

AHRQ Safety Program for Telemedicine: Improving Antibiotic Use

Best Practices in Managing Bacterial Sexually Transmitted Infections in Adults Over Telemedicine

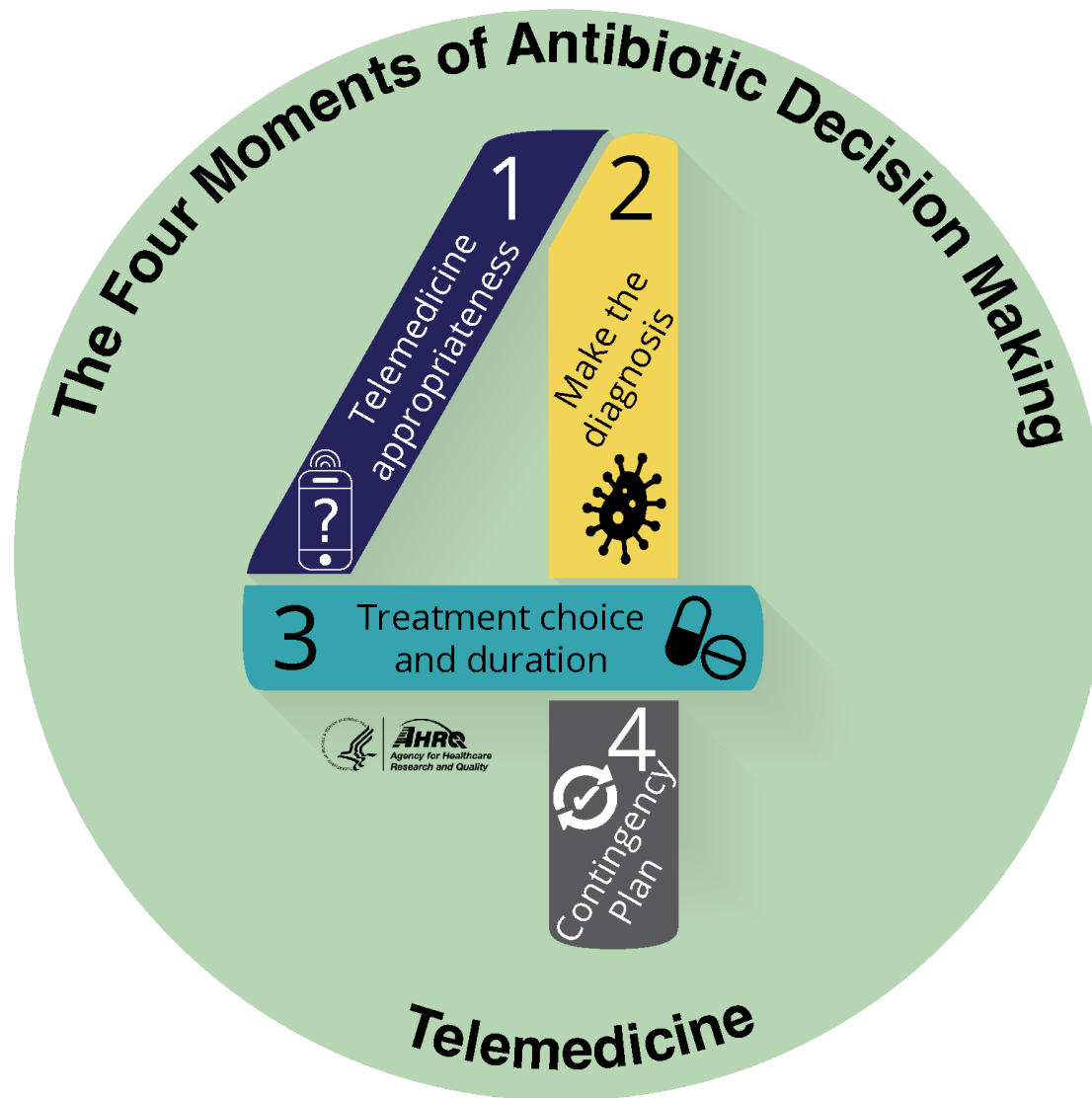


Objectives

By the end of this presentation, participants will be able to—

- Describe the approach to diagnose bacterial sexually transmitted infections (STIs) from other conditions that may mimic bacterial STIs over telemedicine
- Understand how to distinguish bacterial STIs from other conditions that may mimic bacterial STIs over telemedicine
- Identify effective antibiotic regimens for bacterial STIs
- Describe the expected time course for a case of a bacterial STI and when patients should return for followup

