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## Gonorrhea screening guidelines

The US Preventive Services Task Force (USPSTF) makes recommendations on the effectiveness of specific preventive clinical services for patients without related signs or symptoms. It bases its recommendations on evidence of both the benefits and damage to the service and an assessment of the balance. The USPSTF does not take into account the costs of providing a service in this assessment. The USPSTF acknowledges that clinical decisions involve more considerations than evidence alone. Clinicians should understand the evidence, but individualize decision-making to the specific patient or situation. Similarly, the USPSTF notes that policy and coverage decisions involve considerations in addition to evidence of clinical benefits and harms. Returning to Chlamydia and Gonorrhea Are the Most Commonly Reported Sexually Transmitted Infections (STIs) in the United States. In 2012, more than 1.4 million cases of chlamydia and more than 330,000 cases of gonorrhea were reported to the Centers for Disease Control and Prevention (CDC). Chlamydia infections are 10 times more widespread than gonococcal infections (4.7% vs. 0.4%) women aged 18 to 26.22. Although most identified cases are reported, the incidence of chlamydia and gonorrhea is difficult to estimate, since most infections are asymptomatic and therefore never diagnosed. The CDC estimates that more than 800,000 people are infected with gonorrhea in the United States each year, and less than half of these infections are diagnosed and reported.3. Infections with chlamydia and gonococci are often asymptomatic in women; however, asymptomatic infection can lead to pelvic inflammatory disease (PID) and its associated complications, such as ectopic pregnancy, infertility and chronic pelvic pain. Newborns of women with untreated infection may develop pneumonia with neonatal chlamydia or gonococcal or chlamydial ophthalmia. Infection can lead to symptomatic urethritis and epididymitis in men, although gonorrhea is more likely than chlamydia to be symptomatic in men compared to women. Both types of infection can facilitate hivtransmission1, 4, 5. USPSTF detection has found compelling evidence that screening tests can accurately detect chlamydia. The USPSTF has also found compelling evidence that screening tests can accurately detect gonorrhea. The benefits of early detection and intervention or treatment USPSTF found adequate direct evidence that screening reduces complications of chlamydia infection in women who are at increased risk with a moderate magnitude of benefit. The USPSTF found adequate evidence that gonorrhea screening results in a moderate magnitude of benefit, based on a high proportion of cases that are asymptomatic, the effectiveness of antibiotic treatment to reduce infections and high morbidity untreated infections. USPSTF found inadequate evidence that screening for chlamydia and gonorrhea reduces complications of infection and/or the acquisition of either the disease or HIV in men. The extent of the benefit is unknown. Early detection damage and USPSTF intervention or treatment found adequate evidence that screening damage for chlamydia and gonorrhea are small to none. USPSTF Evaluation USPSTF concludes with moderate certainty that screening for chlamydia is associated with a moderate net benefit in all sexually active women aged 24 years or younger and in older women who are at increased risk of infection. The USPSTF concludes with moderate certainty that screening for gonorrhea is associated with a moderate net benefit in all sexually active women aged 24 years or younger and in older women at increased risk of infection. The USPSTF concludes that the current evidence is insufficient to assess the balance between the benefits and prejudices of screening for chlamydia and gonorrhea in men. Return to the table of contents The patient population considered This recommendation applies to all sexually active adolescents and adults, including pregnant women. Risk age assessment is a strong predictor of the risk of chlamydia and gonococcal infections, with the highest rates of infection occurring in women aged 20 to 24 years, followed by women aged 15 to 19 years. Chlamydia infections are 10 times more widespread than gonococcal infections in young adult women.2. Among men, infection rates are highest in those aged 20 to 24 years.1. Other risk factors for infection include having a new sex partner, more than 1 sex partner, a sex partner with simultaneous partners, or a sex partner who has an STI; inconsistent use of condoms among persons who are not in mutually monogamous relationships; previous or co-existing STIs; and exchange sex for money or drugs. Prevalence is also higher among incarcerated populations, military recruits, and patients receiving care at STI public clinics. There are also racial and ethnic differences in the prevalence of STIs. In 2012, black and Hispanic people had higher rates of infection than white people.1. Clinicians should consider the communities they serve and may wish to consult local public health authorities for guidance on identifying groups at increased risk. Gonococcal infection, in particular, is concentrated in certain locations and geographical communities. Screening tests Chlamydia trachomatis and Neisseria gonorrhoeae infections should be diagnosed using nucleic acid amplification tests (NAATs), as their sensitivity and specificity are high and they are approved by the U.S. Food and Drug Administration for use on urogenital sites, including male urine female, as well as clinician-collected endocervical, vaginal, and male urethral specimens. Most NAATs that are approved for use on