

# Screening for Chlamydia and Gonorrhea: U.S. Preventive Services Task Force Recommendation Statement

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**Description:** Update of previous U.S. Preventive Services Task Force (USPSTF) recommendations on screening for chlamydia (2007) and gonorrhea (2005).

**Methods:** The USPSTF reviewed the evidence on screening for chlamydial and gonococcal infections in asymptomatic patients from studies published since its last reviews. The USPSTF also considered evidence from its previous recommendations and reviews.

**Population:** This recommendation applies to all sexually active adolescents and adults, including pregnant women.

**Recommendations:** The USPSTF recommends screening for chlamydia in sexually active females aged 24 years or younger and

in older women who are at increased risk for infection. (B recommendation)

The USPSTF recommends screening for gonorrhea in sexually active females aged 24 years or younger and in older women who are at increased risk for infection. (B recommendation)

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for chlamydia and gonorrhea in men. (I statement)

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\* For a list of USPSTF members, see the **Appendix** (available at www.annals.org).

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**T**he U.S. Preventive Services Task Force (USPSTF) makes recommendations about the effectiveness of specific preventive care services for patients without related signs or symptoms.

It bases its recommendations on the evidence of both the benefits and harms of the service and an assessment of the balance. The USPSTF does not consider the costs of providing a service in this assessment.

The USPSTF recognizes 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 the evidence of clinical benefits and harms.

## SUMMARY OF RECOMMENDATIONS AND EVIDENCE

The USPSTF recommends screening for chlamydia in sexually active females aged 24 years or younger and in

older women who are at increased risk for infection. (B recommendation)

The USPSTF recommends screening for gonorrhea in sexually active females aged 24 years or younger and in older women who are at increased risk for infection. (B recommendation)

See the Clinical Considerations section for a description of populations at increased risk for infection.

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for chlamydia and gonorrhea in men. (I statement)

See the Clinical Considerations section for suggestions for practice regarding the I statement.

See the **Figure** for a summary of the recommendation and suggestions for clinical practice.

**Appendix Table 1** describes the USPSTF grades, and **Appendix Table 2** describes the USPSTF classification of levels of certainty about net benefit (both tables are available at www.annals.org).

See also:

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## RATIONALE

### Importance

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) (1). Chlamydial infections are 10 times more prevalent

**Figure. Screening for chlamydia and gonorrhea: clinical summary of U.S. Preventive Services Task Force recommendation.****Annals of Internal Medicine**

**SCREENING FOR CHLAMYDIA AND GONORRHEA  
CLINICAL SUMMARY OF U.S. PREVENTIVE SERVICES TASK FORCE RECOMMENDATION**

| Population                                   | Sexually active females aged ≤24 y and older women at increased risk for infection  | Sexually active females aged ≤24 y and older women at increased risk for infection  | Men   |
|--|---|---|---|
| <b>Recommendation</b>                        | Screen for chlamydia.<br>Grade: B   | Screen for gonorrhea.<br>Grade: B   | No recommendation.<br>Grade: I statement  |
| <b>Risk Assessment</b>                       | Age is a risk factor for chlamydial and gonococcal infections, with the highest infection rates occurring in women aged 20 to 24 y. Other risk factors include new or multiple sex partners, a sex partner with concurrent partners, or a sex partner with a sexually transmitted infection (STI); inconsistent condom use among persons who are not in mutually monogamous relationships; previous or concurrent STI; and exchanging sex for money or drugs. |   |   |
| <b>Screening Tests</b>                       | Chlamydial and gonococcal infections are diagnosed by using nucleic acid amplification tests, which are cleared by the U.S. Food and Drug Administration for use on urogenital sites, including male and female urine; clinician-collected endocervical, vaginal, and male urethral specimens; and self-collected vaginal specimens in clinical settings.   |   |   |
| <b>Treatment and Interventions</b>           | Chlamydial and gonococcal infections respond to treatment with antibiotics. Posttest counseling is also an integral part of management of patients with a newly diagnosed STI. Counseling should address safe sex practices that can reduce disease transmission or reinfection.  |   |   |
| <b>Balance of Benefits and Harms</b>         | Screening for chlamydia has a moderate net benefit in females aged ≤24 y and older women at increased risk for infection.   | Screening for gonorrhea has a moderate net benefit in females aged ≤24 y and older women at increased risk for infection. | The current evidence is insufficient to assess the balance of benefits and harms of screening for chlamydia and gonorrhea in men. |
| <b>Other Relevant USPSTF Recommendations</b> | The USPSTF has recommendations on screening for other STIs, including hepatitis B, genital herpes, HIV, and syphilis, and behavioral counseling for all sexually active adolescents and for adults who are at increased risk for STIs. These recommendations are available on the USPSTF Web site ( <a href="http://www.uspreventiveservicestaskforce.org">www.uspreventiveservicestaskforce.org</a> ).   |   |   |

