# CDC Sexually Transmitted Diseases Treatment Guidelines

**Kimberly A. Workowski[1,2] and Stuart M. Berman[1]**

[1]Division of STD Prevention, National Center for HIV, STD and TB Prevention, Centers for Disease Control and Prevention, and [2]Emory University, Division of Infectious Diseases, Atlanta, Georgia

Sexually transmitted diseases (STDs) constitute an epidemic of tremendous magnitude, with an estimated 15 million persons acquiring a new STD each year [1]. Effective clinical management of STDs represents a strategic element in prevention of HIV infection and in efforts to improve reproductive and sexual health. Clinicians who evaluate persons with STDs or those at risk for STDs should be aware of the current national guidelines for STD treatment. The 2002 Centers for Disease Control (CDC) guidelines for the treatment of STDs provide clinical guidance in the appropriate assessment and management of STDs [2]. The scope and content of these guidelines continues to evolve, reflecting changes not only in clinical experience and epidemiology but also in changes in the health care environment and the circumstances under which clinical services are delivered.

The 2002 guidelines for the treatment of sexually transmitted diseases were developed in consultation with public- and private-sector professionals knowledgeable in the management of STDs, using an evidence-based approach. A systematic literature review was performed that focused on peer-reviewed journal articles and published abstracts that have become available since publication of the 1998 guidelines. On the basis of this review process, background papers were developed, and the available evidence was evaluated during a meeting of consultants in September 2000. A draft report was then circulated to professional associations, STD treatment experts, and other agencies, organizations, and individuals representing diverse perspectives on issues related to STD treatment. The present supplement describes advances in the diagnosis, management, and treatment of STDs and has implications for current clinical practice.

*Chlamydia trachomatis* infection is the most common bacterial STD in the United States, with an estimated 3 million cases occurring annually [1]. Reported rates of chlamydial infections have increased dramatically over the past decade, which reflects expansion of chlamydial screening activities and the advent of a new generation of highly sensitive nucleic acid amplification tests. However, many women who are at risk for this infection are still not being screened appropriately, which reflects a lack of awareness among some providers and the limited resources available for screening. Efficacious therapeutic regimens for chlamydial treatment include azithromycin or doxycycline. In many settings, azithromycin, which can be administered as a single dose, permitting therapy to be directly observed, may be the more cost-effective treatment, especially for individuals who are unlikely to complete the 7-day doxycycline regimen [3]. Because a high prevalence of chlamydia has been found in women in whom the disease has been diagnosed and treated during the preceding several months, the treatment guidelines suggest that women with chlamydia be rescreened 3–4 months after treatment.

Infections due to *Neisseria gonorrhoeae,* like those resulting from *C. trachomatis,* are a cause of cervicitis, urethritis, proctitis, and pelvic inflammatory disease. Several antibiotics, including cefixime, ceftriaxone, ciprofloxacin, and ofloxacin, are effective in single-dose regimens for the treatment of gonorrhea. Recently, quinolone-resistant gonorrhea has been reported from Southeast Asia, Hawaii, and California. Persons with

Reprints or correspondence: Dr. Kimberly A. Workowski, Centers for Disease Control and Prevention, 1600 Clifton Rd., Mailstop E02, Atlanta, GA 30333 (kgw2@cdc.gov).

**Clinical Infectious Diseases 2002; 35(Suppl 2):S135–7**

1058-4838/2002/3508S2-0001$15.00

gonorrhea who have recently traveled to Asia or the Pacific, Hawaii, or California or whose partner(s) recently traveled to these areas should receive a nonquinolone regimen. Because the prevalence of quinolone-resistant gonorrhea is expected to spread, local data addressing antimicrobial resistance are crucial for guiding therapy recommendations. Therefore, state and local public health officials must maintain the capacity to detect and monitor the prevalence of resistant strains, because prevalence can vary greatly by location. Culture and susceptibility testing should be performed in persons with apparent treatment failure.

