



## June 22 CDC warns, Resistant meningococcal strain circulating US

COVID-19 (novel coronavirus official name), data, reports, and guidance via CDC and WHO

### Threat Assessment

#### Summary

The Centers for Disease Control and Prevention recently released a Health Alert Network (HAN) pertaining to a resistant strain of Meningococcal disease. 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 blaROB-1  $\beta$ -lactamase gene associated with penicillin resistance, as well as mutations associated with ciprofloxacin resistance. An additional 22 cases reported during 2013–2020 contained a blaROB-1  $\beta$ -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 blaROB-1  $\beta$ -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

- Healthcare providers should perform antimicrobial susceptibility testing (AST) to determine susceptibility of all meningococcal isolates to penicillin before changing from empirical treatment with cefotaxime or ceftriaxone to penicillin or ampicillin.
- In states that have experienced meningococcal disease cases caused by ciprofloxacin-resistant strains within the past 1–2 years, clinicians and public health staff should consider AST on meningococcal isolates to inform prophylaxis decisions. AST should not delay the initiation of prophylaxis with ciprofloxacin, rifampin, or ceftriaxone.
- State and territorial health departments should continue submitting all meningococcal isolates to CDC for AST and whole genome sequencing. Health departments also should report any suspected meningococcal treatment or prophylaxis failures.
- For cases with isolates determined to be  $\beta$ -lactamase screen-positive or ciprofloxacin-resistant, health departments should complete a supplemental case report form (available at <https://www.cdc.gov/meningococcal/surveillance/index.html> or on request from [meningnet@cdc.gov](mailto:meningnet@cdc.gov)). Forms can be submitted to CDC via secure email ([meningnet@cdc.gov](mailto:meningnet@cdc.gov)) or FTP site"

(CDC)

## Action Steps:

1. CDC recommends meningococcal vaccination for all preteens and teens. CDC also recommends clinicians vaccinate children and adults who are at increased risk for meningococcal disease. See [Meningococcal Vaccination: Information for Healthcare Professionals](#) for information on all meningococcal vaccine recommendations by vaccine, age, and indication.
2. CDC also recommends chemoprophylaxis for close contacts of patients with meningococcal disease, regardless of immunization status. See the "Chemoprophylaxis" section of the [meningococcal chapter of the Manual for the Surveillance of Vaccine-Preventable Diseases](#) for additional guidance.
3. Due to [recent reports](#) of ciprofloxacin-resistant,  $\beta$ -lactamase-producing N. meningitidis serogroup Y cases in the United States, clinicians and public health staff should consider antimicrobial susceptibility testing on meningococcal isolates to inform prophylaxis decisions if their state has reported a case of meningococcal disease caused by ciprofloxacin-resistant strains within the past 2 years.

(CDC)

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