



Update 2020: STI Detection and Treatment

L. Beth Gadkowski MD MPH MS
University of Florida, Gainesville
Faculty, North Florida AETC

Continuing Education Disclosure

- The activity planners and speakers do not have any financial relationships with commercial entities to disclose.
- The speakers will not discuss any off-label use or investigational product during the program.

Objectives

At the end of this session, participants will be able to:

1. Describe the epidemiology of bacterial STIs in the US and Florida
2. Select appropriate diagnostic tests for STIs
3. Use guideline recommendations to treat STIs
4. Manage STI syndromes in the setting of COVID-19 restrictions
5. Identify interventions to help increase screening and diagnosis of bacterial STIs in people with HIV

Cumulative Hazard: HIV Diagnosis Following an STI

- People with STIs have an increased risk of getting HIV
- A substantial proportion of new HIV infections among men who have sex with other men are attributable to STIs

AETC | All Research is Community-Engaged
Katz DA, et al. Sex Transm Dis. 2016 Apr; 43(4): 249-254.

Causes of overall STI Increase

- Poverty
- Unstable housing
- Drug use
- Stigma
- Lack of medical insurance
- Lack of steady medical care
- Discrimination
- Mistrust of health systems
- Decreased condom use among vulnerable groups including young people and gay men
- Cuts to STI prevention programs and services at the state and local level

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<https://www.cdc.gov/nchstp/newsroom/2020/2020-std-prevention-conference.html>

Health and Human Services STI Federal Action Plan for STI Prevention, Diagnosis, Care and Treatment, 11/2019

Vision:

- The United States will be a place where sexually transmitted infections are prevented and where every person has high quality STI prevention, care and treatment while living free from stigma and discrimination.
- This vision includes all people, regardless of age, sex, gender, identity, sexual orientation, race, ethnicity, disability, geographic location, or socio-economic circumstance.

Goals:

1. Prevent new STIs
2. Improve the health of people by reducing adverse outcomes of STIs
3. Accelerate progress in STI research, technology, and innovation
4. Reduce STI-related health disparities and health inequities
5. Achieve integrated, coordinated efforts that address the STI epidemic

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<https://www.hhs.gov/programs/topic-sites/sexually-transmitted-infections/index.html>

Case 1:

A 22-year-old woman presents to her primary care physician for a well visit. She has no complaints. She is sexually active with her boyfriend. She takes oral contraceptive pills to prevent pregnancy and does not regularly use condoms.

- Which one of the following statements provides the best rationale for annual screening of sexually active women younger than age 25 for *Chlamydia trachomatis* infection?
 - A. Chlamydia screening programs are cost-effective in clinical settings where chlamydia prevalence is at least 0.1% in women
 - B. There is an established link between untreated chlamydia infections and adverse reproductive health outcomes in women
 - C. There is evidence that untreated chlamydia infection is associated with a 15-fold increased risk of HIV acquisition among young adult women.
 - D. Untreated genital chlamydial infection is associated with a 4-fold increased risk for development of breast cancer.



Chlamydia trachomatis

- Chlamydial infection is the most frequently reported infectious disease in the United States, and prevalence is highest in persons aged ≤ 24 years
- Asymptomatic infection is common among both men and women
- Annual screening of all sexually active women aged < 25 years is recommended, as is screening of older women at increased risk for infection
- Chlamydia screening programs have been demonstrated to reduce the rates of PID in women
- Although evidence is insufficient to recommend routine screening for *C. trachomatis* in sexually active young men, it should be considered in clinical settings with a high prevalence of chlamydia (e.g., correctional facilities) or in populations with high burden of infection (e.g., MSM, people with HIV)