For a summary of the evidence systematically reviewed in making this recommendation, the full recommendation statement, and supporting documents, please go to [www.uspreventiveservicestaskforce.org](http://www.uspreventiveservicestaskforce.org).

than gonococcal infections (4.7% vs. 0.4%) in women aged 18 to 26 years (2).

Although most identified cases are reported, the incidence of chlamydia and gonorrhea is difficult to estimate because most infections are asymptomatic and are therefore never diagnosed. The CDC estimates that more than 800 000 persons are infected with gonorrhea in the United States each year, and fewer than half of these infections are diagnosed and reported (3).

Chlamydial and gonococcal infections are often asymptomatic in women; however, asymptomatic infection may 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 neonatal chlamydial pneumonia or gonococcal or chlamydial ophthalmia. Infection may lead to symptomatic urethritis and epididymitis in men, although gonorrhea is more likely than chlamydia to be symptomatic in men compared with women. Both types of infection may facilitate HIV transmission (1, 4, 5).

### Detection

The USPSTF found convincing evidence that screening tests can accurately detect chlamydia. The USPSTF also found convincing evidence that screening tests can accurately detect gonorrhea.

### Benefits of Early Detection and Intervention or Treatment

The USPSTF found adequate direct evidence that screening reduces complications of chlamydial infection in women who are at increased risk, with a moderate magnitude of benefit.

The USPSTF found adequate evidence that screening for gonorrhea results in a moderate magnitude of benefit based on the large proportion of cases that are asymptomatic, the effectiveness of antibiotic treatment to reduce infections, and the high morbidity associated with untreated infections.

The USPSTF found inadequate evidence that screening for chlamydia and gonorrhea reduces complications of infection and transmission or acquisition of either

disease or HIV in men. The magnitude of benefit is unknown.

#### Harms of Early Detection and Intervention or Treatment

The USPSTF found adequate evidence that the harms of screening for chlamydia and gonorrhea are small to none.

#### USPSTF Assessment

The USPSTF concludes with moderate certainty that screening for chlamydia is associated with moderate net benefit in all sexually active females aged 24 years or younger and in older women who are at increased risk for infection.

The USPSTF concludes with moderate certainty that screening for gonorrhea is associated with moderate net benefit in all sexually active females aged 24 years or younger and in older women who are at increased risk for infection.

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for chlamydia and gonorrhea in men.

## CLINICAL CONSIDERATIONS

### Patient Population Under Consideration

This recommendation applies to all sexually active adolescents and adults, including pregnant women.

### Assessment of Risk

Age is a strong predictor of risk for chlamydial and gonococcal infections, with the highest infection rates occurring in women aged 20 to 24 years, followed by females aged 15 to 19 years. Chlamydial infections are 10 times more prevalent 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 concurrent partners, or a sex partner who has an STI; inconsistent condom use among persons who are not in mutually monogamous relationships; previous or coexisting STI; and exchanging sex for money or drugs. Prevalence is also higher among incarcerated populations, military recruits, and patients receiving care at public STI clinics. There are also racial and ethnic differences in STI prevalence. In 2012, black and Hispanic persons had higher rates of infection than white persons (1). Clinicians should consider the communities they serve and may want to consult local public health authorities for guidance on identifying groups that are at increased risk. Gonococcal infection, in particular, is concentrated in specific geographic locations and communities.

