USPSTF Recommendations for STI Screening

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Since 2000, the U.S. Preventive Services Task Force (USPSTF) has issued eight clinical recommendation statements on screening for sexually transmitted infections. This article, written on behalf of the USPSTF, is an overview of these recommendations. The USPSTF recommends that women at increased risk of infection be screened for chlamydia, gonorrhea, human immunodeficiency virus, and syphilis. Men at increased risk should be screened for human immunodeficiency virus and syphilis. All pregnant women should be screened for hepatitis B, human immunodeficiency virus, and syphilis; pregnant women at increased risk also should be screened for chlamydia and gonorrhea. Nonpregnant women and men not at increased risk do not require routine screening for sexually transmitted infections. Engaging in high-risk sexual behavior places persons at increased risk of sexually transmitted infections. The USPSTF recommends that all sexually active women younger than 25 years be considered at increased risk of chlamydia and gonorrhea. Because not all communities present equal risk of sexually transmitted infections, the USPSTF encourages physicians to consider expanding or limiting the routine sexually transmitted infection screening they provide based on the community and populations they serve. *(Am Fam Physician.* **2008;77(6):819-824.**

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Sexually transmitted infections (STIs) cause significant morbidity and mortality in the United States each year. The Centers for Disease Control and Prevention (CDC) estimates that 19 million new infections occur annually in the United States, almost one half of which occur in persons 15 to 24 years of age.[1] This includes an estimated 2.8 million new chlamydia infections and 1.6 million new genital herpes infections.[1] Other prevalent STIs include gonorrhea, hepatitis B and C, human immunodeficiency virus (HIV), human papillomavirus (HPV), and syphilis.

USPSTF Recommendations

Since 2000, the U.S. Preventive Services Task Force (USPSTF) has published eight clinical recommendation statements for STI screening, each based on a systematic review *(Table 1)*.[2-9] The USPSTF assigns a grade (A, B, C, D, or I; *Table 2*[2,10]) to each recommendation that reflects the certainty of the evidence and the magnitude of net benefits (i.e., benefits minus harms). USPSTF evidence reports and recommendation statements are available at http://www.preventiveservices.ahrq.gov.

Rather than considering each recommendation separately, physicians can cluster STI screening at the time of a periodic health examination. The USPSTF recommendations are directed toward three populations: nonpregnant women, pregnant women, and men. For each of these groups, physicians need to consider what risk factors, both behavioral and demographic, place individual patients at increased risk of infection.

Nonpregnant Women

For nonpregnant women, physicians should consider two main factors to determine if a patient has an increased risk of STIs: high-risk sexual behavior and age. The USPSTF recommends chlamydia, gonorrhea, HIV, and syphilis screening for women who engage in high-risk sexual behavior (e.g., having multiple current partners, having a new partner, using condoms inconsistently, having sex while under the influence of alcohol or drugs, having sex in exchange for money or drugs).[2-5]

The USPSTF further recommends chlamydia and gonorrhea screening for all sexually active women younger than 25 years

SORT: KEY RECOMMENDATIONS FOR PRACTICE

Clinical recommendation	*Evidence rating*	*References*
Screen sexually active, nonpregnant women at increased risk for chlamydia, gonorrhea, HIV, and syphilis infection.	A	2-5
Screen all pregnant women for hepatitis B, HIV, and syphilis; additionally, screen all pregnant women at increased risk for chlamydia and gonorrhea infection.	A	2-6
Screen sexually active men at increased risk for HIV and syphilis infection.	A	4, 5
Do not routinely screen women and men who are not at increased risk for sexually transmitted infections.	A	2-9

NOTE: *These recommendations are based on USPSTF systematic reviews of the evidence; however, SORT evidence ratings are different than those used in the USPSTF grading system.*

HIV = human immunodeficiency virus; USPSTF = U.S. Preventive Services Task Force.

A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, see page 739 or http://www.aafp.org/afpsort.xml.

