

# U.S. Preventive Services Task Force

## Screening for Syphilis in Pregnant Women: Recommendation Statement

### Summary of Recommendation and Evidence

The USPSTF recommends early screening for syphilis infection in all pregnant women (*Table 1*). **A recommendation.**

### Rationale

#### IMPORTANCE

Syphilis is an infection that is primarily sexually transmitted. Untreated syphilis infection in pregnant women can also be transmitted to the fetus (congenital syphilis) at any time during pregnancy or at birth. Congenital syphilis is associated with stillbirth, neonatal death, and significant morbidity in infants (e.g., bone deformities, neurologic impairment).<sup>1</sup> After a steady decline from 2008 to 2012, cases of congenital syphilis markedly increased from 2012 to 2016, from 8.4 to 15.7 cases per 100,000 live births (an increase of 87%).<sup>2</sup> At the same time, national rates of syphilis increased among women of reproductive age.

#### REAFFIRMATION

In 2009, the USPSTF reviewed the evidence on screening for syphilis infection in pregnant women and issued an A recommendation.<sup>3</sup> The USPSTF has decided to use a reaffirmation deliberation process to update this recommendation. The USPSTF uses the reaffirmation process for well-established, evidence-based standards of practice in current primary care practice for which only a very high level of evidence would justify a change in the grade of the recommendation.<sup>4</sup> In

its deliberation of the evidence, the USPSTF considers whether the new evidence is of sufficient strength and quality to change its previous conclusions about the evidence.

#### DETECTION

The USPSTF found adequate evidence that screening tests can accurately detect syphilis infection in pregnant women.

#### BENEFITS OF DETECTION AND EARLY TREATMENT

The USPSTF found convincing evidence that early universal screening for syphilis infection in pregnant women reduces the incidence of congenital syphilis and the adverse outcomes of pregnancy associated with maternal infection.

#### HARMS OF DETECTION AND EARLY TREATMENT

Screening for syphilis infection in pregnant women may result in potential harms, including false-positive results that require clinical evaluation, anxiety, and harms of treatment with antibiotic medications. However, the USPSTF concluded that these harms of screening are no greater than small.

#### USPSTF ASSESSMENT

Using a reaffirmation process,<sup>4</sup> the USPSTF concludes with high certainty that the net benefit of screening for syphilis infection in pregnant women is substantial.

**As published** by the USPSTF.

**This summary** is one in a series excerpted from the Recommendation Statements released by the USPSTF. These statements address preventive health services for use in primary care clinical settings, including screening tests, counseling, and preventive medications.

**The complete** version of this statement, including supporting scientific evidence, evidence tables, grading system, members of the USPSTF at the time this recommendation was finalized, and references, is available on the USPSTF website at <https://www.uspreventiveservicestaskforce.org/>.

**This series** is coordinated by Kenny Lin, MD, MPH, Deputy Editor.

**A collection** of USPSTF recommendation statements published in *AFP* is available at <https://www.aafp.org/afp/uspstf>.

## Clinical Considerations

### PATIENT POPULATION UNDER CONSIDERATION

This recommendation applies to all pregnant women.

### SCREENING INTERVALS

All pregnant women should be tested for syphilis as early as possible when they first present to care. If a woman has not received prenatal care prior to delivery, she should be tested at the time she presents for delivery. In most cases of congenital syphilis, pregnant women received prenatal care but were not screened and treated for syphilis early enough during the pregnancy to prevent transmission to the fetus.

The USPSTF found no new studies that examined the effectiveness of repeated testing for syphilis during pregnancy. The Centers for Disease Control and Prevention (CDC)<sup>5</sup> and joint guidelines from the American Academy of Pediatrics and the American College of Obstetricians and Gynecologists<sup>6</sup> endorse repeat screening. Specifically, these groups recommend that women at high risk for syphilis be rescreened early in the third trimester (at approximately 28 weeks of gestation) and again at delivery. Women at high risk for syphilis infection include those living in communities or geographic areas with higher prevalence of syphilis, those living with human immunodeficiency virus (HIV), and those with a history of incarceration or commercial sex work.<sup>7</sup> The American Academy of Pediatrics and American College of Obstetricians and Gynecologists also recommend repeat screening after exposure to an infected partner.<sup>6</sup> Clinicians should be aware of the prevalence of syphilis infection in the communities they serve.<sup>7</sup> Most states mandate screening for syphilis in all pregnant women at the first prenatal visit, and some mandate screening at the time of delivery.<sup>8</sup>

