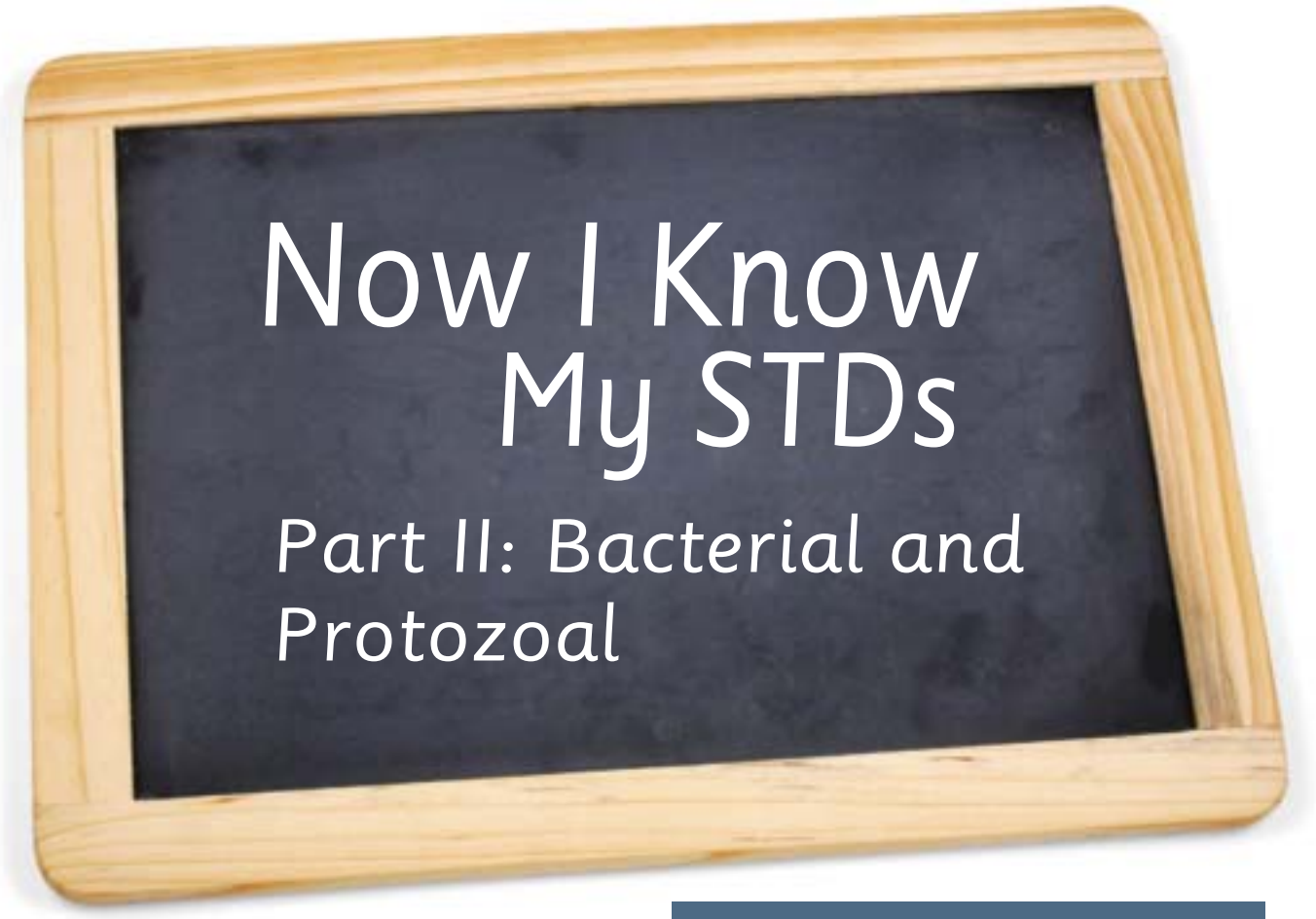


# Now I Know My STDs

## Part II: Bacterial and Protozoal

Laura J. Grimshaw-Mulcahy

**ABSTRACT**

Many sexually transmitted diseases (STDs) are not detected because of the asymptomatic and unrecognized nature of the majority of infections. This delay affects all aspects of care, including identifying patients at risk, screening, diagnosing, treating, and counseling patients and their partners. In the second half of this series, an assessment of specific bacterial and protozoa infections will be reviewed to aid in recognition, diagnosis, treatment, and counseling of these diseases.

