

EVIDENCE-STATEMENT:
SEXUALLY TRANSMITTED INFECTIONS
(Screening and Counseling)

Chlamydia (Screening)

Clinical Preventive Service Recommendations

U.S. Preventive Services Task Force Recommendation

The U.S. Preventive Services Task Force (USPSTF) strongly recommends that clinicians routinely screen all sexually active women aged 25 years and younger for chlamydia.¹ Other asymptomatic women at increased risk (e.g., prior history of a sexually transmitted disease, having cervical ectopy, having multiple or new sex partners, using barrier contraceptives inconsistently) should also be screened for chlamydial infection. However, the USPSTF suggests clinicians consider the characteristics of the communities they serve, particularly prevalence information, in determining appropriate screening strategies.

Evidence Rating: A (Strongly Recommended/ Good Evidence)

The USPSTF found good evidence that screening women at risk for chlamydial infection reduces the incidence of pelvic inflammatory disease (PID) and fair evidence that community-based screening reduces prevalence of chlamydial infection. The USPSTF concluded that the benefits of screening substantially outweigh the potential harms, such as adverse effects of a false-positive or false-negative diagnoses on patients and their partners, and adverse reactions to antibiotic treatment.¹

CDC Recommendation

CDC also recommends screening all sexually active women aged 25 years and younger and older women with risk factors (e.g., those who have a new sex partner or multiple sex partners).² All pregnant women should be routinely tested at the first prenatal visit. Pregnant women aged 25 years and younger and those at increased risk should be re-tested during the third trimester to prevent maternal postnatal complications and chlamydial infection in the infant.²

Evidence Rating:

Not Specified

Information Sources

The recommendations and supporting information contained in this document came from several sources, including the:

- Centers for Disease Control and Prevention (CDC)
- Peer-reviewed research
- U.S. Preventive Services Task Force (USPSTF)

The background and supporting information contained in this document is a compilation of research findings. All information presented in this document should be attributed to its referenced source and should not be considered a reflection of other organizations cited in the text.

Condition/Disease Specific Information

Epidemiology of Condition/Disease

Chlamydia is the most commonly reported bacterial STI in the United States. In 2004, 930,000 cases of chlamydia were reported by state health departments in the United States; a 5% increase compared to 2003.³ If untreated, chlamydia can result in significant complications in both men and women.

Among women, 20% to 40% of cases of untreated chlamydia infection may progress to pelvic inflammatory disease (PID), a serious condition resulting in chronic pelvic pain, an increased risk of ectopic pregnancy due to scarring of the fallopian tubes, and infertility.⁴ Approximately 8% of U.S. women are diagnosed with PID in their lifetime, and over 1 million women are treated for PID each year.⁵ Among pregnant women, there is some evidence that chlamydial infection increases the risk of pregnancy complications including premature rupture of the membranes, pre-term delivery, low-birth-weight infants, and postpartum endometritis. A chlamydial infection can be transmitted to an infant by an infected mother during labor and delivery and may cause neonatal conjunctivitis (a severe eye infection) and/or pneumonia.

In men, untreated chlamydia infection can lead to urethritis or acute epididymitis, which can result in infertility, chronic prostatitis, reactive arthritis, and problems with the urethra.⁶

Infection with chlamydia increases both men and women's susceptibility to HIV.

**Condition/Disease
Risk Factors**

Adolescents (of both sexes) and women under the age of 20 are at the highest risk for chlamydial infection; the highest reported rates occur in girls aged 15 to 19 years.⁷ Chlamydial infections are also prevalent among women aged 20 to 25 years.⁶ The prevalence of chlamydia is also higher among African-American populations and among individuals who are unmarried, have a prior history of STIs, have multiple sexual partners, suffer from cervical ectopy, and/or who use barrier contraceptives incorrectly or inconsistently.⁶

Value of Prevention

**Economic Burden of
Condition/Disease**

The most recent estimate of the annual cost of chlamydial infection and its sequelae is \$460 million.⁸ The *lifetime* medical cost of chlamydia has been estimated at \$20 per case for men and \$244 per case for women (in year 2000 dollars).⁸

Up to 40% of untreated and 6% of treated cases of acute chlamydia may progress to pelvic inflammatory disease (PID), a serious condition that is expensive to treat. It is estimated that treatment for a single case of PID costs between \$1,060 and \$3,626.⁹ A conservative estimate of \$1,334, based on a national insurance claims dataset, was reported as the cost per case of PID in year 2000 dollars.⁹

**Workplace Burden of
Condition/Disease**

The reproductive and other health problems of chlamydia impose a significant cost to employers by way of health and disability insurance costs. The lifetime productivity losses for young working-age adults suffering from the long-term health effects of chlamydial infection are high. An untreated case of chlamydia is estimated to result in \$130 in lost productivity costs and an acute case of PID is estimated to result in \$632 in lost productivity costs (in year 2001 dollars).¹⁰