The Four Moments of Antibiotic Decision Making

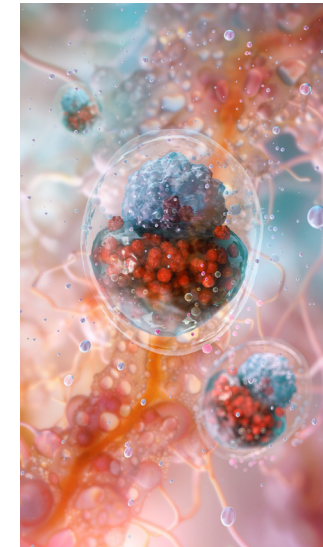
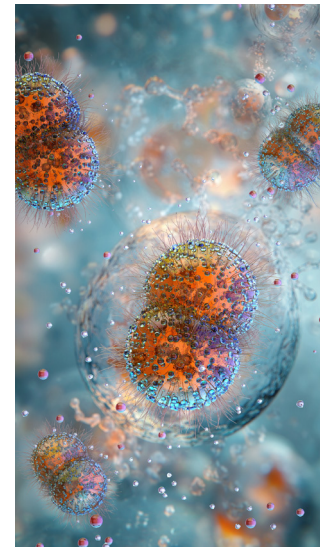


1. Is my patient an appropriate candidate for a telemedicine visit?
2. Does my patient have signs and symptoms indicating an infection that may require antibiotics? Is a diagnostic test needed?
3. If antibiotics are indicated, what is the narrowest, safest, and shortest regimen I can prescribe?
4. What symptomatic relief should I offer or prescribe to my patient? What should I tell my patient about the expected course and the followup plan?

Presentation Considerations¹

- Covers management and prevention of common bacterial sexually transmitted infections (STIs) in adults over telemedicine
- Consider referring adolescents presenting with these concerns for an urgent in-person appointment and potentially emergency department visits
- Children should be referred for an immediate in-person appointment or emergency department visit
- Child protective service referrals may be made