<https://www.cdc.gov/std/tg2015/screening-recommendations.htm>

Diagnosis

- *C. trachomatis* urogenital infection can be diagnosed in women by testing first-catch urine or collecting swab specimens from the endocervix or vagina
- Diagnosis of *C. trachomatis* urethral infection in men can be made by testing a urethral swab or first-catch urine specimen
- Nucleic acid amplifications tests (NAATs) are the most sensitive tests for these specimens and therefore are recommended for detecting
- Rectal and oropharyngeal *C. trachomatis* infection in persons engaging in receptive anal or oral intercourse can be diagnosed by testing at the anatomic site of exposure
- Certain NAATs have been FDA-cleared for use on liquid-based cytology specimens collected for Pap smears



<https://www.cdc.gov/std/tg2015/chlamydia.htm>

Treatment

- To maximize adherence with recommended therapies, onsite, directly observed single-dose with azithromycin should be available for whom multidose dosing is a concern
- For multidose regimens, the first dose should be dispensed on site and directly observed
- To minimize disease transmission to sex partners, persons treated for chlamydia should be instructed to abstain from sexual intercourse for 7 days after single-dose therapy or until completion of a 7-day regimen and resolution of symptoms if present

Recommended Regimens
Azithromycin 1 g orally in a single dose
OR
Doxycycline 100 mg orally twice a day for 7 days
Alternative Regimens
Erythromycin base 500 mg orally four times a day for 7 days
OR
Erythromycin ethylsuccinate 800 mg orally four times a day for 7 days
OR
Levofloxacin 500 mg orally once daily for 7 days
OR
Ofloxacin 300 mg orally twice a day for 7 days

<https://www.cdc.gov/std/tg2015/chlamydia.htm>

Potential Complications of Chlamydia

- Epididymitis
- Pelvic Inflammatory Disease (in up to 10-15%)
- Reactive arthritis
- Perihepatitis
- Conjunctivitis
- Lymphogranuloma venereum (LGV)
- Proctitis & proctocolitis



Case 2:

A 32-year-old woman presents to her primary care medical provider's office with abnormal vaginal discharge. She is diagnosed with cervical chlamydia and treated with appropriate therapy. She notifies her sex partner about her diagnosis of chlamydial infection so that he can come in for testing and treatment. She is not pregnant and following treatment she is asymptomatic.

- Which one of the following is the recommended regarding follow-up chlamydia testing for a woman treated for uncomplicated cervical chlamydia who does not have persistent or recurrent symptoms?
 - Perform a test-of-cure NAAT 10 days after treatment completion
 - Perform a test-of-cure NAAT 3 weeks after treatment completion
 - Send a cervical specimen for culture and sensitivity testing within 2 weeks of the positive (NAAT) result
 - Retest 3 months after completion of therapy



Chlamydia

- Persons who receive a diagnosis of chlamydia should be tested for HIV, GC, and syphilis
- Test-of-cure to detect therapeutic failure is not advised for persons treated with the recommended or alternative regimens, unless therapeutic adherence is in question, symptoms persist, or reinfection is suspected
- Moreover, the use of chlamydial NAATs at < 3 weeks after completion of therapy is not recommended because the continued presence of nonviable organisms can lead to false-positive results
- Sex partners should be referred for evaluation, testing, and presumptive treatment if they had sexual contact with the partner during the 60 days preceding the patient's onset of symptoms or chlamydia diagnosis



<https://www.cdc.gov/std/tg2015/chlamydia.htm>

Treatment of Rectal Chlamydia

- Current US guidelines allow for use of either azithromycin 1 g PO x 1 or doxycycline 100 mg PO twice daily for 7 days
- There is growing evidence that azithromycin may be inferior to doxycycline for the treatment of rectal chlamydia in men and women
- The reason for this is unclear—bioavailability of azithromycin in rectal tissue, organism load in rectum, etc.
- Many practitioners have shifted to using doxycycline to treat rectal chlamydia



Khosropour et al. Sex Transm Dis. 2014 Feb;41 (2): 79-85
 Li et al. Intern Med J. 2018 Mar; 48 (3): 259-264.
 Fisher-Morris et al. Clin Infect Dis. 2019 Nov; 69 (9): 1646-1654