(including adolescents), even if they are not engaging in high-risk sexual behaviors.[2,3] Younger women have a higher risk of gonorrhea and chlamydia infection than older women; this is because younger women may have more new sex partners and because of the relative immaturity of their immune systems and the presence of columnar epithelium on the adolescent exocervix.[11]

The USPSTF does not recommend STI screening for women 25 years and older who do not engage in high-risk sexual behavior.[2-8] After reviewing the evidence, the USPSTF noted that some women who do not engage in high-risk sexual behavior may benefit from screening for chlamydia and HIV.[2,5] It was concluded, however, that because of the low prevalence of infection in the

Table 1. USPSTF Recommendation Grades for STI Screening

	Nonpregnant women		*Pregnant women*		*Men*	
STI	*Not at increased risk*	*At increased risk**	*Not at increased risk*	*At increased risk**	*Not at increased risk*	*At increased risk†*
Chlamydia[2]	C	**A**	C	**B**	I	I
Gonorrhea[3]	D	**B**	I	**B**	D	I
Syphilis[4]	D	**A**	**A**	**A**	D	**A**
HIV[5]	C	**A**	**A**	**A**	C	**A**
Hepatitis B[6]	D	D	**A**	**A**	D	D
Hepatitis C[7]	D	I	—	—	D	I
HSV[8]	D	D	D	D	D	D
HPV[9]‡	I	I	—	—	—	—

NOTE: *Recommendations for chlamydia screening use new USPSTF language* (Table 2); *all other STI screening recommendations use former language (http://www.ahrq.gov/clinic/3rduspstf/ratings.htm); if no grade is given, no USPSTF recommendation is available.*

USPSTF = U.S. Preventive Services Task Force; STI = sexually transmitted infection; HIV = human immunodeficiency virus; HSV = herpes simplex virus; HPV = human papillomavirus.

**—Increased risk for pregnant and nonpregnant women is defined as high-risk sexual behavior for all STIs; as age younger than 25 years for chlamydia and gonorrhea; and as high community prevalence for chlamydia, gonorrhea, and syphilis.*
†—Increased risk for men is defined as high-risk sexual behavior for all STIs and as high community prevalence for syphilis.
‡—No treatment available; currently used to stratify risk of cervical neoplasia.

Information from references 2 through 9.

Table 2. Definitions of USPSTF Recommendation Grades

Grade	*Definition*	*Suggestions for practice*
A	The USPSTF recommends the service; there is high certainty that the net benefit (i.e., benefits minus harms) 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 against routinely providing the service; there may be considerations that support providing the service in an individual patient; there is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits	Offer/provide this service only if there are other considerations in support of offering/providing the service in an individual patient
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	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	If offered, patients should understand the uncertainty about the balance of benefits and harms

NOTE: *The USPSTF defines certainty as the "likelihood that the USPSTF assessment of the net benefit of a preventive service is correct."*

USPSTF = U.S. Preventive Services Task Force.

Adapted with permission from Screening for chlamydial infection: U.S. Preventive Services Task Force recommendation statement. Ann Intern Med. *2007;147(2):128-134, with additional information from reference 10.*

overall population, the net benefits of chlamydia and HIV screening do not justify routine screening in all women. The USPSTF explicitly recommends against screening asymptomatic women for hepatitis B and herpes simplex virus (HSV).[6,8] Although screening can identify women with these infections, there is no evidence that treating an asymptomatic patient improves long-term health outcomes.

Pregnant Women

In general, physicians should determine a pregnant woman's risk status using the same factors that determine a nonpregnant woman's risk status (i.e., high-risk sexual behavior and age). Because of the implications of treatment for the newborn, the USPSTF recommends that all pregnant women be screened for hepatitis B, HIV, and syphilis.[4-6] Also, the USPSTF recommends that pregnant women younger than 25 years and those engaging in high-risk sexual behaviors also be screened for chlamydia and gonorrhea.[2,3] Although the USPSTF does not recommend routine screening for chlamydia in pregnant women not at increased risk, it notes that individual circumstances may support screening.[2] The USPSTF has made no recommendation about screening for gonorrhea in pregnant women who are not at increased risk, noting there is insufficient evidence to recommend for or against it.[3]

Men

The USPSTF does not recommend STI screening for men who are not at increased risk.[2-8] The USPSTF recommends HIV and syphilis screening for men engaging in high-risk sexual behavior.[4,5] Additionally, because of significant geographic and community variation, physicians should consider the risk in the community and populations they serve when making decisions about screening men for syphilis.[4]

In men, as in women, it is important that physicians take a thorough sexual history to assess if the patient engages in high-risk sexual behavior. In men who have sex with men, it is important to focus on high-risk sexual behavior and not on sexual orientation.

Demographic Risk Factors

Physicians should consider the demographics of the populations they serve in determining which STI screening tests to offer. In addition to evaluating a patient's modifiable behaviors, physicians should consider the patient's nonmodifiable demographics and social situation.