<p>Economic Benefit of Preventive Intervention</p>	<p>Because screening allows for the early recognition of disease and subsequently an earlier initiation of treatment, it can prevent the costly complications of late-stage disease such as PID and infertility.</p>
<p>Estimated Cost of Preventive Intervention</p>	<p>In 2004, the private-sector cost of chlamydia screening averaged \$42; approximately 95% of all paid claims fell within the range of \$0 to \$87.¹¹</p>
<p>Estimated Cost of Treatment</p>	<p>The estimated direct cost (including office visits, diagnostic testing, and medication) of acute care ranges from \$23 to \$109 per case.⁸</p>
<p>Cost-Effectiveness and/or Cost-Benefit Analysis of Preventive Intervention</p>	<p>Annual screening among women 15 to 29 years of age followed by semiannual screening for those with a history of infection was estimated to cost less than \$25,000 per quality-adjusted life year (QALY) compared with the annual screening only.¹²</p> <p>A review of 10 cost-effectiveness studies found that screening was more cost-effective than simply testing symptomatic women. The models showed that in some instances, screening was cost-saving (compared to testing symptomatic women) even at prevalence rates as low 1.1%.¹⁰</p>

Preventive Intervention Information

<p>Preventive Intervention: Purpose of Screening</p>	<p>Screening for chlamydia allows clinicians to identify affected patients and begin treatment earlier in the course of disease, thereby improving outcomes and avoiding the health and economic consequences of latent disease such as PID and infertility. In fact, a recent well-designed randomized trial demonstrated that screening women at risk for chlamydia reduces the incidence of PID by 50%.¹³</p> <p>Routine screening for chlamydia is especially important because of its asymptomatic nature. It is estimated that 70% to 90% of women (and a substantial percentage of men) with chlamydia do not have symptoms.⁶</p>
<p>Benefits and Risks of Intervention</p>	<p>Few studies have documented the risks associated with screening for chlamydia. Potential risks include partner discord, stigma, and side effects of treatment. As with all types of screening, the risk of false-positive results may cause undue anxiety or unnecessary treatment. The benefits of screening for chlamydia substantially outweigh the harms. Screening allows for early recognition and treatment, reducing complications and long-term effects. Screening programs can lead to reduced person-to-person transmission of infection and can substantially lower infection rates at the population level; states implementing new screening programs have reported up to a 67% decrease in new chlamydial infection rates.⁷ Reducing the rate of chlamydia within a population has substantial positive health effects including lower rates of PID.</p>
<p>Initiation, Cessation, and Interval of Screening</p>	<p>Average-risk women should be screened annually from the onset of sexual activity through age 25. Women with known risk factors and women who have experienced a previous infection should continue screening beyond the age of 25,</p>

as medically indicated. Re-screening at 6 to 12 months may be appropriate for previously infected women because of high rates of reinfection.⁶

Asymptomatic sex partners of individuals infected with chlamydia should also be screened.

The optimal time for screening during pregnancy is unknown. Screening for chlamydia early in pregnancy offers greater opportunities in reducing the risk of low birth weight and premature delivery. However, screening during the third trimester is thought to be more effective in preventing transmission to the infant during labor and delivery.

Intervention Process

Several effective methods of screening for chlamydia are currently available⁶:

- Nucleic acid amplification tests (NAAT) such as polymerase chain reaction (PCR), strand displacement assay (SDA), and transcription-mediated amplification (TMA) on endocervical/urethral or urine specimens.
- Non-amplified nucleic acid hybridization tests on endocervical specimens.
- Culture analysis of an endocervical or urethral swab.
- Antigen detection tests such as direct fluorescent antibody (DFA) assay and enzyme immunoassay (EIA) on endocervical specimens.
- Point-of-care antigen detection tests on endocervical specimens and leukocyte esterase on urine.
- Culture of swab specimens from exposed sites urethra (male), endocervix, throat, or rectum (male).

Treatment Information

Health benefits should include provisions for diagnostic and treatment services. Treatment, usually a 7-day course of oral antibiotics or a single dose of azithromycin, is easy, inexpensive, and noninvasive. Side effects of treatment (gastrointestinal distress, nausea) occur infrequently. Moreover, treatment is highly effective (97% of nonpregnant women and men treated for chlamydia are cured).⁶

Strength of Evidence for the Clinical Preventive Service

The level of evidence supporting the recommendation in this section is described below.

Evidence-Based Research:

U.S. Preventive Services Task Force (USPSTF)

Strength of Evidence: A (Strongly Recommended/Good Evidence)

- The USPSTF found good evidence to support routine screening of all sexually active women age 25 years and younger and other asymptomatic women at increased risk for infection.¹

Centers for Disease Control and Prevention (CDC)

Strength of Evidence: Not Specified

- CDC recommends screening all sexually active women aged 25 years and

younger and older women with risk factors (e.g., those who have a new sex partner or multiple sex partners).² All pregnant women should be routinely tested at the first prenatal visit. Pregnant women aged 25 years and younger and those at increased risk should be re-tested during the third trimester to prevent maternal postnatal complications and chlamydial infection in the infant.²

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Campbell KP, Lentine D. Sexually transmitted infections (STIs) evidence-statement: screening and counseling. In: Campbell KP, Lanza A, Dixon R, Chattopadhyay S, Molinari N, Finch RA, editors. *A Purchaser's Guide to Clinical Preventive Services: Moving Science into Coverage*. Washington, DC: National Business Group on Health; 2006.

References:**Chlamydia (Screening)**

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