Epidemiology

According to the 2010 CDC report, 19 million new gonorrhea, Chlamydia, and syphilis infections occur every year in the US costing our healthcare system $17 billion annually. The long term cost and consequences for patients are even greater. Each year, 24000 US women develop infertility due to untreated STDs. Untreated syphilis in pregnant women can result in congenital syphilis with infant death in up to 40 percent of cases. Untreated syphilis can also lead to cardiovascular complications and aortic aneurysms, syphilitic meningitis, meningo-vascular syphilis with infarctions, tabes dorsales and paresis, and gummatous syphilis which can affect any organ.¹

African Americans are disproportionately affected by gonorrhea, chlamydia, and syphilis, especially young African American women. Hispanic men and women are also disproportionately more affected than white patients. The CDC speculates that lack of access to care in African American and Latino communities may delay testing or treatment – one in five African Americans and one in three Latinos are uninsured. Distrust of the medical system and language barriers may also affect access to care. Greater STD prevalence in African American and Latino communities also confers greater risk of infection, even with lower levels of risk behavior.¹

Frequency and Screening Intervals

There is insufficient evidence to recommend at what age to begin and end STD screening. Current practice supports starting at onset of high risk sexual activity and continuing as long as the behavior persists. If a patient is high risk only because of their demographic, the physician may consider discontinuing routine screening at the onset of menopause when the clinical implications of untreated STDs diminishes.²

There is also insufficient evidence to recommend specific frequency of screenings. It is reasonable to cluster STD screening with routine health maintenance physicals.²

Screening Summary

The USPSTF recommends that all sexually active women under 25 years old be screened for gonorrhea and chlamydia. All women at high risk of STDs should be routinely screened for gonorrhea, Chlamydia, HIV, and syphilis. All pregnant women should be screened for Hepatitis B, HIV, and syphilis; and pregnant women under 25 years old or otherwise in a high risk population should also be screened for chlamydia and gonorrhea. Men at an increased risk of STDs should be screened for HIV and syphilis.²

The USPSTF recommends against routinely screening men and non-pregnant women who are not at increased risk for STDs.² On 11/20/2012, however, the USPSTF released draft guidelines with an A recommendation to screen all patients age 15-65 for HIV.⁴ On 11/27/2012, the USPSTF released another draft recommendation statement for screening for Hepatitis C. They propose a grade B recommendation to screen adults at high risk including those with IV drug use or blood transfusions prior to 1992. They propose a grade C recommendation to offer screening for all adults born between 1945 and 1965 since 1/25 patients in this age range will test positive.⁵ The USPSTF recommends against screening for Hepatitis B and HSV because there is no evidence that treating an asymptomatic patient improves long-term health outcomes.²
USPSTF Screening Recommendations for STDs

The USPSTF published recommendations in 2008 for screening high risk populations for STDs. High risk populations are considered those with high community prevalence or those engaging in high risk sexual behavior (having multiple current partners, having a new partner, using condoms inconsistently, having sex while under the influence of alcohol or drugs, or having sex in exchange for money or drugs). Additionally, all sexually active women under 25 years old are considered high risk for chlamydia and gonorrhea given the high prevalence in this age group. The USPSTF recommendations grades for STD screening can be found in table 1.

Table 1. USPSTF Recommendation Grades for STI Screening

<table>
<thead>
<tr>
<th>STI</th>
<th>Nonpregnant women</th>
<th>Pregnant women</th>
<th>Men</th>
<th>Not at increased risk</th>
<th>At increased risk*</th>
<th>Not at increased risk</th>
<th>At increased risk*</th>
<th>Not at increased risk</th>
<th>At increased risk**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlamydia²</td>
<td>C</td>
<td>A</td>
<td>C</td>
<td>B</td>
<td>I</td>
<td>I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gonorrhea³</td>
<td>D</td>
<td>B</td>
<td>I</td>
<td>B</td>
<td>D</td>
<td>I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Syphilis⁴</td>
<td>D</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>D</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV⁵</td>
<td>A⁴⁺</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A⁴⁺</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B⁶</td>
<td>D</td>
<td>D</td>
<td>A</td>
<td>A</td>
<td>D</td>
<td>D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis C⁷</td>
<td>C⁵⁺</td>
<td>B⁵⁺</td>
<td>-</td>
<td>-</td>
<td>C⁵⁺</td>
<td>B⁵⁺</td>
<td></td>
<td></td>
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<td>HSV⁸</td>
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<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPV⁹,†</td>
<td>I</td>
<td>I</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

†—Based on draft guidelines proposed November 2012. HIV screening recommended ages 15-65. Hepatitis C for high risk patients with history of IV drug use or blood transfusions prior to 1992, and all patients born between 1945-196
Testing and Treatment for Selected STDs

Chlamydia

A variety of testing methods exist, but the most commonly used methods are Nucleic acid amplification tests (NAAT) and cell culture. These can be done on endocervical and urethral swabs. NAAT can also be used with urine testing. Its sensitivity is 85% with a specificity of 94-99.5%. When using NAAT there is no sacrifice in performance when urine is substituted for a swab, thus reducing invasive procedures, however, it is more expensive. If positive for chlamydia, the patient needs to be tested for other STD’s.