All communities do not present the same infection risk. In the United States, syphilis and gonorrhea have widely varying prevalence rates. Southern states and many urban centers have higher rates of STIs.[12,13] Even within communities, there is often variability in STI prevalence. This is partially caused by social network and socioeconomic influences (e.g., effects of poverty and discrimination).

The USPSTF recommends that physicians be aware that in some communities black and Hispanic men and women (including pregnant women) may be at increased risk of chlamydia, gonorrhea, and syphilis, irrespective of age or sexual behaviors, and may need to be screened.[2-4] When used in this way, race and ethnicity serve as surrogate markers for the underlying social factors that increase STI risk.[14]

Research has documented that many social-contextual factors contribute to varying STI prevalence rates within communities. Through a variety of direct and indirect mechanisms, factors in a community (e.g., poverty, discrimination, illicit drug use, male-to-female ratio, incarceration rate, racial segregation) influence sexual behaviors and networks, subsequently affecting the spread of infection. The concepts of social capital (e.g., trust, reciprocity, group membership) and the effect of social groups with common goals may be more predictive of STI risk than more traditional factors such as poverty and income inequalities.[14]

When considering screening for STIs, physicians should consult with local public health officials, if possible; and should use national, regional, state, and local epidemiologic data to tailor screening programs based on the community and populations served.

Age and Periodicity of Screening

The USPSTF is not able to make an evidence-based recommendation about a specific age at which STI screening should begin. Age at first sexual encounter varies among populations and communities. The USPSTF uses epidemiologic data and data on the prevalence of risk behaviors to provide clinical guidance about what age to begin screening. Persons as young as 12 years may be having sexual intercourse, and the possibility of STIs and high-risk behavior should be considered in all adolescents when making screening decisions.

There is no evidence to support stopping screening at a specific age. Persons continue to be at risk of acquiring an STI if exposed to a pathogen, regardless of age; however, the clinical implications of untreated asymptomatic infections (e.g., infertility, ectopic pregnancy) are different in women of postreproductive age. For sexually active women who are at increased risk only because of demographic reasons (e.g., race, ethnicity, geographic location), the optimal age to end screening is not known. In the absence of direct evidence, it seems reasonable for physicians to consider stopping routine screening at menopause or at 55 years of age.

Similar to many other screening categories, little evidence is available to guide decision making about the periodicity of STI screening. Yearly screening for chlamydia in young women has been adopted as a pragmatic approach in the face of insufficient evidence.

Recommendations From Other Professional Groups

Almost all USPSTF recommendations on STI screening agree with CDC recommendations. Occasionally, recommendations from the two groups differ, primarily because of differences in mission and target audience. Although the CDC and the USPSTF strive to provide guidance in promoting health and preventing disease, the USPSTF focuses on the clinical setting and the CDC focuses on the public health arena. Other factors that may lead to differences between USPSTF and CDC recommendations include different methods used for evidence review and different emphases on the harms of screening.

The methodology of the USPSTF relies on evidence that screening improves important, specified health outcomes. Using this methodology, the USPSTF recommends that all adolescents and adults at increased risk of HIV infection and all pregnant women be screened for HIV, but it does not recommend for or against screening adults not at increased risk.[5] In 2006, the CDC generated revised recommendations for HIV screening, which agreed with the USPSTF recommendation that all pregnant women should be screened. However, the CDC went further by recommending that all persons 13 to 64 years of age be screened, regardless of risk status.[15]

The CDC largely based its HIV screening recommendations on the potential benefit of preventing secondary HIV transmission if knowledge of seropositive status leads to a reduction of risky behavior. The USPSTF found that the evidence the CDC reviewed for reduced secondary transmission was not convincing.[5,15]

Although the USPSTF has not found evidence to support specific screening recommendations for men who have sex with men, based on the overall high STI prevalence rates in this population, the CDC currently recommends routine screening for HIV, syphilis, chlamydia, and gonorrhea.[16]

Other professional organizations' screening recommendations also may differ from the USPSTF. This may be because of different methodology for evidence reviews; the use of experts with vested interests (professional or economic) in the content area; and, most importantly, a desire to meet members' needs for clinical guidance in the face of limited evidence or resources. Currently, there is general agreement about STI screening among the USPSTF, CDC, American Academy of Family Physicians, American Academy of Pediatrics, and American College of Obstetricians and Gynecologists *(Tables 3 and 4)*.[2-9,15-25]

