

COUNSELING FOR SEXUALLY TRANSMITTED INFECTIONS
WOMEN'S PREVENTIVE SERVICES INITIATIVE EVIDENCE UPDATE

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CURRENT WPSI RECOMMENDATIONS

Clinical Recommendation (2016)

The Women's Preventive Services Initiative recommends directed behavioral counseling by a health care provider or other appropriately trained individual for sexually active adolescent and adult women at an increased risk for sexually transmitted infections (STIs).

The Women's Preventive Services Initiative recommends that health care providers use a woman's sexual history and risk factors to help identify those at an increased risk of STIs. Risk factors may include age younger than 25, a recent history of an STI, a new sex partner, multiple partners, a partner with concurrent partners, a partner with an STI, and a lack of or inconsistent condom use. For adolescents and women not identified as high risk, counseling to reduce the risk of STIs should be considered, as determined by clinical judgement.

Implementation Considerations

The Women's Preventive Services Initiative recommends as preventive service for women at increased risk for STIs, directed behavioral counseling that includes, but is not limited to, longer duration or multiple counseling sessions, motivational interviewing techniques, and goal setting.

The Women's Preventive Services Initiative recommends as a preventive service, STI counseling regardless of whether or not STI screening takes place during the same visit and regardless of the type of sexual activity or the partners' gender.

EVIDENCE SUMMARY

New Evidence

New evidence published since the previous WPSI recommendation is summarized in **Table 1**.

Table 1. New Evidence since the 2016 WPSI Recommendation

Behavioral counseling by a health care provider or other appropriately trained individual for sexually active adolescent and adult women at increased risk for sexually transmitted infections (STIs).	
Systematic Reviews	Additional Studies
2020 USPSTF review of 39 trials ¹ : Behavioral counseling interventions are associated with reduced incidence of STI. Intensive counseling is most effective for promoting safer sexual practices and reducing STIs, although less intense approaches are also effective in some studies.	No additional studies identified.

Abbreviations: RCT = randomized controlled trial; STI = sexually transmitted infection; USPSTF = U.S. Preventive Services Task Force

Introduction

Sexually transmitted infections (STIs) are a broad category of infectious diseases that are transmitted primarily through sexual activity including chlamydial and gonococcal infections, hepatitis B, genital herpes, human immunodeficiency virus (HIV), and syphilis. Counseling to prevent STIs includes interventions that may influence behavior to reduce the likelihood of an individual acquiring an STI. Interventions range in intensity, delivery, structure, and content, though the focus of this discussion is on interventions that can be delivered by clinicians in health care settings.

Current Recommendations and Coverage of Services

In 2016, the WPSI recommended directed behavioral counseling by a health care provider or other appropriately trained individual for sexually active adolescent and adult women at increased risk for STIs. The WPSI specified annual counseling, which is currently covered under the Patient Protection and Affordable Health Care Act of 2010 (ACA). In 2020, the U.S. Preventive Services Task Force (USPSTF) updated its recommendation for counseling for STIs and is similar to the WPSI recommendation (**Table 2**). However, the USPSTF recommendation does not specify the frequency or interval of counseling.

Table 2. Summary of Recommendations Currently Covered under the Affordable Care Act

WPSI	Behavioral counseling for sexually active adolescent and adult women at increased risk for STIs; counseling for those not at risk per clinical judgement. HIV counseling is included under a separate recommendation for HIV screening.
USPSTF ²	Behavioral counseling for all sexually active adolescents and adults at increased risk for STIs (B recommendation, 2020). All sexually active adolescents are at increased risk because of high rates of STIs in this age group. Adults at increased risk include those who currently have an STI or were diagnosed with one within the past year, do not consistently use condoms, have multiple sex partners, or have sex partners within populations with a high prevalence of STIs.
Bright Futures ³	Risk reduction for STI should be discussed in adolescent visits as part of routine health supervision. Anticipatory guidance should include discussions about sexuality and healthy sexual development and provide an opportunity for risk screening, health promotion, counseling, and sex education

Abbreviations: HIV = human immunodeficiency virus; STIs = sexually transmitted infection; USPSTF = U.S. Preventive Services Task Force

Several additional professional organizations have also issued practice recommendations regarding counseling for STI prevention (**Table 3**).