This presentation:
Gonorrhea, chlamydia, and syphilis

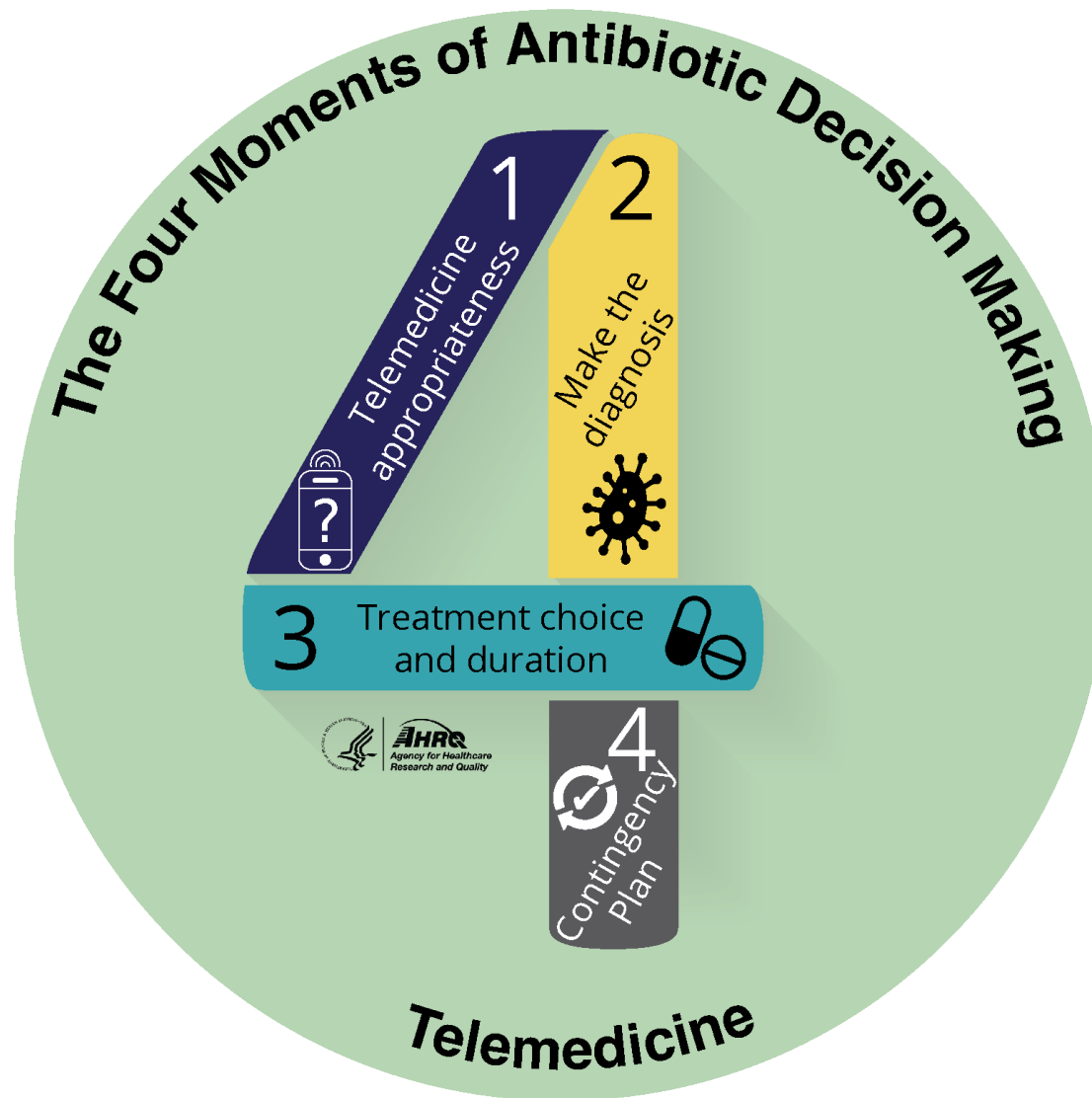


Case Presentation

- 30-year-old man with no past medical history presenting with dysuria and mucopurulent urethral discharge for 1 week
- Recently had condomless insertional anal sex with a new male partner
- No abdominal pain, fever, or flank pain
- No sore throat, rectal pain, constipation, or rectal bleeding
- Tested negative for HIV
- Does not want to be seen in person

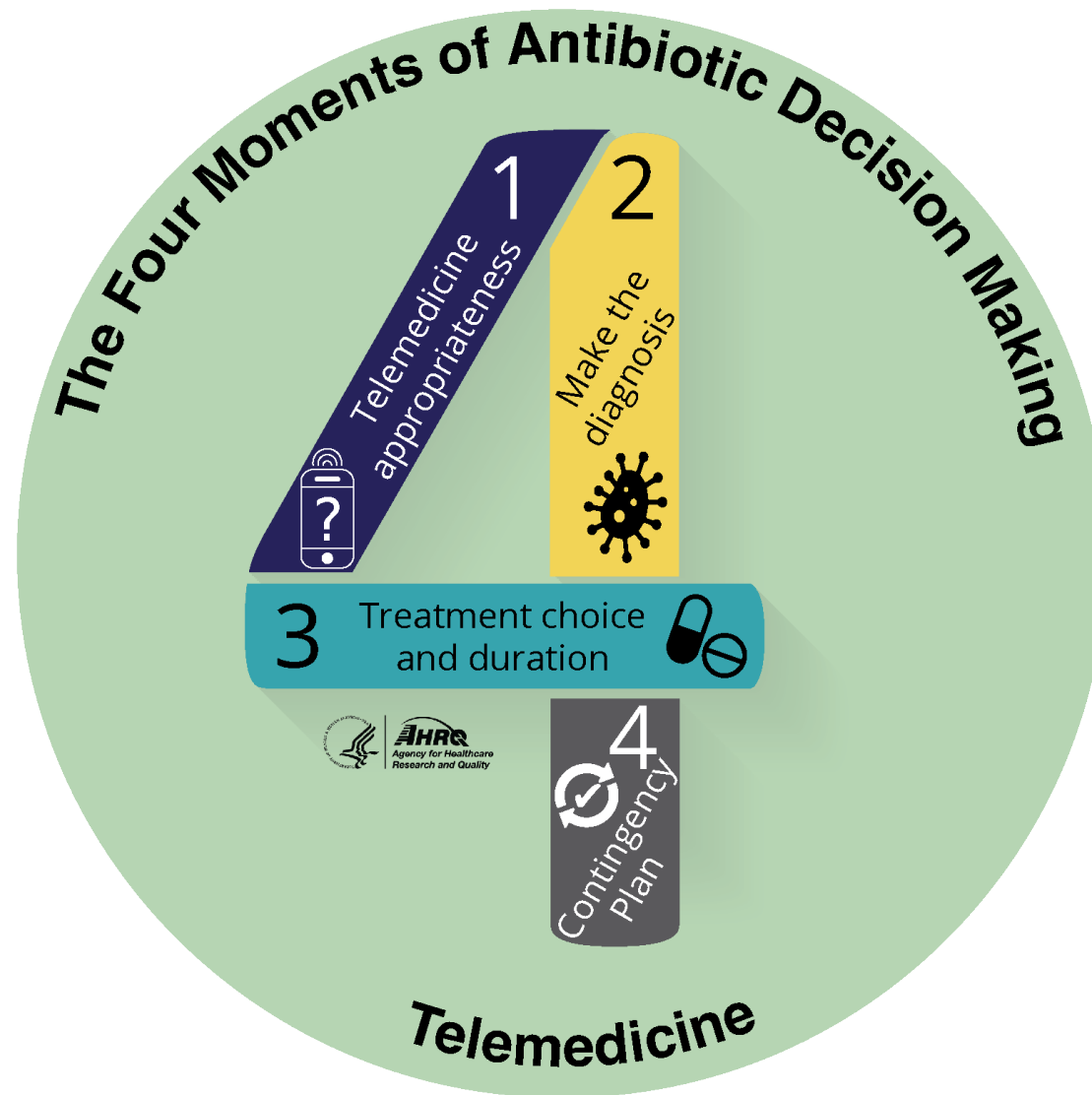


Moment 1: Telemedicine Appropriateness



1. Is my patient an appropriate candidate for a telemedicine visit?
 - Symptoms more consistent with bacterial sexually transmitted infection
 - Can start evaluation over telemedicine
 - May require a lab test or transition to an in-person visit for certain tests or treatments depending on the findings and diagnosis
 - Often a patient with dysuria and mucopurulent urethral discharge alone can start the evaluation over telemedicine

Moment 2



1. Is my patient an appropriate candidate for a telemedicine visit?
2. Does my patient have signs and symptoms indicating an infection that may require antibiotics? Is a diagnostic test needed?

