

Preparing for Cephalosporin-Resistant *Neisseria gonorrhoeae* (GC, gonococcus)

New Treatment Recommendations from CDC (Centers for Disease Control and Prevention)

Target audience: Clinical laboratories

Background:

The gonorrhea control strategy in the United States relies on effective antibiotic therapy. However, since antibiotics were first used for its treatment, *N. gonorrhoeae* has progressively developed resistance to the antibiotics prescribed as treatment: sulfanilamides, penicillin, tetracycline, and ciprofloxacin. Now, the emergence of cephalosporin-resistant gonorrhea will significantly complicate the ability to successfully treat gonorrhea. Current STD treatment guidelines recommend dual therapy with the injectable cephalosporin, ceftriaxone, and either azithromycin or doxycycline to treat all uncomplicated gonococcal infections among adults and adolescents in the U.S. Dual therapy is recommended to address the potential emergence of gonococcal cephalosporin resistance. Given the history of *N. gonorrhoeae* to develop antibiotic resistance, it is critical to continuously monitor antibiotic resistance. A major challenge to monitoring emerging antimicrobial resistance of *N. gonorrhoeae* is the decline in capacity of laboratories to perform the culture techniques required for antibiotic susceptibility testing.

Key points:

1. New guidelines for treatment of gonorrhea released Aug. 2012
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There are important changes, including:

- Fewer treatment options are available (oral cefixime or other oral cephalosporins no longer recommended)
- Test of cure needed in certain patients
- Test of cure should be a GC culture
 - If alternative treatment is used, NAAT as a test-of-cure may be acceptable. See new guidelines for details
- Antimicrobial susceptibility testing should be performed

2. Laboratories will likely see more requests for GC culture

New guidelines recommend clinicians collect GC culture for:

- Patient with persistent symptoms despite appropriate treatment
 - GC culture collected three-to-five days post-treatment
- Patient who has been re-treated for persistent infection (i.e., as in #1)
 - GC culture collected three-to-five days after re-treatment
- Patient who receives treatment regimen formerly recommended, i.e. cefixime or other oral cephalosporins + azithromycin (or + doxycycline) instead of ceftriaxone + azithromycin (or + doxycycline), should have test-of-cure performed:
 - Either GC culture (preferred), collected **≥ 72 hours** after treatment; or Nucleic Acid Amplification Test (NAAT), collected **≥ 7 days** after treatment
- Patient with a positive NAAT test-of-cure should have a culture performed followed by antimicrobial susceptibility testing if the culture is positive
- Partners of patients that are potential treatment failures.

3. Be prepared to submit GC isolates to MDCH laboratory for antimicrobial susceptibility testing

New guidelines call for enhancing and rebuilding gonorrhea culture capacity so that antimicrobial resistance testing can be performed.

Please send all GC isolates (from any anatomical site) to MDCH laboratory

- This may require laboratories to stock chocolate agar slants, (MDCH is not able to provide at this time)
- MDCH laboratory will test ceftriaxone and cefixime or other oral cephalosporins
- Laboratory report will include both the MIC value and interpretation as susceptible(S) or non-susceptible (NS) for ceftriaxone
- Laboratory report will include the interpretation only (S or NS) for cefixime
- Any isolate found to be NS to either ceftriaxone or cefixime will be forwarded to CDC for additional testing

Steps to take now

- Please review policies and procedures in your laboratory to determine whether or not GC cultures are currently performed, or could be added to the testing menu
- Assess your ability to transport specimens from off-site testing locations to the testing laboratory
- If cultures for *Neisseria gonorrhoeae* are not available in your laboratory, determine how you will accommodate physician requests for a GC culture
- Ensure that staff and client physicians are aware of the new guidelines and the recommendations for culture or NAAT at your facility

The complete guidelines are available at: <http://www.cdc.gov/STD> then → click on the link for gonorrhea, then → scroll down to the box labeled “Recently added”

Additional Recommendations from CDC:

“The laboratory should retain the isolate for possible further testing. ...”

“The capacity of laboratories in the United States to isolate *N. gonorrhoeae* by culture is declining rapidly because of the widespread use of NAATs for gonorrhea diagnosis, yet it is essential that culture capacity for *N. gonorrhoeae* be maintained to monitor antimicrobial resistance trends and determine susceptibility to guide treatment following treatment failure. To help control gonorrhea in the United States, health-care providers must maintain the ability to collect specimens for culture and be knowledgeable of laboratories to which they can send specimens for culture. Health-care systems and health departments must support access to culture, and laboratories must maintain culture capacity or develop partnerships with laboratories that can perform culture. “

“Treatment of patients with gonorrhea with the most effective therapy will limit the transmission of gonorrhea, prevent complications, and likely will slow emergence of resistance. However, resistance to cephalosporins, including ceftriaxone, is expected to emerge.”

Please direct any questions to:

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References

1. Update to CDC's *Sexually Transmitted Diseases Treatment Guidelines, 2010*: Oral Cephalosporins No Longer a Recommended Treatment for Gonococcal Infections
MMWR Weekly August 10, 2012/61(31); 590-594.

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6131a3.htm?s_cid=mm6131a3_w
URL accessed 9/13/2012.

2. Cephalosporin—Resistant *Neisseria gonorrhoeae* Public Health Response Plan

<http://www.cdc.gov/std/treatment/Ceph-R-ResponsePlanJuly30-2012.pdf>
URL accessed 9/13/2012.