Table 3. Recommendations of Professional Organizations

American College of Obstetricians and Gynecologists (ACOG) ⁴⁻⁶	<i>Endorses WPSI recommendation.</i> STIs should be discussed at the initial reproductive health visit for adolescent patients and when patients transition from pediatric to adult health care. The annual well-woman visit is an opportunity to counsel women about STI risk and provide information on risk reduction strategies, as well as screening and immunizations for STIs based on age and risk factors.
Centers for Disease Control and Prevention (CDC) ⁷	All providers should routinely obtain sexual histories from their patients and encourage risk reduction strategies through prevention counseling. Prevention counseling should be provided to all sexually active adolescents and adults with a STD diagnosis, a history of a STD in the past year, or those with multiple sex partners.
American Academy of Family Physicians (AAFP) ⁸	<i>Endorses USPSTF recommendation.</i>

Abbreviations: STD = sexually transmitted disease; STI = sexually transmitted infection; USPSTF = United States Preventive Services Task Force; WPSI = women’s preventive services initiative

Background

Rates of STIs in the U.S. population have been increasing since 2014, according to the most recent Centers for Disease Control and Prevention (CDC) data. For many STIs, infected individuals are often asymptomatic. Untreated or undiagnosed STIs can lead to more serious

health complications for women, such as pelvic inflammatory disease, chronic pelvic pain, cancer, and infertility.^{9,10} Pregnant women with these infections are at risk of vertical transmission to their infants. Transmission of STIs during pregnancy poses additional risks, such as ectopic pregnancy and preterm birth, and effects on infant health including low birth weight and stillbirth.^{11,12} Counseling to reduce the risk of STIs can help determine current risk, reduce future risk of contracting STIs, and may increase the likelihood of safer sex practices to reduce sexual risk behaviors.¹

In 2019, cases of chlamydial infection increased by 2.8% from the previous year to 1,808,703 (552.8 cases per 100,000 population).¹³ In 2019, the majority of reported cases were in 15 to 24 year olds (61.0%), with cases in women in this age group increasing by 10.0% from 2015. Compared with men, the rate of chlamydial infection in women was nearly double (399.9 vs. 698.9 cases per 100,000). Although overall rates of infection in men are lower than women, they also increased by 32.1% from 2015 to 2019. Prevalence of infection varies by geography, race/ethnicity, and HIV status, reflecting ongoing differences in rates of reported infections.^{14,15} These differences may be due to social determinants of health, such as social and structural inequities,¹⁶ and access to quality sexual health care, as well as differences in physiology and sexual network characteristics.

Rates of gonococcal infection are also increasing. According to the CDC, 616,392 cases were reported in 2019.¹³ From 2018 to 2019 the rate of gonococcal infection increased 5.7%; however, since the historic low in 2009, the rate increased 92.0%. The increased rate of gonococcal infection from 2018 to 2019 occurred primarily among men. Specific populations of men, particularly young men and men who have sex with men (MSM), have a higher burden of infection with chlamydia and may be at higher risk for gonococcal infection which is often asymptomatic.¹⁷

Rates of primary and secondary syphilis have increased almost every year since 2000. In 2019, there were a total of 38,992 cases reported to the CDC and the national rate increased by 11.2% increase from 2018.¹⁸ The increased rate of syphilis infection from 2000 to 2019 is largely attributed to an increase among men, specifically, among MSM. Rates in women fluctuated between 0.8 and 1.7 cases per 100,000 women between 2000 and 2013, but has increased since 2015 (178.6% increase 2015 to 2019; 30.0% increase 2018 to 2019). In 2019, 83.1% of all cases of primary and secondary syphilis were in men. During the same period, overall rates of infection increased among men and women in all age categories between 15 and 44, in every region, and in every race/ethnicity other than Native Hawaiians/Pacific Islanders. As with gonococcal and chlamydial infections, rates of primary and secondary syphilis infection are disproportionately distributed among various racial and ethnic groups. Notably, cases of congenital syphilis have seen a sharp uptick, with a 291.1% increase in cases from since 2015, and an increase of 41.4% from 2018.¹⁸ Reasons for this increase may include lack of timely prenatal care, untimely syphilis testing, inadequate treatment, or late identification of infection.¹⁹ Untreated syphilis in pregnancy can impact maternal and fetal outcomes, including stillbirth, premature birth, low birthweight, congenital syphilis, and neonatal death.²⁰

In 2019, the CDC reported that 30.6% of all cases of chlamydia, gonorrhea, and primary and secondary syphilis for both men and women were in non-Hispanic Blacks, even though this

group only represent approximately 12.5% of the U.S. population. Importantly, the CDC attributes differences across populations to underlying factors, such as variations in access to care and sexual networks.