**Keywords:** Bacteria, chlamydia, gonorrhea, protozoa, STDs, syphilis, trichomonas

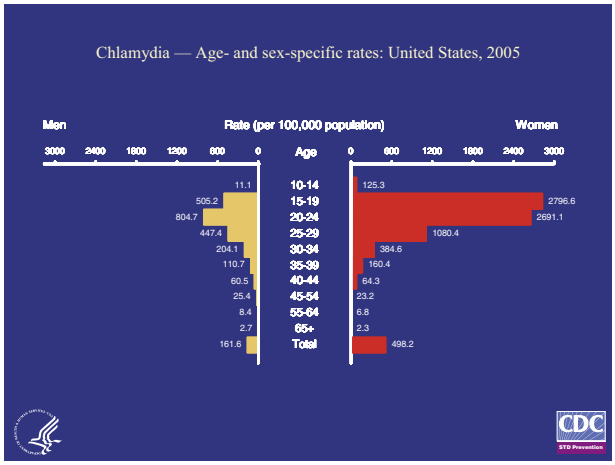
### BACTERIAL SEXUALLY TRANSMITTED DISEASES (STDS)

#### Chlamydia trachomatis

The most common and frequently reported bacterial STD in the United States is *Chlamydia trachomatis*. Over 2.8 million cases are estimated annually, with most infections occurring in younger adults between the ages of 15 and 24.[1,2] The most effective method for diagnosing chlamydia is through screening because asymptomatic infection occurs in up to 75% of women and 50% of men.[3,4] Women tend to suffer the most serious sequelae of infection, including pelvic inflammatory disease (PID), infertility, and ectopic pregnancy.[5-7]

Reported chlamydia cases increased by 5.1% between 2004 and 2005. This likely reflects improvements in the sensitivity and specificity of testing, as well as expanded screening efforts, rather than an actual increase in incidence. Women are disproportionately affected, with 3.2 times higher rates than their male counterparts (Figure 1).[2]

**Figure 1.** Chlamydia age and sex specific rates.




*Source: Centers for Disease Control. Chlamydia: sexually transmitted disease surveillance, 2005. Available at:* http://www.cdc.gov/std/stats/slides/ChlamydiaSlides2005.ppt#331,8,Chlamydia *— Age- and sex-specific rates: United States, 2005.*

**Figure 2.** Nongonococcal urethritis.


*Source: Toney JF. Centers for Disease Control. Common sexually transmitted diseases: STD 101 for clinicians. Available at:* http://www2a.cdc.gov/std101/ *(Must obtain password).*

Most people with chlamydia are asymptomatic and unaware they are infected and can transmit infection to partners. This can delay screening and treatment and increase the risk of developing complications.[5] If a woman does experience symptoms of infection (20%–30%), she may complain of vaginal discharge, dysuria, irritation, bleeding after intercourse, abnormal vaginal bleeding, and/or lower abdominal pain. Male patients (50%) may complain of dysuria, mucopurulent discharge (Figure 2), or a tingling and/or itching sensation inside the urethra.[5]

Women are much more likely to suffer consequences of infection than men. Women who have a seemingly uncomplicated cervical infection may already have subclinical upper reproductive tract disease.[5,7] If a woman develops PID, she has an 18% chance of developing chronic pelvic pain, a 20% chance of being infertile, and a 9% chance of having a future ectopic pregnancy.[7] Chlamydia remains the most common cause of tubal infertility in this country.

In pregnancy, infection has been implicated with premature rupture of the membranes and preterm birth.[7] Spontaneous abortion related to infection during the first trimester remains controversial. In infants, the most common cause of conjunctivitis and early pneumonia is *C. trachomatis,* which results from perinatal exposure of the neonate to the mother's infected cervix.[5]

The "gold standard" test for chlamydia is the culture. However, most cultures are now reserved for legal and child abuse cases, related to increased costs and relatively low sensitivity (70%). Viable organism is no longer required as nonculture tests have been developed. The first introduced were the direct fluorescent antibody (DFA) tests and enzyme-linked immunoassays (EIAs). Direct DNA probe assays soon followed and, most recently, nucleic acid amplification (NAATs) have been introduced to the market place.[5,8]

Direct DNA probe assays (Gen-Probe PACE 2/Digene Hybrid Capture II Assays, Digene Corp., Gaithersburg, MD) detect DNA complementary to specific ribosomal RNA sequences of the organism. Dual testing for gonorrhea and chlamydia is now possible from a single specimen, but lower sensitivities are still the disadvantage to these testing methods.[8]

Nucleic acid amplification (NAATs) have been labeled the "expanded gold standard." They amplify from a single copy of target DNA or RNA, which dramatically increases sensitivity (Tables 1–3). The major advantage is the approval of urine testing for both gonorrhea and chlamydia in males and females. This ease in testing has probably contributed to the almost 45% increase in males diagnosed with chlamydia since 2001.[2] This test is also approved for endocervical screening in females and urethral screening in