Treatment should be prompt to avoid complications. Treatment prevents re-infection and spread of infection. Since there is such a high rate of co-infection with gonococcal infection presumptive treatment should also be completed. Test of cure is not recommended, unless symptoms persist, re-infection is suspected or compliance is in question. There is the potential for high false negative and false positive results. Test of cure is recommended in pregnant women and should occur at least 3 weeks after completing treatment. Patients should be instructed to refer their sex partners for evaluation, testing and treatment if they had sexual contact with the patient during the sixty days preceding onset of symptoms or diagnosis. If partners will not go for evaluation, partners can be treated with the recommended antibiotics. Also, patients should be instructed to abstain from sexual intercourse until they have completed their 7 day course of antibiotics or 7 days after a single dose regimen.

Recommended Regimens (similar cure rates):

- Azithromycin 1 gram orally in a single dose (can be observed in office) or
- Doxycycline 100 mg orally twice a day for 7 days

Gonorrhea

Similar to chlamydia, there are a variety of testing options available to diagnose Gonococcal Infection. They include point of care testing, NAAT (swab or urine), Nucleic Acid Probe and EIA Tests. Point of care testing is usually more expensive and less sensitive than other methods, but it is recommended if patient will be lost to follow up. Repeat testing should be confirmed on a positive test result only if the repeat test would help avoid an adverse medical, social or psychological impact for the patient.

Patients with persistent symptoms after treatment should be evaluated by culture and tested for antimicrobial susceptibility. The test for a cure is controversial. Review your state’s regulations regarding treatment of unseen patients. It is acceptable in some states to consider expedited partner therapy. This has decreased recurrence of gonorrhea by 50%.

Recommended Regimen:

- Rocephin 250mg IM in a single dose PLUS Zithromax 1g in a single dose or Doxycycline 100mg orally twice a day for 7 days
**Syphilis**

Definitive diagnosis of Syphilis is by darkfield microscopy. This test is used to detect Treponema Pallidum in a lesion. Presumptive diagnosis is based on two types of serologic test. If the first test is positive, a second test is required to confirm the diagnosis. The two serologic tests are nontreponemal test (VDRL, RPR) and treponemal (Fluorescent treponemal antibody absorbed) test. The Nonreponemal test (VDRL, RPR) usually correlate with disease activity. They also become nonreactive with time after treatment. Furthermore, the Treponemal test (Fluorescent treponemal antibody absorbed) does not correlate with disease and is usually positive for life. Sensitivity is equal to or higher than with nontreponemal. It is important to note that all testing has a high false negative rate early in disease, thus treatment should be provided if clinically suspicious. Clinical and serological evaluations should be performed at 6 months and 12 months after treatment.

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**Recommended Regimen:**

**Primary Syphilis:**
- Penicillin G 2.4 million units IM (single dose) or
- Doxycycline 100mg orally twice a day for 14 days

Secondary and Tertiary Syphilis treatments available on the CDC website.

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**HIV**

The HIV Virus can be diagnosed through a serologic test or a virologic test. The serologic test detects antibodies against HIV. The serologic antibody testing starts with a sensitive screening test (EIA). This test is highly specific (100%) and 96% sensitive. The virologic test can detect HIV antigens or Ribonucleic Acid (RNA). The virologic test is best for diagnosing an acute infection. The specificity is 95-98% and the sensitivity is 100%.

If a screening test is reactive, it must be confirmed by a supplemental antibody test (i.e. Western Blot or IFA) or a virologic test. A confirmed positive antibody test indicates that a person has HIV. False negatives are rare. Treatment for HIV is out of the scope of this article.

**Herpes Simplex Virus**

Testing methods for HSV include viral culture (75% sensitivity), PCR (95% sensitivity) and serologic testing. The serologic testing remains positive indefinitely and is a great test if the culture is negative with high clinical suspicion.

Treatment for HSV is antiviral medications. Although they are effective for treatment, they do not offer a cure. Medications are dispensed in various doses for the first episode, as well as episodic treatment or long term suppressive therapy. Topical antiviral use should be discouraged. Counseling is crucial because the patients need to understand the infection and how to prevent sexual transmission. In addition to loose fitting clothing, they should be instructed to keep areas clean and dry and avoid touching the infected area and good hand washing.

In pregnancy, women with active recurrent HSV should receive prophylaxis with antiviral medications from week 36 until delivery. A Cesarean delivery is indicated in women with active genital lesions.
References