Counseling to identify women at increased risk of STIs is an important first step in preventing infection. Unfortunately many women do not receive adequate STI counselling. A recent Kaiser Family Foundation survey-based study found that counseling about STIs is not routine among women age 15 to 44 years.²¹ Specifically, about 63% of women reported a recent conversation about sexual history with a clinician, however only 26% reported discussing HIV, and 28% reported discussing STIs.

Update of Evidence

USPSTF systematic review¹

The 2020 USPSTF systematic review addressed the effectiveness of behavioral counseling interventions for prevention of STIs in adolescents and adults in primary care practice. The review included 39 fair-to good-quality studies (37 randomized controlled trials [RCTs] and two nonrandomized controlled intervention studies),¹ 22 of which were included in the 2014 USPSTF review.²²⁻⁵³ Studies were mostly conducted in heterosexual adolescent and young adult populations (aged 12 to 25) and were largely focused on persons at increased risk (90% of studies) for STIs based on demographics, risky sexual behavior, or history of an STI; and included mostly women and nonwhite or minority populations.¹ More than half of the studies were in women or girls only (20 studies) and there was only one study exclusively of pregnant individuals.⁴²

Although interventions varied across studies, several elements were similar. In general, interventions aimed to minimize high-risk sexual behaviors, provide basic information about STIs, and increase motivation or commitment to safer sex practices. Counseling techniques included motivational interviewing (11 studies), cognitive behavioral counseling (7 studies), group counseling (25 studies), or using mobile or computer technology (14 studies).¹ Interventions often included communication of basic information about STIs, risk assessment, skills training in condom use, safe sex communication, problem solving, and decision making. Some interventions included additional components such as HIV counseling, and many interventions were culturally tailored to a target group. Interventions designed for specific populations included those for African American and Latino adolescents, adult minority women, and mixed-gender populations visiting STI clinics.

Methods of implementing interventions included face-to-face counseling, videos, computer, and phone support, including text messaging. Intervention intensity was defined by the duration of contact time. Most high-contact time (>2 hours) interventions included group sessions with extensive educational and behavioral change components using motivational interviewing or theory-based techniques. Moderate-contact time interventions (30 to 120 minutes) were either in-person or tech-based, or used motivational interviewing and some theory-based techniques. Low-contact time interventions (<30 minutes) involved tech-based or passive technique interventions (e.g., pamphlet or video) and were either brief individual meetings or were limited to modalities

other than face-to-face contact. Interventions were commonly delivered in a primary care setting or an STI clinic.

Overall, behavioral interventions were statistically significantly associated with a reduced risk of STIs (pooled odds ratio [OR], 0.66; 95% confidence interval [CI] 0.54 to 0.81; $I^2=74%$; 19 studies). Results were generally similar for subgroups based on population and intensity of the interventions (**Table 4**).

Table 4. Results of Counseling Trials in the USPSTF 2020 Evidence Review

Population	Intervention Intensity	Risk of STI OR (95% CI); I^2	Number of Studies
Overall	All types	0.66 (0.54 to 0.81); $I^2=74%$	19 ^{23-26,34,36,39,40,42,44-46,50,52,54-58}
Adolescents	High	0.23 (0.09 to 0.58); $I^2=73%$	3 ^{23,36,39}
Adolescents and young adults	Mixed	0.67 (0.53 to 0.86); $I^2=0%$	6 ^{26,42,46,50,54,55}
Adults, 18 to 25 years	High or moderate	0.69 (0.37 to 1.28); $I^2=82%$	3 ^{24,25,34}
Adults, 18 and older	Mixed	0.83 (0.69 to 1.00); $I^2=34%$	7 ^{40,44,45,52,56-58}

Abbreviations: STI = sexually transmitted infection; USPSTF = United States Preventive Services Task Force

In stratified analysis of outcomes according to intervention intensity, defined by contact-time, high contact time interventions demonstrated the greatest effectiveness overall and were associated with statistically significantly greater reductions in STI incidence (OR 0.46; 95% CI, 0.28 to 0.75; $I^2=65%$; 8 trials) compared with less intense interventions of shorter duration. Results for moderate (OR 0.90; 95% CI, 0.66 to 1.25; $I^2=59%$; 8 trials) and low contact time interventions indicated reduced odds ratios for STI incidence, but these estimates were not statistically significant (OR 0.66; 95% CI, 0.36 to 1.24; $I^2=44%$; 4 trials).

