Infection with *Neisseria gonorrhoeae*, a Gram-negative diplococcus, can cause cervicitis, urethritis, pelvic inflammatory disease, and result in long-term sequelae such as infertility, ectopic pregnancy, and chronic pelvic pain. Gonorrhea infection may increase susceptibility to and transmission of HIV infection.1,2 Endocervix and urethra are the most common infection sites.

Pharynx and rectal infections are also increasingly being reported.3 Recently, in many countries, increases in the incidence of gonorrhea have been greatest among men who have sex with men4 and in young people. Globally, *N. gonorrhoeae* causes an estimated 62 million cases of gonococcal disease annually.5 In Taiwan, 1629 new cases were reported in 2008, with an incidence of 7.1 per 100,000 population.6 However, underestimation is quite probable because of underdiagnosis and underreporting.7

Over the last decades, *N. gonorrhoeae* strains have developed a high level of resistance against several antimicrobial agents such as penicillin and tetracycline.8 In Taiwan, an increase in the resistance rate of *N. gonorrhoeae* to penicillin from 17% in 1967 to 88.8% in 1990 was reported.9 The emergence and spread of quinolone-resistant gonococci in Asia and, subsequently, worldwide in recent years has further limited therapeutic choices.10–12 Before 1990, there were no gonococcal strains with resistance to quinolones or third-generation cephalosporins reported in Taiwan.9 However, high ciprofloxacin resistance rates of *N. gonorrhoeae* of 95.2% and 76.7% have been reported in northern Taiwan in 2005 and 2007, respectively.13,14 Discontinuation of fluoroquinolone treatment should be recommended at least in specific subgroups and subregions.15 Recently, third-generation cephalosporins were proposed as alternative antibiotics for the treatment of gonorrhea. However, in Taiwan, the resistance rate to the oral cephalosporin cefixime increased from 9% in 2003 to 16.4% in 2007, and resistance to cefpodoxime was 21.2% in 2007.13,14 Susceptibility of *N. gonorrhoeae* to injectable ceftriaxone remains 100% in Taiwan and worldwide.

Molecular epidemiology studies, such as *N. gonorrhoeae* multi-antigen sequence typing (NG-MAST) analysis, are helpful in identifying groups at high risk and domestic or international transmission routes of specific strains.16 Integration of NG-MAST and resistant profiles of *N. gonorrhoeae* strains identified that the isolates belonging to the major sequence types (ST) clusters may be from patients belonging to specific groups at high risk and exhibit distinct resistant profiles. Increasing frequency of gonococci with reduced susceptibility to quinolones and third-generation cephalosporins, especially in some groups at high risk...
risk such as men who have sex with men, has been noted.14,17 Continuous surveillance is essential to monitor the transmission of specific clones across national boundaries and among different sexual networks. Efforts should be made to block the transmission of gonorrhea via groups at high risk and to prevent the emergence of resistant strains and contain their spread.

References