
(MMWR 60:873 2011) The Centers for Disease Control and Prevention (CDC) recommends dual therapy for gonorrhea with a cephalosporin (ceftriaxone; 250 mg) plus either azithromycin or doxycycline. This report summarizes trends in cephalosporin susceptibility among Neisseria gonorrhoeae isolates in the United States during 2000–2010, using data from the Gonococcal Isolate Surveillance Project. During that period, the percentage of isolates with elevated minimum inhibitory concentrations (MICs) for cephalosporins (≥0.25 μg/mL for cefixime and ≥0.125 μg/mL for ceftriaxone) increased from 0% in 2000 to 1.4% in 2010 for cefixime and from 0.1% in 2000 to 0.3% in 2010 for ceftriaxone. Although cephalosporins remain an effective treatment for gonococcal infections, healthcare providers should be vigilant for treatment failure and are requested to report its occurrence to state and local health departments.

In the western region of the United States (the region with the greatest increase), the most prominent increases in cefixime MICs were observed in Honolulu, Hawaii (from 0% in 2000 to 7.7% in 2010; P < .001), and in California (from 0% in 2000 to 4.5% in 2010; P < .001). An increase in ceftriaxone MICs also was observed in California (from 0% in 2000 to 0.6% in 2010; P = .001). Among men who have sex with men the percentage of isolates with cefixime MICs ≥0.25 μg/mL increased from 0% in 2000 to 4.0% in 2010 (P < .001), and the percentage of isolates with ceftriaxone MICs ≥0.125 μg/mL increased from 0% to 0.9% (P < .001). Overall, no statistically significant increases occurred in cefixime or ceftriaxone MICs among men who have sex with women. The epidemiologic pattern of cephalosporin susceptibility in the West and among men who have sex with men during 2009–2010 is similar to that previously observed during the emergence of fluoroquinolone-resistant N. gonorrhoeae in the United States.

The findings in this report suggest that gonococcal resistance to cefixime might emerge in the United States before resistance to ceftriaxone. Ceftriaxone is the most effective cephalosporin for treatment of gonorrhea and should be used for such treatment in combination with azithromycin or doxycycline. Azithromycin is preferred over doxycycline for dual therapy with ceftriaxone; of the 2009–2010 isolates with decreased susceptibility to cefixime, none exhibited decreased susceptibility to azithromycin, and all of them exhibited tetracycline resistance. Based on the findings in this report, the CDC is currently recommending ceftriaxone (intramuscular; 250 mg) and azithromycin (oral; 1 g) as the most effective treatment for uncomplicated gonorrhea.

If a patient experiences cefixime treatment failure, clinicians should re-treat the patient with cefixime (intramuscular; 250 mg) and azithromycin (oral; 2 g). If a patient experiences a ceftriaxone treatment failure, clinicians should consult with an infectious disease expert and the CDC regarding retreatment.

Scientists Find First Superbug Strain of Gonorrhea

11 July 2011 (Reuters Health [Kate Kelly])—A multi-drug resistant strain of gonorrhea in Japan could transform a once easily treatable infection into a global public health threat, researchers say.

The new strain, called H041, was discovered by Magnus Unemo of the Swedish Reference Laboratory for Pathogenic Neisseria and colleagues from Japan in samples from Kyoto.

In a telephone interview Unemo, who will present details of the finding at a conference of the International Society for Sexually Transmitted Research (ISSTDR) in Quebec, said the fact that the strain had been found first in Japan also followed an alarming pattern.

“Japan has historically been the place for the first emergence and subsequent global spread of different types of resistance in gonorrhea,” he said.

H041 is extremely resistant to all cephalosporin-class antibiotics—the last remaining drugs still effective in treating gonorrhea.

British scientists said last year that there was a real risk that gonorrhea would evolve into a superbug, after increasing reports of gonorrhea drug resistance emerged in Hong Kong, China, Australia and other parts of Asia.

Unemo said experience from previous degrees of resistance acquired by gonorrhea suggested this new multi-drug resistant strain could spread around the world within decades.

“Based on the historical data … resistance has emerged and spread internationally within 10–20 years,” he said.

Asked whether carbapenems might be a last ditch option for treating this new gonorrhea strain, Unemo said there would first need to be trials to assess their potential.

“Carbapenems have never been used for the treatment of gonorrhea so we
cannot interpret the data in any reliable or quality-assured way at the moment," he said.