### Screening Tests

*Chlamydia trachomatis* and *Neisseria gonorrhoeae* infections should be diagnosed by using nucleic acid amplification tests (NAATs). Nucleic acid amplification tests have high sensitivity and specificity and are cleared by the U.S.

Food and Drug Administration for use on urogenital sites, including male and female urine, as well as clinician-collected endocervical, vaginal, and male urethral specimens (6). Most NAATs that are cleared for use on vaginal swabs are also cleared for use on self-collected vaginal specimens in clinical settings. Rectal and pharyngeal swabs can be collected from persons who engage in receptive anal intercourse and oral sex, although these collection sites have not been cleared by the U.S. Food and Drug Administration (7). Urine testing with NAATs is at least as sensitive as testing with endocervical specimens, clinician- or self-collected vaginal specimens, or urethral specimens that are self-collected in clinical settings. The same specimen can be used to test for chlamydia and gonorrhea (7).

### Screening Intervals

In the absence of studies on screening intervals, a reasonable approach would be to screen patients whose sexual history reveals new or persistent risk factors since the last negative test result.

### Treatment and Interventions

Chlamydial and gonococcal infections respond to treatment with antibiotics. Guidelines from the CDC on treatment of sexually transmitted diseases (STDs) and expedited partner therapy 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/ept/default.htm](http://www.cdc.gov/std/ept/default.htm), respectively.

Posttest counseling is an integral part of management of patients with a newly diagnosed STI. The USPSTF recommends offering or referral to high-intensity behavioral counseling for patients with current or recent STIs ([www.uspreventiveservicestaskforce.org/uspstf/uspststds.htm](http://www.uspreventiveservicestaskforce.org/uspstf/uspststds.htm)). Posttest counseling can also serve as an educational opportunity for patients who present with STI concerns but test negative for infection. It should address safe sex practices that can reduce disease transmission or reinfection; motivational interviewing strategies may also promote risk-reducing behaviors.

To maximize adherence, the CDC recommends that drug treatment be dispensed on site. The CDC recommends that all sex partners of infected patients from the preceding 60 days be evaluated, tested, and treated for infection. It also recommends that infected patients be instructed to abstain from sexual intercourse until after they and their sex partners have completed treatment and no longer have symptoms. For a sex partner who cannot be linked to care, the CDC suggests that clinicians consider expedited partner therapy, which allows for the delivery of a drug or drug prescription to the partner by the patient, a disease investigation specialist, or a pharmacy. Because of a high likelihood of reinfection, the CDC also recommends retesting all patients diagnosed with chlamydial or gonococcal infection 3 months after treatment, regardless of whether they believe their partners have been treated.

In pregnant women, a test of cure to document eradication of chlamydial infection 3 weeks after treatment is

recommended. Pregnant women diagnosed with a chlamydial 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, may be prevented with routine topical prophylaxis at delivery. However, prevention of chlamydial neonatal pneumonia and ophthalmia requires prenatal detection and treatment.

### Suggestions for Practice Regarding the I Statement

#### Potential Preventable Burden

Chlamydial and gonococcal infections are often asymptomatic in men but may result in urethritis, epididymitis, and proctitis. Uncommon complications include reactive arthritis (chlamydia) and disseminated gonococcal infection. Infections at extragenital sites (such as the pharynx and rectum) are typically asymptomatic. Chlamydial and gonococcal infections may facilitate HIV transmission in men and women (1, 4, 5). Median prevalence rates among men who have sex with men who were tested in STD Surveillance Network clinics in 2012 were 16% for gonorrhea and 12% for chlamydia (1).

