

This is an official
CDC Health Advisory

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Detection of Ciprofloxacin-resistant, β -lactamase-producing *Neisseria meningitidis* Serogroup Y Isolates, United States, 2019–2020

Summary

Meningococcal disease, which typically presents as meningitis or meningococemia, is a life-threatening illness requiring prompt antibiotic treatment for patients and antibiotic prophylaxis for their close contacts. *Neisseria meningitidis* isolates in the United States have been largely susceptible to the antibiotics recommended for treatment and prophylaxis. However, 11 meningococcal disease cases reported in the United States during 2019–2020 had isolates containing a *bla*_{ROB-1} β -lactamase gene associated with penicillin resistance, as well as mutations associated with ciprofloxacin resistance. An additional 22 cases reported during 2013–2020 contained a *bla*_{ROB-1} β -lactamase gene but did not have mutations associated with ciprofloxacin resistance.

Background

Meningococcal disease is a sudden-onset, life-threatening illness caused by the bacterium *Neisseria meningitidis*. Prompt antibiotic treatment can reduce morbidity and mortality among patients and antibiotic prophylaxis can prevent secondary disease in close contacts (<https://redbook.solutions.aap.org/chapter.aspx?sectionid=189640131&bookid=2205>). Resistance to the antibiotics used for meningococcal treatment and prophylaxis, including penicillin and ciprofloxacin, has been rare in the United States. Recently, however, penicillin- and ciprofloxacin-resistant *N. meningitidis* serogroup Y (NmY) isolates have been detected in the United States.

The U.S. Centers for Disease Control and Prevention (CDC) made a request for isolate submissions from state health departments and reviewed the existing whole genome sequencing data for those isolates. CDC identified 33 meningococcal disease cases occurring between 2013 and 2020 that were caused by NmY isolates containing a *bla*_{ROB-1} β -lactamase enzyme gene conferring resistance to penicillins. The 33 cases were reported from 12 geographically disparate states. A majority of the cases (22/33, 67%) occurred in Hispanic individuals. Isolates from 11 of these cases, reported during 2019–2020 from nine states, were also resistant to ciprofloxacin. These cases represent a significant increase in penicillin- and ciprofloxacin-resistant meningococci in the United States.

Recommendations

- Clinicians should consider antimicrobial susceptibility testing (AST) on meningococcal isolates to inform prophylaxis decisions, but AST **should not delay the initiation of prophylaxis** with ciprofloxacin, rifampin, or ceftriaxone. Prophylaxis should be initiated within 24 hours of identification of the index case.

- Healthcare providers should perform AST to determine susceptibility of all meningococcal isolates to penicillin before changing from empirical treatment with cefotaxime or ceftriaxone to penicillin or ampicillin.
- All meningococcal isolates should be submitted to **DHEC** as described on the [South Carolina List of Reportable Conditions](#). DHEC will submit isolates to CDC as needed for AST and whole genome sequencing.
- Any suspected meningococcal treatment or prophylaxis failures should also be reported to DHEC.

For More Information

MMWR on Detection of Ciprofloxacin-resistant, β -lactamase-producing *Neisseria meningitidis* Serogroup Y Isolates: https://www.cdc.gov/mmwr/volumes/69/wr/mm6924a2.htm?s_cid=mm6924a2_w

CDC Meningococcal Disease Website: <https://www.cdc.gov/meningococcal/index.html>

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.

Categories of Health Alert Network messages:

Health Alert Requires immediate action or attention; highest level of importance
Health Advisory May not require immediate action; provides important information for a specific incident or situation
Health Update Unlikely to require immediate action; provides updated information regarding an incident or situation
HAN Info Service Does not require immediate action; provides general public health information

DHEC contact information for reportable diseases and reporting requirements

Reporting of **Meningococcal disease (*Neisseria meningitidis*)** is consistent with South Carolina Law requiring the reporting of diseases and conditions to your state or local public health department. (State Law # 44-29-10 and Regulation # 61-20) as per the DHEC 2020 List of Reportable Conditions available at:

<https://www.scdhec.gov/sites/default/files/Library/CR-009025.pdf>

Federal HIPAA legislation allows disclosure of protected health information, without consent of the individual, to public health authorities to collect and receive such information for the purpose of preventing or controlling disease. (HIPAA 45 CFR §164.512).

Regional Public Health Offices – 2020

Mail or call reports to the Epidemiology Office in each Public Health Region

MAIL TO:

<p style="text-align: center;">Lowcountry</p> <p>4050 Bridge View Drive, Suite 600 N. Charleston, SC 29405 Fax: (843) 953-0051</p>	<p style="text-align: center;">Midlands</p> <p>2000 Hampton Street Columbia, SC 29204 Fax: (803) 576-2993</p>	<p style="text-align: center;">Pee Dee</p> <p>1931 Industrial Park Road Conway, SC 29526 Fax: (843) 915-6502 Fax2: (843) 915-6506</p>	<p style="text-align: center;">Upstate</p> <p>200 University Ridge Greenville, SC 29602 Fax: (864) 282-4373</p>
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CALL TO:

<p style="text-align: center;">Lowcountry</p> <p>Allendale, Bamberg, Beaufort, Berkeley, Calhoun, Charleston, Colleton, Dorchester, Hampton, Jasper, Orangeburg</p> <p>Office: (843) 441-1091 Nights/Weekends: (843) 441-1091</p>	<p style="text-align: center;">Midlands</p> <p>Aiken, Barnwell, Chester, Edgefield, Fairfield, Kershaw, Lancaster, Lexington, Newberry, Richland, Saluda, York</p> <p>Office: (888) 801-1046 Nights/Weekends: (888) 801-1046</p>	<p style="text-align: center;">Pee Dee</p> <p>Clarendon, Chesterfield, Darlington, Dillon, Florence, Georgetown, Horry, Lee, Marion, Marlboro, Sumter, Williamsburg</p> <p>Office: (843) 915-8886 Nights/Weekends: (843) 915-8845</p>	<p style="text-align: center;">Upstate</p> <p>Abbeville, Anderson, Cherokee, Greenville, Greenwood, Laurens, McCormick, Oconee, Pickens, Spartanburg, Union</p> <p>Office: (864) 372-3133 Nights/Weekends: (864) 423-6648</p>
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<p style="text-align: center;">For information on reportable conditions, see https://www.scdhec.gov/ReportableConditions</p>	<p><u>DHEC Bureau of Communicable Disease Prevention & Control</u> Division of Acute Disease Epidemiology 2100 Bull St • Columbia, SC 29201 Phone: (803) 898-0861 • Fax: (803) 898-0897 Nights / Weekends: 1-888-847-0902</p>
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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.
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Info Service	Provides general information that is not necessarily considered to be of an emergent nature.