### SCREENING TESTS

Syphilis infection is caused by *Treponema pallidum* bacteria. Current screening tests for syphilis rely on detection of antibodies to the infection rather than direct detection of the bacteria. Screening for syphilis infection is a 2-step process. Traditionally,

screening involved an initial nontreponemal antibody test (i.e., Venereal Disease Research Laboratory test or rapid plasma reagin test) to detect biomarkers released from damage caused by syphilis infection, followed by a confirmatory treponemal antibody detection test (i.e., fluorescent treponemal antibody absorption or *T. pallidum* particle agglutination test). Because nontreponemal tests are complex, a reverse sequence screening algorithm has been developed in which an automated treponemal test (such as an enzyme-linked, chemiluminescence, or multiplex flow immunoassay) is performed first, followed by a nontreponemal test. If the test results of the reverse sequence algorithm are discordant, a second treponemal

TABLE 1

### Screening for Syphilis Infection in Pregnant Women: Clinical Summary of the USPSTF Recommendation

<b>Population</b>	Pregnant women
<b>Recommendation</b>	Screen early for syphilis infection in all pregnant women. Grade: A
<b>Risk assessment</b>	All pregnant women are at risk. All pregnant women should be tested for syphilis as early as possible when they first present to care. If a woman has not received prenatal care prior to delivery, she should be tested at the time she presents for delivery.
<b>Screening tests</b>	Screening for syphilis infection is a 2-step process. The traditional approach is to perform an initial nontreponemal antibody test (i.e., VDRL test or RPR test), followed by a confirmatory treponemal antibody detection test (i.e., fluorescent treponemal antibody absorption test or <i>Treponema pallidum</i> particle agglutination test). A newer alternative is the reverse sequence screening algorithm: an automated treponemal antibody test (e.g., enzyme-linked, chemiluminescence, or multiplex flow immunoassay) is performed first, followed by a nontreponemal VDRL or RPR test. If the test results are discordant, a second treponemal test is performed.
<b>Treatment and interventions</b>	The Centers for Disease Control and Prevention recommend parenteral penicillin G benzathine for the treatment of syphilis in pregnant women.
<b>Other relevant USPSTF recommendations</b>	The USPSTF has made recommendations on screening for other sexually transmitted infections, including chlamydia and gonorrhea, hepatitis B virus, genital herpes, and human immunodeficiency virus.

**Note:** For a summary of the evidence systematically reviewed in making this recommendation, the full recommendation statement, and supporting documents, go to <https://www.uspreventiveservicestaskforce.org/>.

RPR = rapid plasma reagin; USPSTF = U.S. Preventive Services Task Force; VDRL = Venereal Disease Research Laboratory.

test (preferably using a different treponemal antibody) is performed. The USPSTF found no studies comparing the false-positive rate of the traditional screening algorithm with that of the reverse sequence screening algorithm among pregnant women. The CDC has provided more detailed guidance on testing for and treatment of sexually transmitted diseases, including syphilis.<sup>9</sup>

## TREATMENT

In 2015, the CDC recommended parenteral penicillin G benzathine for the treatment of syphilis in pregnant women.<sup>5</sup> Evidence on the efficacy or safety of alternative antibiotic medications for pregnant women and the fetus is very limited; therefore, women who report a penicillin allergy should be evaluated and, if found allergic, desensitized and treated with penicillin. Because the CDC updates its recommendations regularly, clinicians are encouraged to consult the CDC website for the most up-to-date information.<sup>9</sup>

## ADDITIONAL APPROACHES TO PREVENTION

Trends in congenital syphilis incidence rates are closely related to trends in primary and secondary syphilis infection rates among all women. Screening for syphilis in nonpregnant populations is an important public health approach to preventing the sexual transmission of syphilis and subsequent vertical transmission of congenital syphilis. The USPSTF recommends screening for syphilis in nonpregnant adolescents and adults at increased risk for infection.<sup>10</sup>

## USEFUL RESOURCES

The USPSTF has made recommendations on screening for other sexually transmitted infections, including chlamydia and gonorrhea,<sup>11</sup> hepatitis B virus,<sup>12</sup> genital herpes,<sup>13</sup> and HIV.<sup>14</sup> National-, state-, and county-level data on syphilis infection rates are also available from the CDC.<sup>2</sup>

This recommendation statement was first published in *JAMA*. 2018;320(9):911-917.

The "Other Considerations," "Discussion," "Reaffirmation of Previous USPSTF Recommendation," and "Recommendations of Others" sections of this recommendation statement are available at <https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/syphilis-infection-in-pregnancy-screening1>.

The USPSTF recommendations are independent of the U.S. government. They do not represent the views of the Agency for Healthcare Research and Quality, the U.S. Department of Health and Human Services, or the U.S. Public Health Service.

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