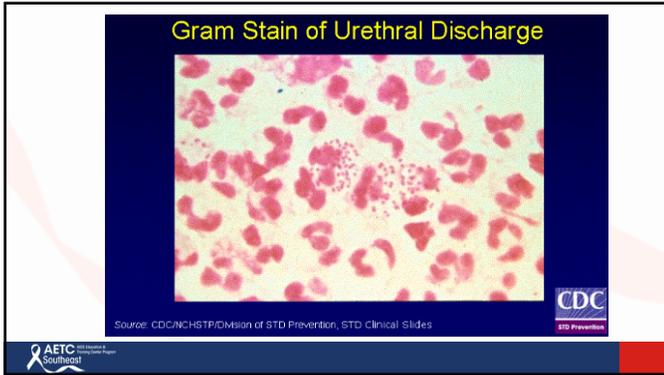
Case 3:

- Kenny is an 20 year old MSM who returns from a 5 day trip to Atlanta complaining of drainage from his penis.
- While in Atlanta he had anal insertive sex with 3 men not previously known to him
- He did not use a condom with any partners
- He has no known drug allergies



Source: Seattle STI/MSI Prevention Training Center at the University of Washington, Conda Colten and Walker Steiner





What is the preferred regimen to treat gonorrhea of the cervix, urethra or rectum?

- A. Doxycycline 100 mg BID x 7 days
- B. Metronidazole 500 mg BID x 7 days
- C. Ceftriaxone 2 gm IM x 1
- D. Ceftriaxone 250 mg IM + azithromycin 1 gm PO x 1

Neisseria gonorrhoeae

- Urethral infections caused by *N. gonorrhoeae* among men can produce symptoms, but among women, gonococcal infections are commonly asymptomatic or might not produce recognizable symptoms until complications (e.g., PID) have occurred
- Annual screening for *N. gonorrhoeae* infection is recommended for all sexually active women aged < 25 years and for older women at increased risk for infection

<https://www.cdc.gov/std/tg2015/gonorrhea.htm>

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Diagnosis

- Culture and NAAT are available for the detection of genitourinary infection with *N. gonorrhoeae*
- Because of its high specificity (>99%) a Gram stain of urethral secretions that demonstrates polymorphonuclear leukocytes with intracellular Gram-negative diplococci can be considered diagnostic for infection with *N. gonorrhoeae* in symptomatic men
- However, because of lower sensitivity, a negative Gram stain should not be considered sufficient for ruling out infection in asymptomatic men
- In cases of suspected or documented treatment failure, clinicians should perform both culture and antimicrobial susceptibility testing because nonculture tests cannot provide antimicrobial susceptibility results

 <https://www.cdc.gov/std/tg2015/gonorrhea.htm>

Health Care Providers: Help protect our last treatment option for gonorrhea

 Gonorrhea is developing resistance to the antibiotics used to treat it. We have only one recommended treatment option left. Help protect it.

-  Always follow CDC screening and treatment guidelines
-  Report treatment failures to your health department's STD program
-  Prevent reinfection by notifying and treating partners

CDC is committed to ensuring that we have safe and effective treatment for gonorrhea. **We can't do it without you.**

Learn more at www.cdc.gov/std/gonorrhea/arg

JAMA | US Preventive Services Task Force | **RECOMMENDATION STATEMENT**

Behavioral Counseling Interventions to Prevent Sexually Transmitted Infections

US Preventive Services Task Force Recommendation Statement

US Preventive Services Task Force

- Interventions that include group counseling and involve high total contact time (>120 min) often delivered over multiple sessions associated with larger STI prevention effects
- Interventions shorter than 30 minutes tended to be delivered in a single session; shorter sessions have been shown to reduce STI acquisition, increase condom use, or decrease number of sex partners