Table 3. Comparison of STI Screening Recommendations for Sexually Active Nonpregnant Women

STI	*USPSTF*[2-9]	*CDC*[15-19]	*AAFP*[20]	*ACOG*[21-25]
Chlamydia	Screen women younger than 25 years and others at increased risk	Screen women 25 years and younger and others at increased risk	Screen women 25 years and younger and others at increased risk	Screen women 25 years and younger and others at increased risk
Gonorrhea	Screen women younger than 25 years and others at increased risk	Screen women at increased risk	Screen women younger than 25 years and others at increased risk	Screen adolescents and others at increased risk
Syphilis	Screen women at increased risk	Screen women exposed to syphilis	Screen women at increased risk	Screen women at increased risk
HIV	Screen women at increased risk	Screen all	Screen women at increased risk	Screen women at increased risk
Hepatitis B	Do not screen general population	Provide prevaccination screening for women at increased risk	Do not screen general population	No specific recommendation
Hepatitis C	Do not screen general population; insufficient evidence to recommend for or against screening women at increased risk	Screen women at increased risk	Do not screen general population; insufficient evidence to recommend for or against screening women at increased risk	Screen women at increased risk
HSV	Do not screen	Do not screen general population	Do not screen	Screen if sexual partner has HSV
HPV*	Insufficient evidence to use as primary screening test for cervical cancer	Do not screen for subclinical infection	Insufficient evidence to use as primary screening test for cervical cancer	Testing with a Pap smear is an option for women older than 30 years

STI = sexually transmitted infection; USPSTF = U.S. Preventive Services Task Force; CDC = Centers for Disease Control and Prevention; AAFP = American Academy of Family Physicians; ACOG = American College of Obstetricians and Gynecologists; HIV = human immunodeficiency virus; HSV = herpes simplex virus; HPV = human papillomavirus; Pap = Papanicolaou.

**—No treatment available; currently used to stratify risk of cervical neoplasia.*

Information from references 2 through 9 and 15 through 25.

Table 4. Comparison of STI Screening Recommendations for Pregnant Women

STI	*USPSTF*[2-9]	*CDC*[15-19]	*AAFP*[20]	*ACOG*[21-25]
Chlamydia	Screen women younger than 25 years and others at increased risk	Screen all	Screen women 25 years and younger and others at increased risk	Screen women at increased risk
Gonorrhea	Screen women younger than 25 years and others at increased risk	Screen women at increased risk	Screen women at increased risk	Screen women at increased risk
Syphilis	Screen all	Screen all	Screen all	Screen all
HIV	Screen all	Screen all	Screen all	Screen all
Hepatitis B	Screen all	Screen all	Screen all	Screen all
Hepatitis C	No specific recommendation	Screen women at increased risk	No specific recommendation	Screen women at increased risk
HSV	Do not screen	No specific recommendation	Do not screen	No specific recommendation
HPV*	No specific recommendation	No specific recommendation	No specific recommendation	No specific recommendation

STI = sexually transmitted infection; USPSTF = U.S. Preventive Services Task Force; CDC = Centers for Disease Control and Prevention; AAFP = American Academy of Family Physicians; ACOG = American College of Obstetricians and Gynecologists; HIV = human immunodeficiency virus; HSV = herpes simplex virus; HPV = human papillomavirus.