#### Potential Harms

Potential harms of screening for chlamydia and gonorrhea include false-positive or false-negative results as well as labeling and anxiety associated with positive results.

#### Costs

According to the CDC, STIs in the United States are associated with an annual cost of almost \$16 billion (8). Among nonviral STIs, chlamydia is the most costly, 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, estimated direct lifetime costs (in 2010 U.S. dollars) per case of chlamydial infection were \$30 (range, \$15 to \$45) in men and \$364 (range, \$182 to \$546) in women. Similarly, gonococcal infections were associated with direct costs of \$79 (range, \$40 to \$119) in men and \$354 (range, \$182 to \$546) in women (9).

#### Current Practice

A review of health care claims of 4296 male and female patients presenting for general medical or gynecologic examinations from 2000 to 2003 found that a large proportion of those with high-risk sexual behaviors did not receive STI or HIV testing during their visit. According to a review of diagnostic billing codes for patients with high-risk sexual behaviors, 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%) and syphilis (39.1% vs. 27.6%) (10).

### Other Approaches to Prevention

The USPSTF has issued recommendations on screening for other STIs, including hepatitis B, genital herpes, HIV, and syphilis. The USPSTF has also issued recommendations on behavioral counseling for all sexually active adolescents and for adults who are at increased risk for STIs. These recommendations are available at [www.uspreventiveservicestaskforce.org](http://www.uspreventiveservicestaskforce.org).

#### Useful Resources

The CDC provides more information about STDs, including chlamydia and gonorrhea, at [www.cdc.gov/std/default.htm](http://www.cdc.gov/std/default.htm). Its recommendations for STD prevention include clinical prevention guidance (available at [www.cdc.gov/std/treatment/2010/clinical.htm](http://www.cdc.gov/std/treatment/2010/clinical.htm)) and patient prevention information (available at [www.cdc.gov/std/prevention/default.htm](http://www.cdc.gov/std/prevention/default.htm)). The CDC has also issued guidance for 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)).

The Community Preventive Services Task Force has issued several recommendations on the prevention of HIV/AIDS, other STIs, and teen pregnancy. The Community Guide discusses interventions that have been efficacious in school settings 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-mts/sti-its/cgsti-ldcits/index-eng.php](http://www.phac-aspc.gc.ca/std-mts/sti-its/cgsti-ldcits/index-eng.php).

## OTHER CONSIDERATIONS

### Implementation

Although the prevalence of chlamydia and gonorrhea differs, the risk factors for infection overlap and the USPSTF recommends screening for both simultaneously.

### Research Needs and Gaps

Studies evaluating the effectiveness of different screening strategies for identifying persons who are at increased risk for infection, cotesting for concurrent STIs, and different screening intervals are needed to inform practice guidelines. Studies evaluating the effectiveness of screening asymptomatic men to reduce the consequences of infection and transmission to sexual partners are needed. Identification of subgroups of patients for whom screening may be effective is a high priority. Possible subgroups include men who have sex with men, sexually active males younger than 24 years, and men residing in high-prevalence communities. Currently, no studies provide data about the potential adverse effects of screening in any population.

## DISCUSSION

### Burden of Disease

Chlamydia and gonorrhea are the most commonly reported STIs in the United States (1). In 2012, more than 1.4 million cases of chlamydial infection were reported to the CDC (1). However, its true incidence is difficult to accurately estimate because most infections are asymptomatic and are therefore undetected. Chlamydial infections

are 10 times more prevalent than gonococcal infections (4.7% vs. 0.4%) in women aged 18 to 26 years (2). In 2012, the rate of chlamydial infection in females (643.3 cases per 100 000) was more than double the rate in males (262.6 cases per 100 000), with the majority of cases occurring in females aged 15 to 24 years (1).

In 2012, more than 330 000 cases of gonococcal infection were reported to the CDC (1). The majority of infections occurred in females aged 15 to 24 years and men aged 20 to 24 years. The infection rate was similar for females and males (108.7 vs. 105.8 cases per 100 000, respectively) (1).