**Editor’s comment.** The MIC of ceftriaxone was high (2 μg/mL), and the strain was highly resistant to penicillin G (4 μg/mL), cefixime (8 μg/mL), and levofloxacin (32 μg/mL). The strain demonstrated reduced susceptibility to azithromycin (0.5 μg/mL). However, it was susceptible to spectinomycin (16 μg/mL).

Multiple Cases of Measles After Exposure During Air Travel: Australia and New Zealand, January 2011

(MMWR 60:851 2011) In January 2011, measles was diagnosed in 3 New Zealand residents recently returned from a 17-day trip to Singapore and the Philippines. On 11 January, they had flown on a 7.5-hour flight from Singapore to Brisbane, Australia, remained in a transit lounge for 9.5 hours, and then continued on a 4-hour flight to Auckland, New Zealand. Searches in Australia and New Zealand for secondary cases among passengers on either flight resulted in the identification of 3 cases among passengers on the Singapore-to-Brisbane flight and 5 cases among passengers on the Brisbane-to-Auckland flight.

The 3 index case patients, unvaccinated children aged 12–17 years, had onset of rash in 11–15 January and tested positive for measles immunoglobulin M. Of 8 secondary case patients, 1 each from Australia and New Zealand had measles diagnosed clinically, but the remaining 6, with rash onset during 21–26 January, were positive for measles RNA by nucleic acid amplification testing. Each specimen was genotype D9 with the same genetic sequence. Only 3 of the 8 secondary cases occurred in persons seated within 2 rows of an index case patient, including 2 unvaccinated persons and 1 whose measles vaccination status was unknown. One secondary case occurred in a person of unknown vaccination status seated 4 rows away from the nearest person with an index case; 1 was in a person with a history of 2 vaccinations against measles, seated 6 rows away, and 3 were in unvaccinated children 11 rows away, in a separate cabin.

Australian contact investigation guidelines for exposure to a single passenger with infectious measles aboard an aircraft focus on the seats within 2 rows of index case patients; 5 of the 8 persons with secondary cases in this outbreak were farther away. Three persons aboard the aircraft were probably infectious, not just one, and recent literature suggests that exposure might extend farther than 2 rows. In addition, because measles is readily transmissible through airborne transmission, there was opportunity for exposure in the passenger loading bridges, the arrival and departure terminals, and the transit lounge. This outbreak highlights the transmissibility of measles, the risk for exposure during international travel, which might start at the airport before departure, and the need for travelers to be protected against measles by vaccination.

**Editor’s comment.** This outbreak is but one of many occurring in industrialized countries despite high levels of immunization against measles in the population. There are religious groups that do not believe in immunization, parents who oppose immunization of their children, and other persons who have just not been adequately immunized, all contributing to a pool of susceptible persons.

Food and Drug Administration Approves Boostrix to Prevent Tetanus, Diphtheria, and Pertussis in Older People

FDA Press Release: The US Food and Drug Administration approved Boostrix vaccine to prevent tetanus, diphtheria, and pertussis (whooping cough) in people ages 65 and older.

Currently, there are vaccines approved for the prevention of tetanus and diphtheria that can be used in adults 65 and older. Boostrix, which is given as a single-dose booster shot, is the first vaccine approved to prevent all three diseases in older people.

The incidence of pertussis disease in the United States has been increasing since 2007, with large local outbreaks occurring in 2010 in California, Michigan, and Ohio.

“Pertussis is a highly contagious disease, and outbreaks have occurred among the elderly in nursing homes and hospitals,” said Karen Midthun, MD, director of FDA’s Center for Biologics Evaluation and Research. “With this approval, adults 65 and older now have the opportunity to receive a vaccine that prevents pertussis, as well as tetanus and diphtheria.”

The safety and effectiveness of Boostrix was based on a study of about 1300 people aged 65 years and older. To demonstrate its ability to protect against pertussis, the antibody levels among participants were measured and found comparable to the levels in infants who received a closely related vaccine that was shown to prevent pertussis.

The antibody responses to the tetanus and diphtheria components were compared with a licensed tetanus and diphtheria vaccine, and were found comparable. The most common adverse reactions reported by the older adults after receiving Boostrix were headache, and fatigue and pain at the injection site.

Boostrix was originally approved on 3 May 2005, for use in adolescents ages 10 years through 18 years. It subsequently was approved in December 2008, to include adults 19 years through 64 years of age. Boostrix is manufactured by GlaxoSmithKline Biologicals, based in Rixensart, Belgium.

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