Moment 2: Need for Testing and Antibiotics

- Patients with signs and symptoms concerning for an STI require testing to confirm the diagnosis
 - Some can be done at a lab, and some may require a telemedicine visit
- Does the patient need testing for a urinary tract infection?
 - Patients with symptoms consistent with bacterial STI require testing for bacterial STIs even with a positive urinalysis
- Know what laboratory locations are available to your patient



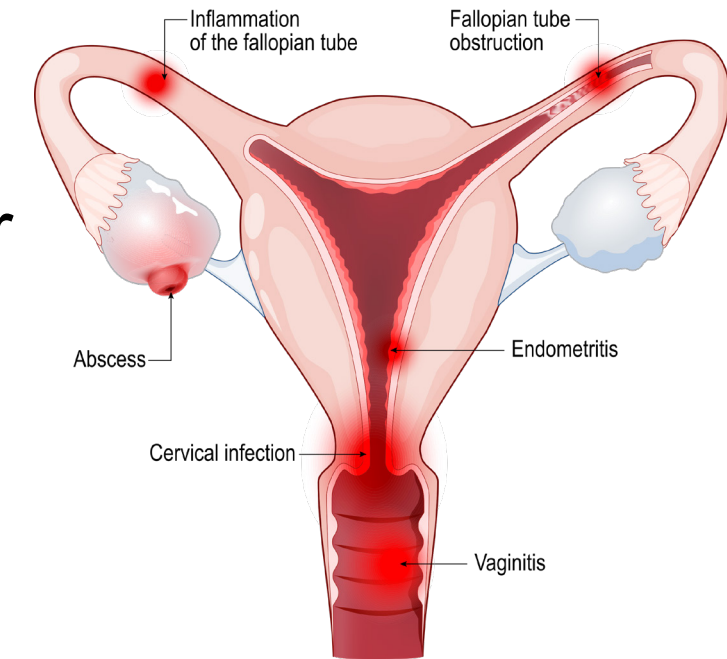
Presentation of Gonorrhea

- Second most commonly reported bacterial communicable disease²
 - 500,000 infections per year³
 - Men: gonococcal urethritis symptoms include dysuria, urethral pruritis, or mucoid, mucopurulent, or purulent urethral discharge⁴
 - Women: gonococcal cervicitis is usually asymptomatic, but can lead to vaginal discharge or intermenstrual vaginal bleeding⁴
- Consider other sites of infection
 - Pharyngeal: can present as pharyngitis, more commonly asymptomatic
 - Anorectal⁵⁻⁶: Usually asymptomatic but can present with proctitis
 - Proctitis symptoms require in-person evaluation
 - Can occur with exposure or autoinoculation

Complications of Gonorrhea³

- Patients with potential complications of gonorrhea should be evaluated in person or in an emergency department
- Women: pelvic inflammatory disease, or PID
 - Can lead to complications such as infertility, tubo-ovarian abscess, perihepatitis, and ectopic pregnancy
 - Women with abdominal pain, fever, and concern for gonorrhea should be seen in person
- Disseminated gonococcal infection
 - Skin lesions, asymmetric polyarthralgia, tenosynovitis, oligoarticular septic arthritis, endocarditis, or meningitis
 - Require hospitalization