### Scope of Review

The USPSTF commissioned a systematic review (7, 11) of studies published since it previously reviewed these topics (12–14). The USPSTF also considered evidence from its previous recommendations and reviews. Included studies had to be applicable to clinical settings and practices in the United States, as determined by the similarity of participants, health care services, and available screening tests. Conditions of interest included chlamydial and gonococcal infections in asymptomatic patients. The key questions are described in the systematic review (7, 11).

### Accuracy of Screening Tests

The USPSTF found convincing evidence that available screening tests can accurately diagnose chlamydial and gonococcal infections. Ten fair-quality studies on diagnostic accuracy (15–24) indicate that screening for chlamydia and gonorrhea with NAATs is highly accurate for specimens from various anatomical sites for women and men (7).

Sensitivity of NAAT specimens collected from genitourinary sites for detecting chlamydia ranged from 86% to 100% in studies without major limitations. In women, sensitivity of NAAT specimens varied slightly across endocervical specimens, clinician- or self-collected vaginal specimens, and urine specimens that were self-collected in clinical settings. In men, testing of urine specimens was slightly more sensitive than testing of urethral specimens. Sensitivity of NAATs for gonorrhea ranged from 90% to 100% in studies without major limitations. Specificity was high across all specimens and tests for both chlamydia and gonorrhea (7).

### Effectiveness of Early Detection and Treatment

Previous USPSTF reviews identified 2 randomized, controlled trials (RCTs) of the effectiveness of screening for chlamydia for the prevention of PID in nonpregnant women at increased risk for infection. In 1 large RCT, a strategy of identifying, testing, and treating women at increased risk for cervical chlamydial infection was associated with significantly reduced incidence of PID (relative risk [RR], 0.44 [95% CI, 0.20 to 0.90]) (25). Study limitations included a follow-up period of only 1 year, possible selection and ascertainment biases, and a relatively low participation rate. In another RCT, which was conducted in

1761 female high school students in Denmark, universal, 1-time, home-based screening was associated with a statistically significant reduction in the incidence of chlamydial infection (RR, 0.45 [CI, 0.24 to 0.84]) and a reduction in the incidence of PID that did not achieve statistical significance (RR, 0.50 [CI, 0.23 to 1.08]) compared with opportunistic physician-based screening after 1 year of follow-up (26). This study was rated as poor-quality because of significant loss to follow-up.

The current USPSTF review identified 1 good-quality RCT of 2529 sexually active young women recruited from universities and colleges in the United Kingdom (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 [CI, 0.14 to 1.08]) (7, 11). Study limitations included inadequate recruitment, testing for chlamydia outside the study protocol in nearly one quarter of participants, and difficulty in PID ascertainment. These limitations may have attenuated intervention effects, and the study may have been underpowered.

The USPSTF previously found fair-quality evidence that treatment of chlamydial infection during pregnancy is associated with improved outcomes for infants and mothers (28). The USPSTF reviewed large cohort studies of screening at the first prenatal visit in pregnant women at increased risk for infection (29, 30). These studies found that treatment of chlamydial infection was associated with significantly lower rates of preterm delivery, early rupture of membranes, and infants with low birthweight compared with no treatment or treatment failure. No subsequent studies met inclusion criteria for the current USPSTF review (7, 11).

The USPSTF found little direct evidence on the effectiveness of screening for chlamydia in men or low-risk women. It found that the overall prevalence of chlamydial infection in the general population varies widely depending on age and other risk factors (31). Chlamydial infection may cause epididymitis in men, but serious complications are not common. Screening and treating young men at increased risk may reduce the incidence of chlamydial infection; however, the USPSTF found no published prospective trials of the effect of routine screening in men or comparison with the strategy of screening women and treating their male partners (7, 11, 28, 32). The USPSTF found no studies on the benefits of screening women, including pregnant women, who are not at increased risk for infection. Decisions about screening women who are not at high risk on the basis of individual factors may depend on local disease burden.