There was limited evidence on the duration of effectiveness of interventions as most follow-up was 6 to 12 months; and whether the effect of the interventions persisted beyond 1 year. Studies were also stratified by group (OR 0.47; 95% CI, 0.28 to 0.78; $I^2=75%$; 8 trials) and individual (OR 0.90; 95% CI, 0.74 to 1.08; $I^2=43%$; 11 trials) counseling approaches.

Thirty-four studies addressed the effectiveness of behavioral counseling interventions on sexual risk and protective behaviors, most of which came from studies of populations at increased risk for STI. Condom use was reported in 18 studies either as a dichotomous outcome (e.g., consistent, at last sex) or continuous outcome (e.g., proportion of intercourse with condom use). Pooled results demonstrated higher odds of condom use associated with the intervention (OR 1.31; 95% CI, 1.10 to 1.56; $I^2=40%$; 13 trials)^{26,34,36,37,40,46,48,49,54,59-62} based on dichotomous outcomes and a statistically significant mean difference [MD] between groups for the continuous data (MD 10.75; 95% CI 1.01 to 20.50; $I^2=79%$; 7 trials).^{27,42,47,63,64} For the outcome of unprotected intercourse, the intervention groups demonstrated a small, but statistically significant mean difference (MD: -0.94; 95% CI, -1.40 to -0.48; $I^2=16%$; 14

trials)^{24,30,31,34,36,39,40,42,57,60,61,63,65,66} in the number of unprotected sexual intercourse occasions with or without a condom.

Few harms related to STI prevention behavioral interventions were reported. Seven trials reported no statistically significant differences for depression, anxiety, or posttraumatic stress disorder.^{26,36,42,46,54,55,67} One study reported three traffic crashes occurring during a text messaging intervention (2 in the intervention group versus 1 in the control group)⁵⁴ with an unclear association with the intervention itself.

Most studies included primarily heterosexual participants in the United States with increased risk of STI attending STI, family planning, or women's health clinics. Two studies included pregnant individuals, one was conducted exclusively during pregnancy.⁴² Results did not indicate that specific interventions were more or less likely to be effective in any given population group (e.g., age, sex/gender, race/ethnicity), though some populations were not well represented in the studies.

The applicability of results from the USPSTF review were limited given that low-risk populations were underrepresented in all studies. One third of the studies met criteria for good-quality. Methodological shortcomings in fair-quality studies included high attrition and lack of information on allocation concealment and randomization. The use of self-reported behaviors also affected data reliability. Few studies evaluated the effects of interventions beyond 6 to 12 months of follow-up or the effectiveness of risk assessment strategies or implementation of behavioral counseling interventions in routine primary care settings.

WPSI Update

A literature search to identify relevant studies published since the 2020 USPSTF systematic review was conducted in October 2021. The literature search from the 2016 WPSI review was updated using Ovid® MEDLINE®, Cochrane CENTRAL, and Cochrane Database of Systematic Reviews libraries. Searches from January 2019 through October 26, 2021 were conducted to overlap with the 2020 USPSTF report through May 31, 2019, with surveillance through October 26, 2021. Search terms included STIs and counseling and yielded a total of 85 citations. Two papers were pulled for full-text review and were excluded for the wrong setting.

Conclusions

Behavioral counseling interventions are generally effective in reducing STI incidence for adolescents and adults. In studies of behavioral counseling to prevent STIs, the effectiveness of interventions varied by intensity, with higher intensity interventions demonstrating increased effectiveness for reducing STIs, increasing condom use, and reducing unprotected sex acts. However, individual trials of lower intensity interventions also demonstrated effectiveness for STI prevention.

Although a wide variety of counseling interventions have been studied, characteristics defining the most effective methods are not clear. Most interventions provide basic STI information, risk assessment, skills training, safer sex communication, problem solving, and decision making. Importantly, low- and average-risk populations are not well represented in studies, limiting applicability of conclusions. Data to inform the optimal frequency of counseling interventions

was limited. Evidence was also lacking to demonstrate the impact of counseling interventions beyond one year. Effective counseling interventions may include group and individual approaches, in addition to newer technologies and modes of delivery such as text messaging, to improve the accessibility, acceptability, and effectiveness of lower intensity counseling interventions.

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