Pelvic inflammatory disease



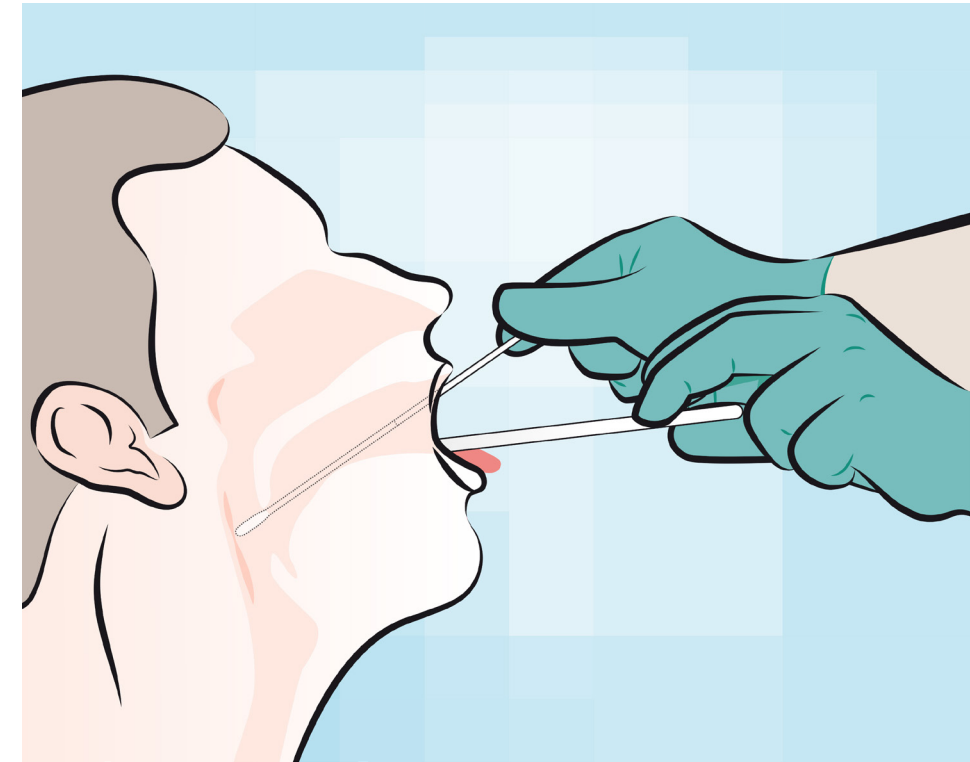
Testing for Gonococcus⁷⁻⁸

- Preferred: nucleic acid amplification test (NAAT)
 - Point-of-care NAAT testing available
- If antimicrobial resistance is suspected, gonococcal cultures and antimicrobial susceptibility testing should be performed
- Gram stain: polymorphonuclear leukocytes with intracellular gram-negative diplococci is diagnostic for gonococcal infection in men, but insensitive

Site of Testing	Nucleic Acid Amplification Test (Preferred)	Culture (With Antimicrobial Susceptibility Testing)	Gram Stain
Endocervical swabs (women)	X	X	
Vaginal swabs (women)	X		
Urethral swabs (men)	X	X	X
Urine sample (men and women)	X		
Rectal swabs (men and women)	X	X	
Oropharyngeal swabs (men and women)	X	X	

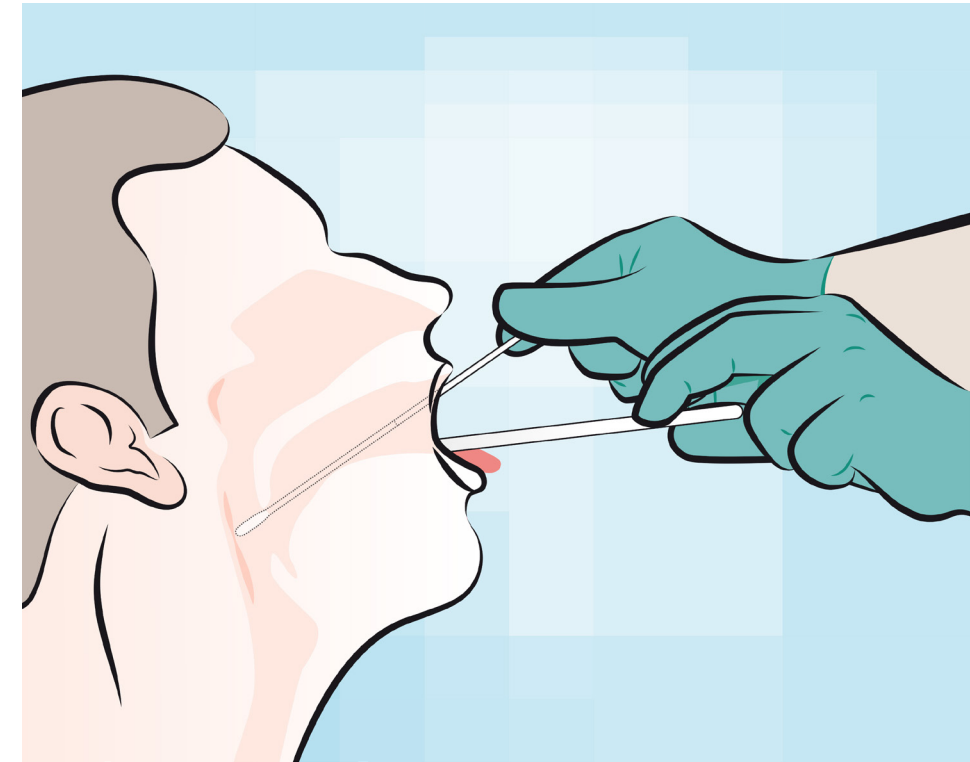
Options for Testing for Gonococcus in Telemedicine – 1⁹⁻¹²

- **Option 1:** Perform initial assessment over telemedicine and refer the patient for in-person testing
- For telemedicine practices that have a brick-and-mortar presence, consider referring for in-person testing for oropharyngeal, rectal, urine, urethral (men), vaginal (women), or endocervical (women) samples
- For telemedicine practices that do not have a brick-and-mortar presence, health departments and charitable organizations may offer testing at no or low-cost
- <https://gettested.cdc.gov/>