The USPSTF found no studies of the effectiveness of screening for gonorrhea in its current or previous reviews (7). It previously found indirect evidence of the benefits of early detection and treatment, including the substantial prevalence of asymptomatic infection, the availability of accurate screening tests and effective treatments, and the 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 (34), which may lead to hospitalization, surgery, chronic pelvic pain, ectopic pregnancy, and infertility.

Although untested in controlled trials, early detection and treatment of gonorrhea in pregnant women at increased risk for infection may decrease morbidity from infection-related obstetric complications. The primary rationale for screening all pregnant women is prevention of ophthalmia neonatorum. However, the USPSTF recognizes the low prevalence of infection in pregnant women who are not at increased risk and the effectiveness of universal ocular prophylaxis in newborns. Accordingly, the USPSTF concluded that the net benefit of screening for gonorrhea in pregnant women who are not at increased risk for infection is small.

The USPSTF found little direct evidence on the effectiveness of screening for gonorrhea in men or low-risk women (7, 11, 29, 35). It previously found that screening for gonorrhea in all sexually active adults is inefficient because of its low prevalence in these groups (29, 35). Moreover, the majority of genital gonococcal infections in men are symptomatic, which can result in more timely clinical presentation and lead to diagnosis and treatment that prevents serious complications (36).

The USPSTF found no studies comparing the effectiveness of different screening strategies for chlamydia and gonorrhea in asymptomatic persons or the effectiveness of sampling from various anatomical sites, cotesting for concurrent STIs, or using different screening intervals (7).

### Potential Harms of Screening and Treatment

Ten fair-quality studies on diagnostic accuracy (described previously) (15–24) indicated that screening tests for chlamydia and gonorrhea had low rates of false-positive and false-negative results across all NAATs and specimen types. False-positive test results may occur more frequently among low-prevalence populations.

The current USPSTF review (7) identified several published studies that describe some of the psychosocial harms of testing (such as anxiety and strain on relationships). However, these studies did not meet inclusion criteria because they included symptomatic persons and focused on reactions to positive test results rather than screening. No studies addressing other harms (for example, labeling or screening-related anxiety) met inclusion criteria.

### Estimate of Magnitude of Net Benefit

The USPSTF found direct evidence that screening for chlamydia in women who are at increased risk for infection is associated with moderate benefit, including reduced incidence of PID in nonpregnant women and improved infant and maternal outcomes in pregnant women. The USPSTF noted the existence of shared risk factors for gonococcal and chlamydial infections as well as the avail-

ability of effective methods for their detection and treatment. On the basis of these factors, the USPSTF found indirect evidence of moderate benefit of screening for gonorrhea in women who are at increased risk for infection. The USPSTF found that screening for chlamydia and gonorrhea is associated with harms that are small to none. Therefore, it concludes with moderate certainty that screening for chlamydia and gonorrhea has a moderate net benefit in this population.

The USPSTF found inadequate evidence of the benefit of screening for chlamydia and gonorrhea in men, although the harms from screening are small to none. It concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for chlamydia and gonorrhea in men.

### How Does Evidence Fit With Biological Understanding?

Chlamydial and gonococcal infections are often asymptomatic in women. Untreated infections may progress to PID-related complications, such as chronic pelvic pain, ectopic pregnancy, or infertility. Infections may also be transmitted to sex partners and newborn children. Accurate screening tests and effective antibiotic treatments are available for chlamydia and gonorrhea.

In men, chlamydial and gonococcal infections are more likely to cause symptoms that lead to diagnosis and treatment, and serious complications are less common; also, gonorrhea is more likely than chlamydia to cause symptoms. In the absence of empirical evidence that screening in men reduces disease transmission to women, the USPSTF concludes that the benefits of screening in men are unknown.