vaginal swabs are also approved for use on self-collected vaginal specimens, clinical or self-collected vaginal swabs can be collected from people who engage in receptive relationships and oral sex, although these collection sites have not approved by the US Food and Drug Administration.7. Urine testing with NAAT is at least as sensitive as testing with endocervical specimens, clinical or self-collected vaginal specimens, or self-collected urethral specimens in a clinical environment. The same specimen can be used to test chlamydia and gonorrhea.7. Screening intervals in the absence of screening interval studies A reasonable approach would be to detect patients whose sexual history indicates new or persistent risk factors since the last negative test result. Treatment and interventions Chlamydia and gonococci infections respond to antibiotic treatment. Centres for Disease Control and Prevention are available at [www.cdc.gov/std/treatment/2010/default.htm](http://www.cdc.gov/std/treatment/2010/default.htm) and [www.cdc.gov/std/epi/default.htm](http://www.cdc.gov/std/epi/default.htm) respectively. Posttest counseling is an integral part of the management of patients with newly diagnosed STIs. The USPSTF recommends offering or referring to high-intensity behavioral counseling for patients with current or recent (STIs). Posttest counseling can also serve as an educational opportunity for patients who present STI concerns, but negative test for infection. It should address safe sexual practices that can reduce disease transmission or reinfection; motivational interviewing strategies can also promote risk-reducing behaviours. To maximize adherence, the CDC recommends that drug treatment be distributed on site. The CDC recommends that all sexual partners of infected patients over the past 60 days be evaluated, tested and treated for infection. It also recommends that infected patients be instructed to refrain from intercourse until after they and their sexual partners have completed treatment and no longer have symptoms. For a sex partner that cannot be reached to care, the CDC suggests that clinicians consider accelerated partner therapy, which allows the delivery of a drug or prescription drug to the partner by the patient, a disease investigation specialist, or a pharmacy. Due to a high likelihood of reinfection, the CDC also recommends retesting all patients diagnosed with chlamydia or gonococcal infection 3 months after treatment, regardless of whether they believe their partners have been treated. In pregnant women, a hearing test is recommended to document the eradication of chlamydia infection 3 weeks after treatment. Pregnant women diagnosed with chlamydia or gonococcal infection in the first trimester should be retested 3 months after treatment. Gonococcal neonatal ophthalmia, which can be transmitted from an untreated woman to her newborn, can be prevented with routine topical prophylaxis at birth. However, prevention of neonatal chlamydia pneumonia and ophthalmia requires prenatal detection and treatment. Suggestions for With regard to 1 The potentially preventable declaration of Chlamydial pregnancy and gonococcal infections are often asymptomatic in men, but can lead to urethritis, epididymitis, and proctitis. Uncommon complications include reactive arthritis (chlamydia) and disseminated gonococcal infection. Infections in extragenital sites (such as pharynx and rectum) are usually asymptomatic. Chlamydia and gonococcal infections may facilitate HIV transmission in men and women.1, 4, 5. Average prevalence rates among men who had sex with men who were tested in STD Surveillance Network clinics in 2012 were 16% for gonorrhea and 12% for chlamydia.1. Potential harmful effects of chlamydia and gonorrhea include false-positive or false-negative results, as well as labelling and anxiety associated with positive results. Costs According to the CDC, STIs in the United States are associated with an annual cost of nearly \$16 billion.8. Among nonviral STIs, chlamydia is the most expensive, with total associated costs of \$516.7 million (range, \$258.3 to \$775.0 million). Gonococcal infections are associated with total costs of \$162.1 million (range, \$81.1 to \$243.2 million)9. In 2008, the estimated direct lifetime costs (in 2010 U.S. dollars) per case of chlamydia infection were \$30 (range, \$15 to \$45) in men and \$364 (range, \$182 to \$546) in women. Similarly, gonococcal infections have been associated with direct costs of \$79 (range, \$40 to \$119) to men and \$354 (range, \$182 to \$546) in women.9. Current Practice A review of health care claims of 4,296 male and female patients submitting for general or gynaecological medical examinations from 2000 to 2003 found that a large proportion of those with high-risk sexual behaviors did not receive STIs or HIV testing during their visit. According to a review of diagnostic billing codes for patients with high-risk sexual behaviours, men were significantly less likely than women to be tested for chlamydia (20.7% vs. 56.9%) and gonorrhea (20.7% vs. 50.9%), although they were more likely to be tested for HIV (79.3% vs. 38.8%) syphilis (39.1% vs. 27.6%)10. Other USPSTF prevention approaches have issued screening recommendations for other STIs, including hepatitis B, genital herpes, HIV, and syphilis. The USPSTF has also issued behavioural counselling recommendations for all sexually active adolescents and adults who are at increased risk for STIs. These recommendations are available at [www.uspreventiveservicestaskforce.org](http://www.uspreventiveservicestaskforce.org). Useful RESOURCES CDC provides more information about BS, including chlamydia and gonorrhea, at [www.cdc.gov/std/default.htm](http://www.cdc.gov/std/default.htm). Its