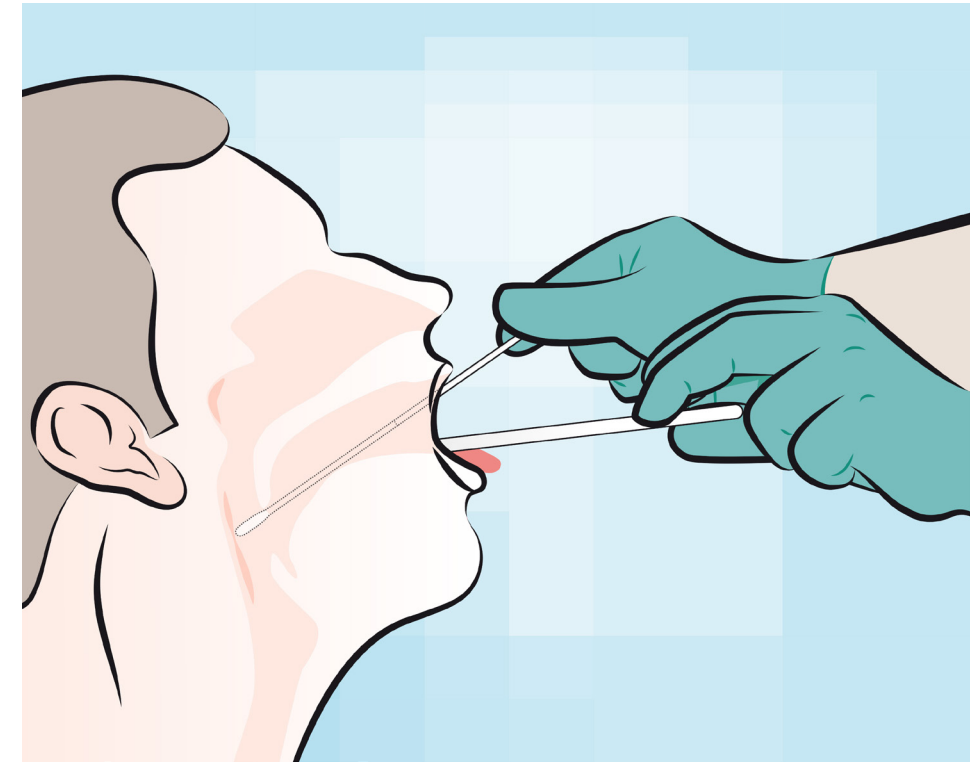
Options for Testing for Gonococcus in Telemedicine – 2

- **Option 2:** patient-collected samples for NAAT performed at a lab
- Patient-collected samples can be as effective as clinician-collected samples^{7, 9-11, 13}
 - Vaginal swabs (women)
 - Urine samples and rectal and oropharyngeal swabs (men and women)
 - FDA approved: vaginal swabs and urine samples
- Consider referring patients to a lab that allows self-collected testing
- Ask the lab if self-collected rectal and or oropharyngeal testing is an option



Options for Testing for Gonococcus in Telemedicine – 37-14

- **Option 3:** patient-collected at-home test
- For NAAT tests
- In telemedicine, consider using at-home tests
 - Approved for self-collection of urine samples and vaginal samples
 - May also test for chlamydia or trichomonas
 - One vaginal self-collected test is a point-of-care test that the patient can perform and receive in 30 minutes
 - Other tests require mailing the samples back