**—No treatment available; currently used to stratify patients as to risk of cervical neoplasia.*

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REFERENCES

1. Weinstock H. Berman S, Cates W Jr. Sexually transmitted diseases among American youth: incidence and prevalence estimates, 2000. *Perspect Sex Reprod Health*. 2004;36(1):6-10.
2. Screening for chlamydial infection: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med.* 2007;147(2):128-134.
3. U.S. Preventive Services Task Force. Screening for gonorrhea: recommendation statement. *Ann Fam Med.* 2005;3(3):263-267.
4. Calonge N, for the U.S. Preventive Services Task Force. Screening for syphilis infection: recommendation statement [published correction appears in *Ann Fam Med.* 2004;2(5):517]. *Ann Fam Med.* 2004;2(4):362-365.
5. U.S. Preventive Services Task Force. Screening for HIV: recommendation statement. *Ann Intern Med.* 2005;143(1):32-37.
6. U.S. Preventive Services Task Force. Screening for hepatitis B virus infection: recommendation statement. http://www.ahrq.gov/clinic/3rduspstf/hepbscr/hepbrs.htm. Accessed June 21, 2007.
7. U.S. Preventive Services Task Force. Screening for hepatitis C virus infection in adults: recommendation statement. *Ann Intern Med.* 2004;140(6):462-464.
8. U.S. Preventive Services Task Force. Screening for genital herpes: recommendation statement. http://www.ahrq.gov/clinic/uspstf05/herpes/herpesrs.htm. Accessed June 21, 2007.
9. U.S. Preventive Services Task Force. Screening for cervical cancer: recommendations and rationale. http://www.ahrq.gov/clinic/3rduspstf/cervcan/cervcanrr.htm. Accessed June 21, 2007.
10. Barton MB, Miller T, Wolff T, et al., for the U.S. Preventive Services Task Force. How to read the new recommendation statement: methods update from the U.S. Preventive Services Task Force. *Ann Intern Med.* 2007;147(2):123-127.
11. Hwang L, Shafer MA. *Chlamydia trachomatis* infection in adolescents. *Adv Pediatr.* 2004;51:379-407.
12. Centers for Disease Control and Prevention. Sexually transmitted disease surveillance 2005 supplement. Gonococcal Isolate Surveillance Project (GISP) annual report 2005. http://www.cdc.gov/std/GISP2005. Accessed June 11, 2007.
13. Centers for Disease Control and Prevention. Sexually transmitted disease surveillance 2005 supplement. Syphilis surveillance report. http://www.cdc.gov/std/Syphilis2005. Accessed June 11, 2007.
14. Holtgrave DR, Crosby RA. Social capital, poverty, and income inequality as predictors of gonorrhoea, syphilis, chlamydia and AIDS case rates in the United States. *Sex Transm Infect.* 2003;(1)79:62-64.
15. Branson BM, Handsfield HH, Lampe MA, et al., for the Centers for Disease Control and Prevention (CDC). Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. *MMWR Recomm Rep.* 2006;55(RR-14):1-17.
16. Workowski KA, Berman SM, for the Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines, 2006 [published correction appears in *MMWR Recomm Rep.* 2006;55(36):997]. *MMWR Recomm Rep.* 2006;55(RR-11):1-94.
17. Centers for Disease Control and Prevention. Recommendations for prevention and control of hepatitis C virus (HCV) infection and HCV-related chronic disease. *MMWR Recomm Rep.* 1998;47(RR-19):1-39.
18. Johnson RE, Newhall WJ, Papp JR, et al. Screening tests to detect *Chlamydia trachomatis* and *Neisseria gonorrhoeae* infections—2002. *MMWR Recomm Rep.* 2002;51(RR-15):1-38.
19. Mast EE, Margolis HS, Fiore AE, et al., for the Advisory Committee on Immunization Practices (ACIP). A comprehensive immunization strategy to eliminate transmission of hepatitis B virus infection in the United States: recommendations of the Advisory Committee on Immunization Practices (ACIP) part 1: immunization of infants, children, and adolescents [published correction appears in *MMWR Morb Mortal Wkly Rep.* 2006;55(6):158-159]. *MMWR Recomm Rep.* 2005;54(RR-16):1-31.
20. American Academy of Family Physicians. Summary of recommendations for clinical preventive services. http://www.aafp.org/online/en/home/clinical/exam.html.
21. American College of Obstetricians and Gynecologists. ACOG Committee Opinion. Primary and preventive care: periodic assessments. *Obstet Gynecol.* 2003;102(5 pt 1):1117-1124.
22. American College of Obstetricians and Gynecologists. Cervical cytology screening. ACOG Practice Bulletin No. 45, August 2003. *Int J Gynaecol Obstet.* 2003;83(2):237-247.
23. ACOG Committee on Practice Bulletins—Gynecology. Gynecologic herpes simplex virus infections. ACOG Practice Bulletin No. 57, November 2004. Clinical management guidelines for obstetrician-gynecologists. *Obstet Gynecol.* 2004;104(5 pt 1):1111-1118.
24. American College of Obstetricians and Gynecologists. Human papillomavirus. ACOG Practice Bulletin No. 61, April 2005. Clinical management guidelines for obstetrician-gynecologists. *Obstet Gynecol.* 2005;105(4):905-918.
25. *Guidelines for Perinatal Care.* 5th ed. Washington, DC: American Academy of Pediatrics, American College of Obstetricians and Gynecologists; 2002.