Genital herpes simplex virus (HSV)–2 infection remains the most common infectious etiology of genital ulcers in the United States and is a remarkably common infection; HSV-2 seroprevalence is 22% among adults and has increased 32% over the past decade [4]. Most genital herpes infections are transmitted by persons who are unaware that they have the infection or are asymptomatic when transmission occurs. Because of the high proportion of unrecognized infection, the diagnosis of genital herpes should be confirmed by sensitive diagnostic tests such as viral culture or HSV type-specific serological tests. Accurate type-specific assays for HSV rely on the detection of antibodies to HSV-specific glycoprotein G1 and G2. These new type-specific assays may be useful in the diagnosis of unrecognized infection and the evaluation of sexual partners of persons with genital herpes. The optimal management of genital herpes includes antiviral therapy, counseling regarding the natural history of infection, the risk of sexual and perinatal transmission, and the use of methods to prevent further transmission. Systemic antiviral drugs control the symptoms and signs of infection; however, these drugs neither eradicate latent virus nor affect the risk, frequency, or severity of recurrences after the drug is discontinued.

Syphilis continues to be one of the most important STDs both because of its biological effect on HIV acquisition and transmission, increasing risk of HIV infection 3–5-fold [5], and because of its impact on infant health. Currently, syphilis remains an important problem in the South and in some urban areas of the country. In addition, the recent occurrence of syphilis outbreaks in numerous US cities among men who have sex with men is of particular concern, reflecting, in part, increased risk-taking behavior among that population [6]. Long-acting preparations of penicillin remain the treatment of choice for all stages of syphilis. HIV-infected persons who have early syphilis should be managed according to standard treatment recommendations; however, they may be at increased risk for neurological complications and may have higher rates of treatment failure. Despite limited data to support the use of alternatives to penicillin in the treatment of early syphilis, several new alternative therapies appear to be promising for nonpregnant, penicillin-allergic patients who have primary or secondary syphilis. In the management of neurosyphilis in the penicillin-allergic person, ceftriaxone is an alternative treatment regimen. However, the use of alternative regimens to penicillin in the treatment of syphilis among those with HIV infection has not been well studied.

Most human papillomavirus infections are asymptomatic, unrecognized, or subclinical. The primary goal in the treatment of exophytic anogenital warts is the removal of warts, which may be pruritic, painful, and friable or may interfere with normal function. There are no clearly defined guidelines for the treatment of genital warts; thus, specific treatment recommendations should be guided by the experience of the clinician, availability of therapeutic agents, and patient preference. No single treatment has been found to be ideal for all patients, and most treatment modalities appear to have comparable efficacy. Currently available therapies for genital warts may reduce but probably do not eradicate either infection or infectivity. Whether the reduction in viral DNA that results from current treatment regimens affects future transmission remains unclear. Recognition of the etiologic role of specific HPV types in cervical cancer and the advent of type-specific HPV tests have stimulated a focus on the use of HPV diagnostic tests in cervical cancer prevention. HPV testing has been recently proposed as a management strategy to determine which women with low-grade cervical cytological abnormalities require colposcopic evaluation. Studies to clarify the role of HPV testing in the evaluation of low-grade cervical abnormalities have indicated that HPV testing can be useful and cost effective in the management of Papanicolaou tests that reveal atypical squamous cells of undetermined significance [7–9].

Bacterial vaginosis (BV), a sexually associated infection, has been associated with adverse pregnancy outcomes, including chorioamnionitis, premature rupture of membranes, prematurity, and postpartum endometritis. Oral and vaginal metronidazole regimens are similarly efficacious in the treatment of BV and appear to be more effective than clindamycin cream. Several studies have suggested that the treatment of BV in pregnant women with a previous history of preterm birth may reduce their subsequent risk for prematurity [10, 11]. However, no randomized trial has yet demonstrated a reduction in adverse outcomes of pregnancy among asymptomatic women without a history of previous preterm birth; thus, current evidence does not support universal screening for BV in pregnancy.

Ectoparasites are a common cause of skin rash and pruritus throughout the world. Ivermectin represents a new oral therapy for scabies and may hold particular promise in the treatment of severe infestation. Combination therapy with ivermectin and topical scabicides may prove to be the best treatment for crusted scabies. Rising rates of drug resistance in head lice may effect the efficacy of topical agents for pediculosis pubis in the future.

The effective clinical management of STDs represents a strategic common element in prevention of HIV infection and in efforts to improve reproductive and sexual health. Recommendations for STD treatment will continue to evolve in response to clinical research, emerging antimicrobial resistance, and evolving sexual and health-care behaviors. The use of new, more effective treatment regimens, highly sensitive tests for screening for asymptomatic infection, improvements in counseling of patients and their sexual partners, and new vaccines for sexually transmitted pathogens are crucial to improving sexual and reproductive health.

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