recommendations for the prevention of Mentally Transmitted Diseases include clinical prevention (available at [www.cdc.gov/std/treatment/2010/clinical.htm](http://www.cdc.gov/std/treatment/2010/clinical.htm)) and patient prevention information (available in [www.cdc.gov/std/prevention/default.htm](http://www.cdc.gov/std/prevention/default.htm)). The CDC has also issued guidance to clinicians on how to take a sexual history (available at [www.cdc.gov/std/treatment/SexualHistory.pdf](http://www.cdc.gov/std/treatment/SexualHistory.pdf)). Community Task Force Services has issued several recommendations on HIV/AIDS prevention, other STIs, and adolescent pregnancy. The Community Guide discusses interventions that have been effective in the school environment and for men who have sex with men (available at [www.thecommunityguide.org/hiv/index.html](http://www.thecommunityguide.org/hiv/index.html)). Canadian Guidelines on STIs are available at [www.phac-aspc.gc.ca/std-its/siti-itscgsi-ldcits/index-eng.php](http://www.phac-aspc.gc.ca/std-its/siti-itscgsi-ldcits/index-eng.php). Return to Contents Although the prevalence of chlamydia and gonorrhea differs, the risk factors for infection overlap and USPSTF recommends screening for both simultaneously. Research needs and gaps studies assessing the effectiveness of different screening strategies for identifying people at increased risk of infection, who have a test cost for competing STIs and require different screening intervals to inform practical guidelines. Studies to assess the effectiveness of asymptomatic male screening are needed to reduce the consequences of infection and transmission to sexual partners. Identifying subgroups for which screening is a top priority. Possible subgroups include men who have sex with men, sexually active men under 24 and men living in high prevalence environments. Currently, no study provides data on the possible adverse effects of screening in any population. Returning to Chlamydia and gonorrhea are the most commonly reported STIs in the United States.1. In 2012, more than 1.4 million cases of chlamydia infection were reported to CDC.1. However, its actual incidence is difficult to accurately estimate, since most infections are asymptomatic and are therefore undetected. Chlamydia infections are 10 times more widespread than gonococcal infections (4.7% vs. 0.4%) women aged 18 to 26.22. In 2012, the rate of chlamydia infection in women (643.3 cases in 100,000) was more than double the rate in men (262.6 cases in 100,000), with the majority occurring in women aged 15 to 24 years.1. In 2012, CDC1 reported more than 330,000 cases of gonococcal infection. Most infections occurred in women aged 15 to 24 and in men aged 20 to 24. The infection rate was similar in women and men (108.7 vs. 105.8 cases in 100,000, respectively)1. The scope of the USPSTF review commissioned a systematic review.7, 11 studies published since it previously reviewed these topics.12-14. The USPSTF also took into account evidence from its previous recommendations and revisions. The studies included were to be applicable to clinical settings and practices in the United States, determined by the similarity of participants, the health services and the available screening tests. Conditions of interest infections with chlamydia and gonococcal infections in asymptomatic patients. The key questions are described in the systematic review.7, 11. The accuracy of the USPSTF screening tests found compelling evidence that available screening tests can chlamydia and gonococcal infections. Ten fair quality studies on diagnostic accuracy.15-24 indicate that screening for chlamydia and gonorrhea with NAATs is very accurate for specimens from different anatomical sites for women and men.7. The sensitivity of naat specimens collected from genito-European sites for chlamydia detection ranged from 86% to 100% in studies without major limitations. In women, the sensitivity of NAAT specimens varied slightly in endocervical specimens, in vaginal clinical or self-collected samples, and in urine samples that self-collected in clinical environments. In men, testing of urine samples was slightly more sensitive than testing urethral specimens. NaATs sensitivity for gonorrhea ranged from 90% to 100% in studies without major limitations. Specificity was raised in all specimens and tests for both chlamydia and gonorrhea.7. Effectiveness of early detection and treatment PreviousUSPSTF reviews identified 2 randomized, controlled studies (RCT) of screening effectiveness for chlamydia for the prevention of PID in nonpregnant women at increased risk of infection. In 1 high RCT, a strategy for identifying, testing and treating women at increased risk of infection with chlamydia infection was associated with a significantly reduced incidence of PID (relative risk [RR], 0.44 [95% CI, 0.20 to 0.93])25. The study limitations included a follow-up period of only 1 year, possible selection and reporting biases and a relatively low participation rate. In another RCT, which was performed in 1761 female high school students in Denmark, universal, 1-time, home screening was associated with a statistically significant reduction in the incidence of chlamydia infection (RR, 0.45 [IC, 0.24 to 0.84]) and a statistically significant reduction in the incidence of PID that did not reach statistical significance (RR, 0.50 [IC, 0.23 to 1.08]) compared to opportunistic physician-based screening after 1 year of follow-up.26. This study was rated as poor quality due to significant follow-up losses. The current USPSTF review identified 1 good quality RCT out of 2529 young sexually recruited universities and colleges.27. Among asymptomatic women, 