

Sexually Transmitted Diseases (STD): Neither Gone Nor Forgotten

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The most common bacterial STD: *Chlamydia trachomatis* is the most common reportable infectious disease in the United States; and the number of reported cases is growing every year, thanks in part to increasing screening efforts. It is particularly of concern in adolescents and young adults, and also in African-American populations, among whose reported case rates are 8-fold higher than in whites. The major adverse events associated with chlamydial infections are borne by women and include pelvic inflammatory disease, chronic pelvic pain, ectopic pregnancy and infertility. The organism also can infect infants at birth and causing conjunctivitis and, more importantly, pneumonia. In men, *C. trachomatis* causes urethritis and occasionally a testicular inflammatory condition known as epididymitis. However, most chlamydial infections are asymptomatic. These silent infections form a large reservoir of infection in the population, resulting in potential for continuous transmission of the organism among those who are sexually active outside of long term monogamous relationships. Excellent *C. trachomatis* diagnostic tests are now available and can be performed on urine specimens. Treatment is inexpensive and safe. Therefore, theoretically, this common STD could be dramatically curtailed in the U.S. population if broad based screening efforts were undertaken. In 1989 the U.S. Preventive Services Task Force recommended *C. trachomatis* screening of all sexually active young women. However there are significant barriers to achieving this goal. These include lack of access to health care, health care provider reticence to address sexual health issues with their patients, limited budgets to support screening programs, insufficient treatment of exposed sex partners, and lack of knowledge on the part of young sexually active individuals about the true risk of unprotected sexual intercourse with multiple partners. An example of the limited effect of the screening recommendation can be found in the data reported by the Healthcare Effectiveness Data and Information Set (HEDIS) during 2000_2007 and collected by the CDC. Nationally, the annual screening rate increased from 25.3% in 2000 to 43.6% in 2006, and then decreased slightly to 41.6% in 2007. We should be doing better. Approaches that are being employed by some public health agencies around the country include screening high risk populations in high schools, juvenile retention facilities, adolescent clinics, and drug treatment centers. Self collection of specimens (vaginal swabs in women and urine specimens in both sexes) which can be mailed to testing facilities is now possible and some public health agencies across the country are experimenting with novel ways of encouraging the at risk population to do so. Increased *Chlamydia* testing and treatment should be a goal of evolving plans for health care reform in the U.S.

Decreasing treatment options for gonorrhea: Gonorrhea is a potentially dangerous disease, causing complications similar to those from *Chlamydia* as well as potential for disseminated infection. While effective treatment options and aggressive screening for the causative agent, *Neisseria gonorrhoeae*, has made it much less common over the last four decades, it remains the second most common reportable infectious disease in the U.S. Racial disparities are more pronounced for gonorrhea than any other infectious disease, with 19 times higher case rates in African Americans than whites. An emerging challenge for gonorrhea control is increasing resistance to currently available antibiotics. In the 1970's penicillin resistant *N. gonorrhoeae* was introduced into the U.S. by soldiers returning from the Vietnam war. More recently travelers to and from the Far East brought quinolone antibiotic resistant strains into the U.S. These initially were identified in Hawaii and the West Coast but subsequently spread throughout the country. CDC recommended against using these well tolerated and inexpensive drugs for the treatment of gonorrhea in 2008. The cephalosporin class of drugs is now the mainstay of gonorrhea treatment in the U.S. Unfortunately, there is early evidence that resistance to this class of drugs may be appearing in *N. gonorrhoeae* strains isolated from patients in the Far East. Should this problem become wide spread there would few options available for treating this highly infectious disease. The *N. gonorrhoeae* story is a paradigm of how injudicious use of antibiotics combined with decreased new antibiotic discovery research may result in a future where untreatable bacterial infections are common.

The “great imitator” makes a comeback: By the year 2000 syphilis incidence rates in the U.S. had dropped to the lowest levels ever recorded. There was hope that syphilis could be eliminated in this country and in 1999 CDC launched a national syphilis elimination program. The plan focused on the South, specifically counties with persistent relatively high rates of disease. Unfortunately, beginning in 2001 rates began to rise among men in the West and the Northeast and have continued to do so since. The majority of these cases have been in men who have sex with men (MSM), many of whom are HIV infected, creating the potential for enhanced HIV transmission as well as complications from syphilis, such as neurologic disease. Rates among women continued to decrease until 2004 when they too began to increase. Soon thereafter, in 2006 the feared consequence of increasing numbers of syphilis cases among women, congenital syphilis, also began to rise. These issues are of great concern as the gains made in syphilis control following the epidemic of the late 1980s could be wiped out. As heterosexual syphilis transmission is concentrated in communities with limited health care resources, syphilis control will be another measure of the success of health care reform in the U.S.

Advances in molecular microbiology lead to the discovery of a new STD: *Mycoplasma genitalium* was first identified in the early 1980s through the serendipitous isolation and propagation of a single strain isolated from a man with urethritis. Inability to identify subsequent isolates using the methods of classical microbiology foiled research efforts for a decade. In the early 1990’s application of newly developed polymerase chain reaction technology to diagnosis of infections caused by this organism greatly advanced the work. We now know that *M. genitalium* is an important cause of nongonococcal urethritis in men. Very recent work has shown that there is an association with pelvic inflammatory disease in women. If it is established that this organism is associated with serious adverse health outcomes in women such as infertility, and/or that it has consequences for infants born to infected mothers, *M. genitalium* will join *C. trachomatis* and *N. gonorrhoeae* as public health targets.