Screening for Gonorrhea³

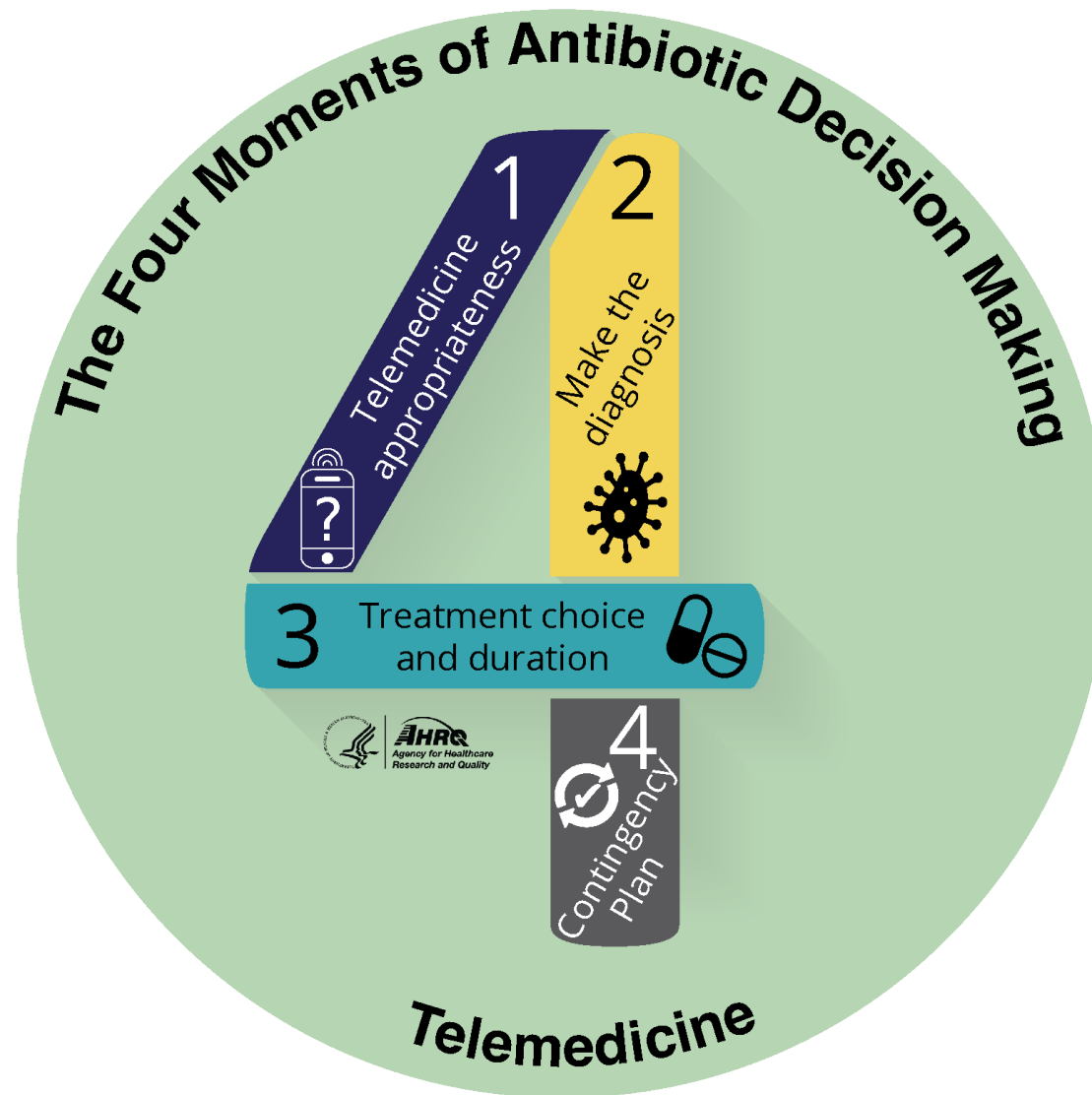
- For telemedicine patients, take samples for screening using the same approaches discussed in prior slides
- All sexually active women <25 years: annually
- Women ≥ 25 years with (1) a new sex partner, (2) a sex partner with concurrent partners, or (3) a sex partner with a STI: annually
- Patients with HIV: annually
- Inconsistent condom use among those not in mutually monogamous relationships: also screen
- Have had previous or recently diagnosed STIs: also screen
- Have exchanged sex for money and drugs: also screen
- Men who have sex with men who are (1) at risk for HIV acquisition or (2) have had multiple partners or substance use: also screen
 - Perform anal, oropharyngeal, and urethral or urine testing

Moment 2: Back to the Case

- No symptoms of pharyngeal gonococcus or anorectal gonococcus
- HIV negative
- No receptive oral or anal sex
- Local lab for urine gonococcal NAAT testing
- Gonococcal NAAT result: positive