 <https://doi.org/10.1001/jama.2020.17548>

FDA Approves First Throat and Rectal Tests for Detecting Chlamydia and Gonorrhea, 5/2019

- Among gay, bisexual, and other men who have sex with men, more than 70% of extragenital gonorrhea and more than 85% of extragenital chlamydia infections go undetected if extragenital STI testing isn't used
- One in 15 men who have sex with men who had rectal gonorrhea or chlamydia were diagnosed with HIV within a year in a 2013 study of data from New York City public STI clinics
- Aptima Combo 2 Assay (Hologic)
 
- Xpert CT/NG (Cepheid)
 

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<https://www.thebodypro.com/article/fda-approves-first-throat-and-rectal-tests-for-detecting-chlamydia-and-gonorrhea>

Patient Self-Collected Nucleic Acid Amplification Test (NAAT): 1

- Patient self-collection has been shown to be equally effective to provider-collection in clinical and non-clinical settings for the following specimens:
 - Vaginal swabs
 - Rectal swabs
 - Pharyngeal swabs
 - Urine samples
- Acceptability by patients, especially those at high-risk for STIs (i.e., men who have sex with men) is high



Dodge B et al (2010) Int. J. STD AIDS 21(4), 260-264.
 FDA, May 23, 2019. <https://www.fda.gov/news-events/press-announcements/fda-clears-first-diagnostic-tests-extragenital-testing-chlamydia-and-gonorrhea>
 Freeman AH et al. (2011) SEX TRANSM DIS, 38(11), 1036-1039.
 Lunny C et al (2015) PLoS One, 10(7).
 Van der Helm J et al (2009) SEX TRANSM DIS

Patient Self-Collected Nucleic Acid Amplification Test (NAAT): Patient Education



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 Poster courtesy of the University of Washington Prevention Training Center (<http://uwptc.org/>)

LGBTQ Welcoming Clinic Space: 3

7. Display materials for community-based affiliations with sexual/gender minority supportive organizations
8. Community advisory board sexual and gender minority members
9. All staff training on gender identity diversity and sexual orientation
10. LGBTQ flag (red, orange, yellow, green, blue, purple) in waiting room
11. Transgender flag (blue, pink, white, pink, blue) or symbol in waiting room
12. Acknowledgement of LGBTQ awareness and recognition days/events (e.g., Transgender Day of Remembrance, LGBTQ Pride)



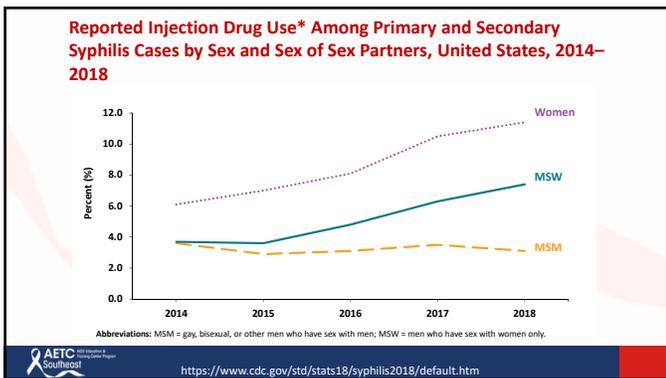
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Case 5

A 24 yo woman presents for prenatal care at 19 weeks gestation. She reports inconsistent condom use with her partner and is unsure if he has other sexual partners. She endorses ongoing IV methamphetamine use. Screening for HIV, syphilis, Hepatitis B, Hepatitis C is performed. When during her pregnancy should she be screened again for syphilis?