### Response to Public Comments

A draft version of this recommendation statement was posted for public comment on the USPSTF Web site from 29 April to 26 May 2014. The USPSTF considered all comments received during this period. In response to comments, the USPSTF separated its recommendations on screening for chlamydia and gonorrhea, in recognition of differences in the diseases and the respective evidence. It clarified that the studies it reviewed on the direct effects of screening for chlamydia, including 1 new good-quality RCT, showed mixed results. This led to the change in grade for screening for chlamydia, which is now based on “moderate” certainty of a moderate net benefit rather than “high certainty” of a substantial net benefit. The USPSTF also clarified some of the differences between chlamydial and gonococcal infections in men and women. The revised recommendation statement also includes clarifications on risk assessment, screening tests, screening intervals, and treatments.

### UPDATE OF PREVIOUS USPSTF RECOMMENDATIONS

This recommendation updates the USPSTF’s previous recommendations on screening for chlamydia and gonor-

rhea. The totality of the current evidence met USPSTF criteria for moderate certainty of a moderate net benefit for screening for both infections.

In 2007, the USPSTF recommended screening for chlamydia in all sexually active females aged 24 years or younger and in older women who were at increased risk for infection. It recommended against screening for chlamydia in women aged 25 years or older who were not at increased risk. The USPSTF found insufficient evidence to assess the balance of benefits and harms of screening for chlamydia in men.

In 2005, the USPSTF recommended screening for gonorrhea in all sexually active women (including pregnant women) who were at increased risk for infection (that is, if they were young or had other individual or population risk factors). It found insufficient evidence to recommend for or against routine screening for gonorrhea in men who were at increased risk and in pregnant women who were not at increased risk. The USPSTF also recommended against routine screening for gonorrhea in men and women who were at low risk for infection.

## RECOMMENDATIONS OF OTHERS

The CDC recommends annual screening for chlamydia in all sexually active females aged 25 years or younger and in older women with specific risk factors (for example, those who have new or multiple sex partners and those reporting that their sex partner may have a concurrent sex partner), as well as screening for gonorrhea in sexually active females who are at increased risk for infection (such as those aged <25 years). The CDC does not recommend routine screening for chlamydia and gonorrhea in the general population. It recommends that clinicians consider screening for chlamydia in sexually active young men in high-prevalence settings (36).

The CDC recommends annual screening for chlamydia and gonorrhea in men who have sex with men, based on exposure history, with more frequent screening in populations at highest risk. The CDC recommends screening for chlamydia and gonorrhea upon intake in juvenile detention or jail facilities in females aged 35 years or younger. It also recommends screening for gonorrhea in high-risk pregnant women and for chlamydia in all pregnant women at the first prenatal visit. The CDC recommends retesting in the third trimester in pregnant women with continued risk for infection and in those who test positive at their first prenatal visit (36).

Because of the high likelihood of reinfection, the CDC also recommends retesting all patients diagnosed with chlamydial or gonococcal infections 3 months after treatment, regardless of whether they believe their partners have been treated.

The American Congress of Obstetricians and Gynecologists recommends screening for chlamydia and gonorrhea in sexually active females aged 25 years or younger

(37). It also recommends screening for chlamydia in women older than 25 years who have risk factors (such as new or multiple sex partners) and for gonorrhea in asymptomatic women who are at high risk for infection (such as those with a previous gonococcal infection, other STIs, or new or multiple sex partners, as well as inconsistent condom use, commercial sex work, or illicit drug use).

The American Academy of Pediatrics recommends routine annual screening for chlamydia and gonorrhea in all sexually active females aged 25 years or younger. It recommends routine annual screening for rectal and urethral chlamydia in sexually active adolescent and young adult males who have sex with males if they engage in receptive anal or insertive intercourse, respectively, and routine annual screening for pharyngeal, rectal, and urethral gonorrhea if they engage in receptive oral, anal, or insertive intercourse, respectively. It recommends screening every 3 to 6 months for persons in this population if they are at high risk (for example, if they have multiple or anonymous partners, sex in conjunction with illicit drug use, or sex partners who participate in these activities). It also recommends screening adolescents and young adults who have been exposed to chlamydia or gonorrhea in the past 60 days from an infected partner. Clinicians should consider annual screening for chlamydia in sexually active males in settings with high prevalence rates, such as jail or juvenile correction facilities, national job training programs, STD clinics, high school clinics, and adolescent clinics (for patients who have a history of multiple partners). Clinicians should consider annual screening for gonorrhea in other sexually active and young adult males on the basis of individual and population-based risk factors (38).