0.6% in the screening group versus 1.6% in the deferred group developed PID during follow-up (RR, 0.39 [IC, 0.14 to 1.08])7, 11. The study limitations included inadequate recruitment, out-of-study chlamydia testing in nearly a quarter of participants, and difficulty in establishing IDPs. These limitations may have had attenuated intervention effects and the study may have been undernourished. USPSTF has previously found evidence of correct quality that treatment of chlamydia infection during pregnancy is associated with improved outcomes for infants and mothers.28. USPSTF reviewed large cohort screening studies on first visit pregnant women at increased risk of infection.29, 30. These studies found that the treatment of chlamydia infection was with significantly lower rates of premature delivery, early rupture of membranes and infants with low birth weight compared to lack of treatment or failure of treatment. No subsequent studies met the inclusion criteria for the current USPSTF review. 11. The USPSTF found little direct evidence of screening efficacy for chlamydia in low-risk men or women. It found that the general prevalence of chlamydia infection in the general population varies greatly depending on age and other risk factors.31. Chlamydia infection can cause epididymitis in men, but serious complications are not common. Screening and treatment of young men at high risk may reduce the incidence of chlamydia infection; however, the USPSTF did not find prospective studies published on the effect of routine screening in men or on the comparison with the screening strategy for women and the treatment of their male partners.7, 11, 28, 32. USPSTF has not found studies on the benefits of screening women, including pregnant women, who are not at increased risk of infection. Decisions on the detection of women who do not pose a high risk on the basis of individual factors may depend on the pregnancy of the local disease. USPSTF has not found studies on the efficacy of gonorrhea screening in its current or previous reviews.7. It has previously found indirect evidence of early detection and treatment benefits, including the substantial prevalence of asymptomatic infection, the availability of accurate screening tests and effective treatments, and high morbidity associated with untreated infection in women.29. Gonococcal infections in women are frequently asymptomatic.33. Asymptomatic men and women represent an important reservoir of new infection. In women, 10% to 20% of untreated infections lead to PID.4, which can lead to hospitalization, surgery, chronic pelvic pain, ectopic pregnancy, and infertility. Although untreated in controlled studies, early detection and treatment of gonorrhea in pregnant women at increased risk of infection may reduce morbidity due to obstetric complications related to infection. The main rationale for screening all pregnant women is the prevention of ophthalmia neonatorum. However, USPSTF recognizes the low prevalence of infection in pregnant women who are not at increased risk and the effectiveness of universal eye prophylaxis in newborns. Consequently, the USPSTF concluded that the net benefit of screening for gonorrhea in pregnant women who do not have an increased risk of infection is low. The USPSTF found little direct evidence of the effectiveness of screening for gonorrhea in low-risk men or women.7, 11, 29, 35. It has previously found that screening for gonorrhea in all sexually active adults is ineffective due to its low prevalence in these groups.29, 35. In addition, general gonococcal infections in men are symptomatic, which can lead to a more timely clinical presentation and can lead to diagnosis and treatment that prevents serious complications.36. USPSTF could not find comparing the effectiveness of different screening strategies for chlamydia and gonorrhea in asymptomatic individuals or the effectiveness of sampling from different anatomical sites, contesting for concomitant STIs or using different screening intervals.7. Potential harmful effects of screening and treatment Ten correct quality diagnostic accuracy studies (described above)15-24 indicated that screening tests for chlamydia and gonorrhea had low rates of false-positive and false negative results in all types of NAAT and specimens. False positive test results may occur more frequently among populations with low prevalence. The current USPSTF review has identified several published studies describing some of the psychosocial testing damage (such as anxiety and strain on relationships). However, these studies did not meet the inclusion criteria as they included symptomatic individuals and focused on reactions to positive test results rather than screening. No study addressing other harms (e.g. screening labelling or anxiety) met the inclusion criteria. Estimation of the extent of net benefit USPSTF found direct evidence that screening for chlamydia in women at increased risk of infection is associated with a moderate benefit, including the reduced incidence of PID in non-pregnant women and improved outcomes in infants and mothers in pregnant women. The USPSTF noted the existence of common risk factors for gonococcal and chlamydial infections, as well as the availability of effective methods for their detection and treatment. Based on these factors, the USPSTF found indirect evidence of the moderate benefit of gonorrhea screening in women at increased risk of infection. USPSTF found that screening for chlamydia and gonorrhea is associated with damage that is small to none. Therefore, it concludes with moderate certainty that screening for chlamydia and gonorrhea has a moderate net benefit in this population. 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