

## Updated 2021 Treatment Guidelines for Sexually Transmitted Infections

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### Introduction

Sexually transmitted infections (STIs) can lead to long-term health consequences such as infertility, facilitate human immunodeficiency virus (HIV) transmission, and contribute to infant morbidity and mortality.<sup>1</sup> In 2019, more than 2.5 million cases of chlamydia, gonorrhea, and syphilis were reported in the United States (U.S.).<sup>2</sup> This was an all-time high of reported STIs for the sixth consecutive year.<sup>2</sup> From 2014 to 2018, reported cases of primary and secondary syphilis, congenital syphilis, gonorrhea, and chlamydia rose by 71%, 185%, 63%, and 19%, respectively.<sup>3</sup> Additionally, human papillomavirus (HPV), the most common STI, accounts for 14 million new infections each year.<sup>3</sup> Data from 2019 demonstrate that STI rates were higher in youth aged 15-24 compared to other age groups and in racial and ethnic groups who have been most impacted by historic and contemporary injustices or health inequities compared to patients identifying as white.<sup>2</sup>

In response to bacterial resistance trends, the Centers for Disease Control and Prevention (CDC) treatment guidelines for STIs were updated in 2021.<sup>1</sup> In addition, a National Strategic Plan was developed to provide guidance in STI prevention, care, and treatment for all people while living free from stigma and discrimination.<sup>3</sup> This newsletter will summarize pertinent changes to recent CDC guidance for clinical prevention of STIs and treatment regimens for chlamydia, gonorrhea and syphilis. A previous Oregon State newsletter discussed the role of pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP) in prevention of HIV transmission.<sup>4</sup>

### Clinical Prevention

Primary prevention of STIs includes assessment of behavioral risk and biologic risk (i.e., testing for risk markers for STIs and HIV acquisition or transmission).<sup>1</sup> Pre-exposure vaccination is one of the most effective methods for preventing transmission of HPV, hepatitis A virus, and hepatitis B virus, all of which can be sexually transmitted.<sup>1</sup> HPV vaccination is recommended routinely for males and females 11 or 12 years of age and can be administered beginning at 9 years of age.<sup>5</sup> HPV vaccination is recommended through 26 years of age for those not previously vaccinated.<sup>5</sup> In addition, hepatitis A and B vaccines are recommended for men who have sex with men, persons who inject drugs, persons with chronic liver disease, and persons with HIV or hepatitis C infections who have not had hepatitis A or hepatitis B infections.<sup>6</sup> Hepatitis A vaccine is also recommended for persons who are homeless.<sup>7</sup>

### Recommendations For Treatment Of Chlamydia Trachomatis

Chlamydial infection is the most frequently reported bacterial infectious disease in the U.S., and prevalence is highest among people less than 25 years of age.<sup>1</sup> Treatment of *C. trachomatis* prevents adverse reproductive health complications, continued sexual transmission, and vertical transmission to neonates during birth.<sup>1</sup> Additionally, treatment of sex partners can prevent reinfection and infection of other partners. Recommended antibiotics for treatment of chlamydia are outlined below. In patients who are

pregnant, clinical experience and published studies indicate that azithromycin is safe to use and is the recommended regimen for pregnant patients.<sup>8-10</sup> Doxycycline is contraindicated during the second and third trimesters of pregnancy because of risk for tooth discoloration.<sup>11</sup> Human data indicate that levofloxacin presents a low risk to the fetus during pregnancy but has potential for toxicity during breastfeeding, while data from animal studies suggest concerns regarding cartilage damage to neonates.<sup>11</sup>

#### **Recommended CDC Antibiotic Regimen for Chlamydial Infection for Adolescent and Adults:**

**Doxycycline** 100 mg orally 2 times per day for 7 days

#### **Alternative Regimens:**

**Azithromycin** 1 gram orally in a single dose

OR

**Levofloxacin** 500 mg orally once daily for 7 days

### Recommendations For Treatment Of Neisseria Gonorrhoeae

In the U.S., an estimated 1,568,000 new *N.gonorrhoeae* infections occur each year, and gonorrhea is the second most commonly reported bacterial communicable disease.<sup>1</sup> Urethral infections caused by *N. gonorrhoeae* can produce symptoms among men that cause them to seek curative treatment soon enough to prevent sequelae, but often not soon enough to prevent transmission to others.<sup>1</sup> Among women, gonococcal infections are commonly asymptomatic or might not produce recognizable symptoms until complications (e.g., pelvic inflammatory disease [PID]) have occurred.<sup>1</sup> PID can result in tubal scarring that can lead to infertility or ectopic pregnancy.<sup>1</sup>

Gonorrhea treatment is complicated by increasing antimicrobial resistance.<sup>12</sup> Emergence of fluoroquinolone-resistant *N. gonorrhoeae* in 2007 in the U.S. prompted CDC to cease recommending fluoroquinolones for gonorrhea treatment, leaving cephalosporins as the main class of antimicrobials available for gonorrhea treatment in the U.S.<sup>12</sup> A key change from prior guidance is that dual therapy with ceftriaxone and azithromycin is no longer recommended as of 2020.

#### **Recommended CDC Antibiotic Regimen for Uncomplicated Gonococcal Infection of the Cervix, Urethra or Rectum:**

**Ceftriaxone** 500 mg IM in a single dose for persons weighing < 150 kg. Persons weighing ≥ 150 kg should receive **Ceftriaxone** 1 gram IM for a single dose.