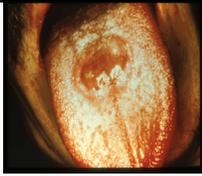
- A. When she gives birth
- B. Early in the third trimester (approximately 28 weeks')
- C. A and B
- D. She does not need additional screening as she is not at high risk for syphilis

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Primary Syphilis: *Treponema pallidum*

- Primary lesion or "chancere" develops at the site of inoculation.
- Chancere
 - Progresses from macule to papule to ulcer
 - Typically painless, indurated, and has a clean base
 - Highly infectious
 - Heals spontaneously within 3 to 6 weeks
 - Multiple lesions can occur
- Regional lymphadenopathy: classically rubbery, painless, bilateral
- Both treponemal and non treponemal tests may be negative in primary syphilis



Secondary Syphilis

- Secondary lesions occur several weeks after the primary chancre appears
 - Primary and secondary stages may overlap
- Clinical Manifestations:
 - Rash (75%–100%)
 - Lymphadenopathy (50%–86%)
 - Malaise
 - Mucous patches (6%–30%)
 - Condyloma lata (10%–20%)
- Serologic tests are usually highest in titer during this stage.



Syphilis

- Latent syphilis:** Host suppresses infection, but no lesions are clinically apparent
- Only evidence is a positive serologic test
 - May occur between primary and secondary stages, between secondary relapses, and after secondary stage
 - Categories:
 - Early latent: <1 year duration,
 - Late latent: ≥1 year duration
- Neurosyphilis:** Occurs when *T. pallidum* invades the CNS
- May occur at any stage of syphilis
 - Can be asymptomatic
 - Early neurosyphilis occurs a few months to a few years after infection
 - Clinical manifestations can include acute syphilitic meningitis, meningovascular syphilis, and ocular involvement
 - Neurologic involvement can occur decades after infection and is rarely seen
 - Clinical manifestations can include general paresis, tabes dorsalis, and ocular involvement



Syphilis

Tertiary (Late) Syphilis:

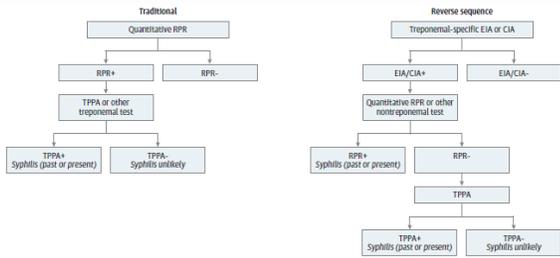
Approximately 30% of untreated patients progress to the tertiary stage within 1 to 20 years

Manifestations:

- **Gummatous lesions:** granulomatous process involving skin cartilage and bone
- **Cardiovascular syphilis:** occurs 15-30 years after latency. Presentations: Aortic insufficiency, aortic aneurysms, coronary artery stenosis, myocarditis



Syphilis Screening Algorithms:



<https://www.uspreventiveservicestaskforce.org/uspstf/document/evidence-summary/syphilis-infection-in-pregnancy-screening>

Syphilis: Treatment

- **Early stages:** primary, secondary, early latent
2.4 MU of long acting benzathine penicillin G or doxycycline 100mg bid for 14 days
- **Late Latent/ unknown duration:**
2.4 MU of long acting benzathine penicillin G IM x 3 (once a week x 3) or po doxycycline 100mg po bid x 4 weeks
- **Neurosyphilis /Ocular syphilis:**
Aqueous penicillin 18 to24 MU x IV for 14 days
→ Procaine Penicillin 2.4MU IM q day+ Probenecid 500mg po QID x14day
→ ceftriaxone 1-2g IV/IM x 14 days
- Pregnant penicillin allergic women with syphilis need to be desensitized



When COVID-19 hit in early March....