The American Academy of Family Physicians recommends screening for chlamydia and gonorrhea in sexually active females aged 24 years or younger and in older women who are at increased risk for infection (39). It concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for chlamydia and gonorrhea in men.

Canadian guidelines recommend screening for chlamydia in all sexually active males and females younger than 25 years and retesting at 6 months after treatment in infected patients. They also recommend screening for chlamydia and gonorrhea at the first prenatal visit and again in the third trimester in pregnant women who test positive or are at increased risk for infection (40).

From the U.S. Preventive Services Task Force, Rockville, Maryland.

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## APPENDIX: U.S. PREVENTIVE SERVICES TASK FORCE

Members of the U.S. Preventive Services Task Force at the time this recommendation was finalized† are Michael L. LeFevre, MD, MSPH, *Chair* (University of Missouri School of Medicine, Columbia, Missouri); Albert L. Siu, MD, MSPH, *Co-Vice Chair* (Mount Sinai School of Medicine, New York, and James J. Peters Veterans Affairs Medical Center, Bronx, New York); Kirsten Bibbins-Domingo, PhD, MD, *Co-Vice Chair* (University of California, San Francisco, San Francisco, California); Linda Ciofu Baumann, PhD, RN (University of Wisconsin, Madison, Wisconsin); Susan J. Curry, PhD (University of Iowa College of Public Health, Iowa City, Iowa); Karina W. Davidson, PhD, MASc (Columbia University, New York, New York); Mark Ebell, MD, MS (University of Georgia, Athens, Georgia); Francisco A.R. Garcia, MD, MPH (Pima County Department of

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† For a list of current Task Force members, go to [www.uspreventiveservicestaskforce.org/members.htm](http://www.uspreventiveservicestaskforce.org/members.htm).

**Appendix Table 1. What the USPSTF Grades Mean and Suggestions for Practice**

| Grade       | Definition   | Suggestions for Practice  |
|-------------|--|---|
| A           | The USPSTF recommends the service. There is high certainty that the net benefit is substantial.  | Offer/provide this service.   |
| B           | The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.  | Offer/provide this service.   |
| C           | The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small.                      | Offer/provide this service for selected patients depending on individual circumstances.   |
| D           | The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.  | Discourage the use of this service.   |
| I statement | The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined. | Read the Clinical Considerations section of the USPSTF Recommendation Statement. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms. |

**Appendix Table 2. USPSTF Levels of Certainty Regarding Net Benefit**

| Level of Certainty* | Description  |
|---------------------|--|
| High                | The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.   |
| Moderate            | The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by such factors as:<br>the number, size, or quality of individual studies;<br>inconsistency of findings across individual studies;<br>limited generalizability of findings to routine primary care practice; and<br>lack of coherence in the chain of evidence.<br>As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion. |
| Low                 | The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of:<br>the limited number or size of studies;<br>important flaws in study design or methods;<br>inconsistency of findings across individual studies;<br>gaps in the chain of evidence;<br>findings that are not generalizable to routine primary care practice; and<br>a lack of information on important health outcomes.<br>More information may allow an estimation of effects on health outcomes.  |

\* The USPSTF defines *certainty* as “likelihood that the USPSTF assessment of the net benefit of a preventive service is correct.” The net benefit is defined as benefit minus harm of the preventive service as implemented in a general primary care population. The USPSTF assigns a certainty level on the basis of the nature of the overall evidence available to assess the net benefit of a preventive service.