiotic treatment.

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 from the eye; or
- 0.5 ml of EDTA-treated blood (purple top); and/or 0.5 ml of CSF; or
- Blood culture bottle once finalized (if negative); aerobic bottle preferred; or
- 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. Shipping and handling instructions on next page.

Susceptibility testing

Due to concern about the emergence of resistance to treatment and chemoprophylaxis agents (penicillin, rifampin and ciprofloxacin), CDPH encourages antimicrobial susceptibility testing (AST) of *N. meningitidis* isolates to inform decisions regarding treatment and post-exposure prophylaxis; however, this testing is not available through MDL. Hospital laboratories may perform susceptibilities upon request. If susceptibilities are performed, please

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forward the report to MDL. AST should not delay initiation of PEP.

CDC only performs AST in rare *N. meningitidis* cases. CDC AST results are not available in a timely way and cannot be used for clinical or public health decision-making for individual cases.

CDPH contact information

Please contact the MDL Bacterial Diseases Section 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 the MDL General Electronic Submission Form (available at [MDL Submission Instructions and Forms](https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/MDLSubmissionInstructionsandForms.aspx) (<https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/MDLSubmissionInstructionsandForms.aspx>)
 - Note that the MDL General Electronic Submission Form should be downloaded and opened within a pdf reader, such as an Adobe product. Opening the Form inside an internet browser may not work and can create errors.
 - For isolates: Use the default dropdown form “Bacterial Culture for Identification (exclude Mycobacteria)-446”. Please fill out the second page with available details on previous laboratory testing.
 - For specimens: Select the dropdown form “Bacterial Sepsis/Meningitis PCR-VPP01”. Please fill out the second page with additional requested specimen and patient details.
 - 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: Bacterial Diseases Section
CDPH Microbial Diseases Laboratory
850 Marina Bay Parkway
Richmond, CA 94804