- Preliminary CDC data show a clear drop in reported STI cases in the spring/early summer of 2020 compared to the same time period in 2019
- Compared to the same time period in 2019:
 - Weekly reported chlamydia cases—53% less
 - Weekly reported gonorrhea cases—33% less
 - Weekly reported primary and secondary syphilis cases –33% less



<https://www.cdc.gov/nchhstp/newsroom/2020/2020-std-prevention-conference.htmlx>

By early June:

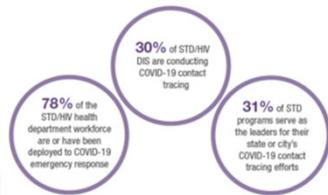
- Decrease in stay-at-home orders corresponded with increased reporting of STD cases
- Gonorrhea and syphilis cases returned to and exceeded 2019 levels by mid-June
- Chlamydia cases have not yet returned to 2019 levels



<https://www.cdc.gov/nchhstp/newsroom/2020/2020-std-prevention-conference.htmlx>

Why did this happen?

- Intervention staff that provided STD and HIV partner services had been diverted to work related to COVID-19
- STD case reporting capacity at local labs and health departments had been strained by COVID-19 causing delays in reporting STD cases



https://www.cdc.gov/std/products/success/317771-A_FS_Success-Story_508-FINAL.pdf

Impact of COVID-19 on STIs

- Exacerbating pre-existing racial and ethnic disparities in health care
- Testing
- Treatment
- Reporting
- Administration of STD services



STI Care Options During COVID-19

- CDC issued "Dear Colleague" letters on April 6, 2020 and May 13, 2020 to offer guidance about effective STI prevention and care in the setting of reduced facility-based services and in-person patient-clinician contact due to COVID-19



Priorities

- Prioritize visits at clinics that remain open with reduced staffing for patients who:
 - Have STI symptoms
 - Report STI contact
 - Are at risk for complications such as:
 - Individuals with vaginal discharge and abdominal pain
 - Pregnant persons with syphilis and their partners
 - Individuals with symptoms concerning for neurosyphilis
- Routine screening visits recommended to be deferred until clinical schedules allow increased numbers of patient visits



<https://www.cdc.gov/std/prevention/std-clinic-guidance-during-covid-19-webinar-5-12-2020.pdf>

Follow-up

- For alternative oral regimens, patients should be counseled that if their symptoms do not improve or resolve within 5-7 days, they should follow-up with the clinic or a medical provider
- Patients should be counseled for be tested for STIs once clinical care is resumed in the jurisdiction
- Health departments should make an effort to remind clients who have been referred for oral treatment to return to for comprehensive testing/screening and link them to services at that time
- All patients receiving regimens other than Benzathine penicillin G for syphilis treatment should have repeat serologic testing performed 3 months post-treatment



Guidance and Resources During Disruption of STD Clinical Services

- There is currently a shortage of STI Diagnostic Kits and Supplies, especially for chlamydia and gonorrhea nucleic acid amplification tests (CT/GC NAAT)
- CDC released “Dear Colleague” letter on September 8, 2020 for testing strategies in the event of shortage



<https://www.cdc.gov/std/prevention/disruptionGuidance.htm>

Table 1. Recommendations for prioritization of STI diagnostic testing by population at times of diagnostic test kit shortage

	Asymptomatic individuals	Men with symptomatic urethritis syndrome	Women with cervicitis syndrome	Women with vaginitis syndrome	Proctitis syndrome	Complicated STD syndromes (PID)	Contacts to GC and/or CT
Test 1: Recommendations based on the 2015 CDC STD Treatment Guidelines and on CT-GC NAAT kit shortages	Screen women <25 years of age and women ≥25 years of age who are at risk at least annually for CT and GC. Screen pregnant women <25 years of age and pregnant women ≥25 years of age at risk for CT and GC at first prenatal visit. Screening should be repeated at third trimester for women <25 years of age and at high risk. Screen MSM by site of exposure for CT and GC at least annually and more often (every 3-6 mo) in individuals with persistent risk including MSM on HIV PrEP.	Test for CT and GC	Test for CT, GC, Trichomonas vaginalis (TV) and bacterial vaginosis (BV)	Test for TV, BV and Candida	Test for CT, GC, syphilis and herpes simplex virus	Test for CT and GC	Test for CT and GC
