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CDC surveillance shows gonorrhea becoming more resistant to antibiotics

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- Kirkcaldy RD, et al. "*Neisseria gonorrhoeae* Antimicrobial Susceptibility Surveillance — The Gonococcal Isolate Surveillance Project, 27 Sites, United States, 2014." *MMWR Surveill Summ.* 2016;65(No. SS-7):1-19, http://dx.doi.org/10.15585/mmwr.ss6507a1.

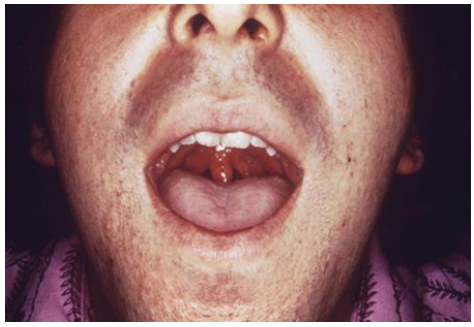
Approximately half of high school students are sexually active, but few use birth control and 40% do not use condoms, leaving teens susceptible to pregnancy and sexually transmitted infections (STIs). Both chlamydia and gonorrhea infections are prevalent in males and females 15-19 years of age, with 25% of all reported infections occurring in this age group.

Gonorrhea has been the second most commonly reported nationally notifiable disease in the U.S since 1995. In 2014, 350,062 cases of gonorrhea were reported. The highest rates were in the southern U.S., with 131.4 cases per 100,000 population.

Gonococcal infections can occur at any age and involve mucous membranes of the urethra, cervix, pharynx, rectum and eyes. The most common site of infection is the urethra, which may be asymptomatic or associated with discharge or pain during urination. Urethral infections in males are more likely to be symptomatic than genitourinary tract infections in women and therefore are easier to diagnose.

Cervical infections may lead to pelvic inflammatory disease, which can severely impact female reproductive health. Infants born to mothers with genital gonococcal infection may develop neonatal ophthalmia, which can progress to blindness. Disseminated disease may be further complicated by septic arthritis, meningitis and endocarditis. An untreated infection may increase the risk of acquiring HIV.

Rapid diagnosis and effective antimicrobial therapy help prevent complications of gonorrhea and transmission to sexual partners. Based on a patient's risks and symptoms, testing may be indicated.



Most gonococcal pharyngeal infections are symptomatic, but infrequently acute tonsillopharyngitis is noted with mild to severe sore throat. Photo courtesy of Red Book Online.

Two options generally are available for diagnosis: nucleic amplification test (NAAT) and culture. NAATs allow for testing of gonorrhea and chlamydia using urine specimens or vaginal swabs. It is less invasive than culture but does not provide antimicrobial susceptibility testing. NAATs are not approved by the Food and Drug Administration for testing nongenital

specimens but may be performed by laboratories that have met the Clinical Laboratory Improvement Amendment and other regulatory requirements for testing.

In 1986, the Centers for Disease Control and Prevention (CDC) created the Gonococcal Isolate Surveillance Project (GISP) as a sentinel surveillance system to monitor trends in antimicrobial susceptibility of *N. gonorrhoeae* strains in the U.S., to facilitate national treatment recommendations and to establish research and prevention priorities.

On July 15, the CDC released results of the GISP, which showed that gonorrhea is becoming more resistant to antibiotics. Development of resistance to tetracycline, penicillin and ciprofloxacin as well as removal of cefixime as part of first-line therapy in 2012 have mandated regular changes to treatment recommendations.

New data from GISP revealed that azithromycin resistance rates increased from 0.6% in 2013 to 2.5% in 2014. This represents a more than 300% change in reduced susceptibility to azithromycin. One hypothesis for this dramatic increase is the high frequency of azithromycin prescriptions being written for upper respiratory tract infections.

The percentage of reduced susceptibility to ceftriaxone has remained roughly the same (about 0.2% nationally) over the last 10 years. No cross-resistance has been identified between ceftriaxone and azithromycin.

These data continue to support the CDC recommendation that dual therapy with intramuscular ceftriaxone plus oral azithromycin is the only recommended treatment for gonorrhea. This combination regimen is thought to have a synergistic effect that enhances killing of *N. gonorrhoeae,* including strains resistant to one of the agents, and minimizes the potential for transmission of resistant strains.

Adolescents found to have gonorrhea should be treated with 250 milligrams of ceftriaxone intramuscularly and 1 gram of oral azithromycin. Additionally, the patient's sexual partners within the prior 60 days need to be treated. Ideally, these partners should come to clinic to receive the same treatment, which can be administered under the Expedited Partner Therapy treatment approach. This allows treatment in a timely manner without medical evaluation.

Reinfection by an untreated partner or a new sexual partner is common, making it important to rescreen all adolescents three months after treatment for gonorrhea or at their next presentation to medical care.

Antibiotic treatment options for gonorrhea are limited. By using combination ceftriaxone and azithromycin therapy, it may be possible to halt the further spread of resistant gonorrhea. It also is important to use azithromycin judiciously for other illnesses to prevent unnecessary antibiotic pressure on *N. gonorrhoeae* or other susceptible bacteria.

The AAP Committee on Adolescence states that adolescents should receive comprehensive, appropriately confidential and developmentally appropriate primary care as recommended by AAP guidelines (Bright Futures) within a medical home. Recommendations for preventive pediatric health care include STI/HIV screening every year from 11 through 21 years of age as recommended in the *Red Book*.

The Academy recommends the following screening procedure for gonorrhea:

- Routinely screen all sexually active females younger than 21 years of age.
- Consider annual screening of sexually active young adult males based on risk factors.
- Routinely screen sexually active adolescent and young adult men who have sex with men for pharyngeal, rectal and urethral infection if engaging in receptive oral or anal intercourse or insertive intercourse.

- Screening is recommended every three to six months for patients with multiple or anonymous sex partners.

These recommendations emphasize the importance of obtaining a thorough sexual history to identify high-risk patients and to know which anatomical sites should be screened. The *Red Book* recommends private time to speak with an adolescent confidentially, without a parent or guardian present, at every adolescent visit. If an adolescent indicates sexual activity, it is important to define the partner gender and what type of sex they participate in to best screen the involved anatomic locations.

Question

Which of the following is true?

a) Dual therapy with ceftriaxone plus azithromycin is the only recommended treatment for gonorrhea.
b) Gonorrhea is the second-leading nationally notifiable disease in the U.S.
c) Results from nucleic amplification tests do not provide organism susceptibility results.
d) A vaccine is not available for prevention of infections due to *N. gonorrhoeae.*
e) All of the above

Answer: E, all of the above

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