#### **Alternative Regimens:**

**Gentamicin** 240 mg IM in a single dose **PLUS Azithromycin** 2 gram orally in a single dose **OR**

**Cefixime** 800 mg orally in a single dose

### Expedited Partner Therapy

Expedited partner therapy (EPT) is a harm-reduction strategy and the clinical practice of treating the sex partners of persons with diagnosed chlamydia or gonorrhea, who are unable or unlikely to seek timely treatment, by providing medications or prescriptions to the patient as allowable by law.<sup>1</sup> Patients then provide partners with these therapies without the health care provider having examined the partner. Medical providers should routinely offer EPT to patients with chlamydia when the provider cannot ensure that all of a patient's sex partners from the previous 60 days will seek timely treatment.<sup>1</sup> If the patient has not had sex during the 60 days before diagnosis, providers should offer EPT for the patient's most recent sex partner.<sup>1</sup> In Oregon, the prescriber would follow [OAR 855-041-4005](#) and write multiple prescriptions: one Rx for the patient and one Rx for each unnamed partner(s) writing "EPT Partner" on each Rx. The partner would fill their own Rx, or the patient would have to have their partner's pharmacy coverage information to fill it for them.

Because EPT must be an oral regimen and current gonorrhea treatment involves a single intramuscular (IM) injection of ceftriaxone 500 mg, EPT for gonorrhea should be offered to partners unlikely to access timely evaluation after linkage is explored.<sup>1</sup> The partner may be treated with a single 800 mg dose of oral cefixime, if a chlamydia infection in the patient has been excluded.<sup>12</sup> If a chlamydia test result has not been documented, the partner may be treated with a single dose of oral cefixime 800 mg plus oral doxycycline 100 mg 2 times per day for 7 days.<sup>12</sup>

### Syphilis Testing and Treatment Among Pregnant Women

During 2012–2019, congenital syphilis rates in the U.S. increased from 8.4 to 48.5 cases per 100,000 births, a 477.4% increase.<sup>2</sup> Maternal risk factors for syphilis during pregnancy include sex with multiple partners, sex in conjunction with drug use or transactional sex, late entry to prenatal care (i.e., first visit during the second trimester or later) or no prenatal care, methamphetamine or heroin use, incarceration of the woman or her partner, and unstable housing or homelessness.<sup>1</sup> In the U.S., all pregnant women should be screened for syphilis at the first prenatal visit, even if they have been tested previously.<sup>13</sup> Testing in the third trimester and at delivery can help prevent congenital syphilis cases.<sup>14</sup> Pregnant women should be retested for syphilis at 28 weeks' gestation and at delivery if the mother lives in a community with high syphilis rates or is at risk for syphilis acquisition during pregnancy (e.g., having a substance use disorder, having an STI during pregnancy, having multiple sex partners, having a new sex partner, or having a sex partner with an STI).<sup>1</sup> Additionally, any woman who has a fetal death after 20 weeks' gestation should be tested for syphilis.<sup>1</sup>

Parenteral penicillin G is the only therapy with documented efficacy for syphilis during pregnancy and for treating patients in all stages of syphilis.<sup>1</sup> Selection of the appropriate penicillin preparation is important because the bacteria that causes syphilis, *Treponema pallidum*, can reside in sequestered sites (e.g., the CNS and aqueous humor) that are poorly accessed by certain forms of penicillin. Combinations of benzathine penicillin, procaine penicillin, and oral penicillin preparations are not considered appropriate for syphilis treatment.<sup>1</sup> Reports have indicated that practitioners have inadvertently prescribed combination long- and short-acting

benzathine-procaine penicillin (Bicillin C-R) instead of the standard benzathine penicillin product (Bicillin L-A) recommended in the U.S. for treating primary, secondary, and latent syphilis.<sup>1</sup> A single dose of benzathine penicillin 2.4 million units IM is recommended for adults with primary and secondary syphilis.<sup>1</sup> Certain evidence indicates that additional therapy is beneficial for pregnant women to prevent congenital syphilis.<sup>15</sup> For pregnant women who have primary, secondary, or early latent syphilis, a second dose of benzathine penicillin G 2.4 million units IM can be administered 1 week after the initial dose.<sup>15</sup> Pregnant women with primary or secondary syphilis who are allergic to penicillin should be desensitized and treated with penicillin G.<sup>1</sup> Additional guidance for management of adults with latent, tertiary, or neurosyphilis, as well as syphilis in infants, children, and pregnancy can be accessed at the CDC website:

<https://www.cdc.gov/mmwr/volumes/70/rr/rr7004a1.htm>.

**Recommended CDC Antibiotic Regimen for Adults with Primary and Secondary Syphilis:**  
Benzathine Penicillin 2.4 million units IM as a single dose

### Conclusion

Less than 20 years ago, gonorrhea rates in the U.S. were at historic lows, syphilis was close to elimination, and advances in chlamydia diagnostics made it easier to detect infections.<sup>2</sup> That progress has been lost, due in part to challenges to the U.S. public health system.<sup>2</sup> Organizations across the nation are partnering to prevent STIs by leveraging innovative approaches such as telehealth/telemedicine, developing partnerships with pharmacies and retail health clinics, and establishing STI express clinics to meet patients where they are with the testing and prevention services they urgently need.<sup>2</sup> As part of the clinical encounter, health care providers should routinely obtain sexual histories from their patients and address risk reduction and treatment regimens as recommended in the CDC guidance<sup>1</sup> and STI National Strategic Plan.<sup>3</sup>

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