Moment 3



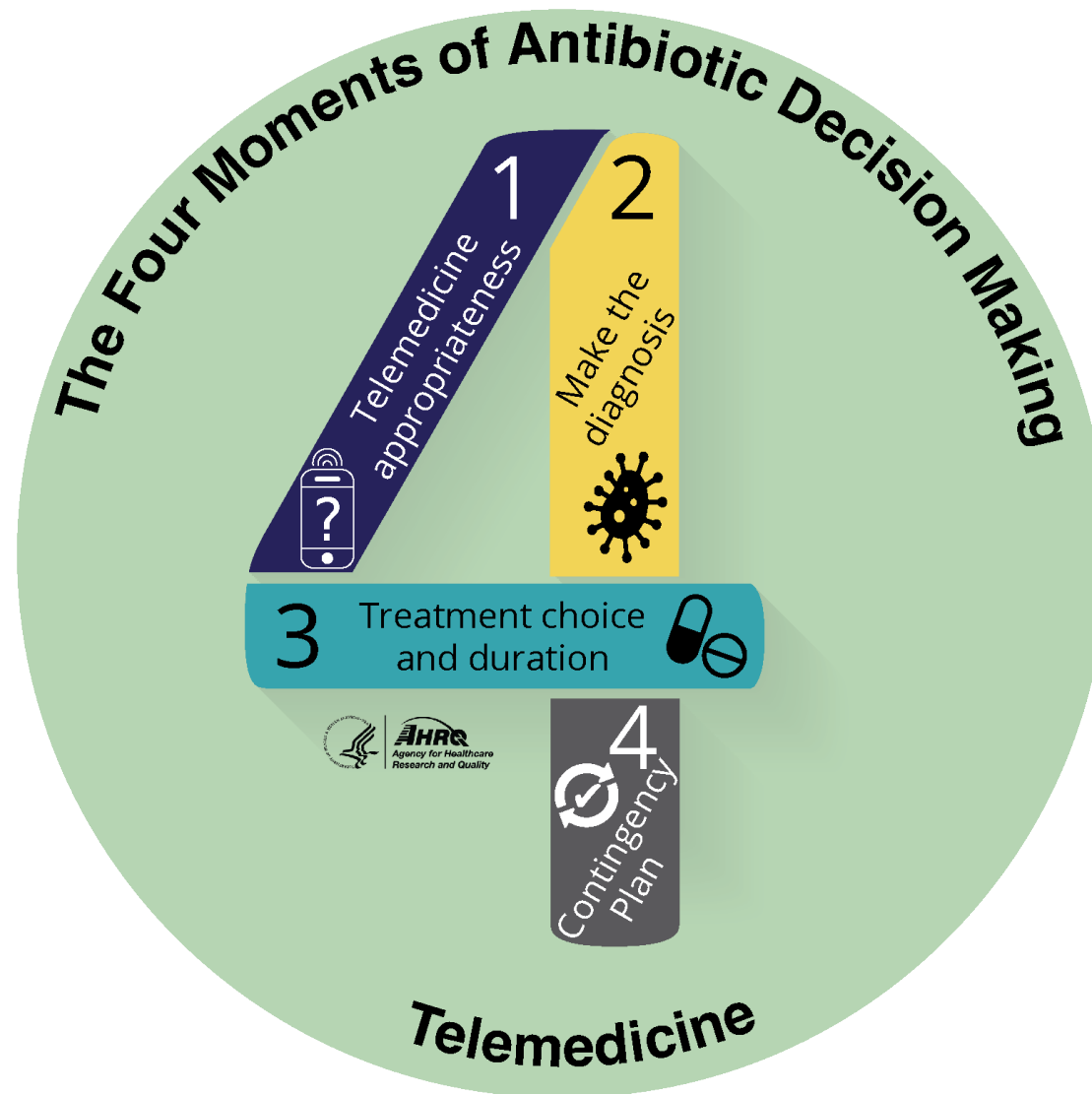
1. Is my patient an appropriate candidate for a telemedicine visit?
2. Does my patient have signs and symptoms indicating an infection that may require antibiotics? Is a diagnostic test needed?
3. If antibiotics are indicated, what is the narrowest, safest, and shortest regimen I can prescribe?

Treatment of Gonorrhea³

- **First-line (adults): Requires in-person visit**
 - Intramuscular (IM) ceftriaxone
 - <150 kg: Ceftriaxone 500 mg IM once
 - ≥150 kg: Ceftriaxone 1 g IM once
 - Alternative: Oral cefixime 800 mg once
 - Only recommended where ceftriaxone is unavailable
 - Less effective than IM ceftriaxone
 - Not effective for pharyngeal gonococcus
 - Chlamydial infection has not been excluded: add oral doxycycline 100 mg twice daily for 7 days
- Cephalosporin allergy: Gentamicin 240 mg IM once with azithromycin 2 g orally once
 - Does not reliably work for pharyngeal gonorrhea
- Approved in December 2025: zoliflodacin 3 g orally once¹⁵
- Approved in December 2025: gepotidacin 3 g orally every 12 hours for 2 doses¹⁵



Moment 4



1. Is my patient an appropriate candidate for a telemedicine visit?
2. Does my patient have signs and symptoms indicating an infection that may require antibiotics? Is a diagnostic test needed?
3. If antibiotics are indicated, what is the narrowest, safest, and shortest regimen I can prescribe?
4. What symptomatic relief should I offer or prescribe to my patient? What should I tell my patient about the expected course and the followup plan?

Anticipatory Guidance for Gonococcus

- Abstain from sexual activity for 7 days after treatment and after sexual partners are treated
- Pharyngeal gonorrhea: Require in-person evaluation in 14 days for a test of cure
- All other patients should be retested in 3 months
 - At same site of infection, and can use the same testing modality and testing location
- Patient can inform partner(s), or health departments may perform partner notification



Partner Testing and Treatment¹⁶⁻¹⁸

- Gonococcus is a reportable disease to the state or local health department, and patient may be contacted
- Partners should be referred for in-person or telemedicine evaluation, testing, and treatment
- Expedited partner treatment
 - Allowed by some states and local regions if partners cannot present to a health care provider
 - Consider for the most recent sex partner and all sex partners within 60 days
 - The clinician orders 1 dose of oral cefixime 800 mg for the partner which the patient delivers to the partner
 - If the patient was not tested for chlamydia, the clinician orders 100 mg by mouth twice daily for 7 days, which the patient also delivers to the partner



Moment 4: Additional Considerations

- Screen for other STIs such as chlamydia, syphilis, and HIV, which may require an in-person evaluation
- Consider pre-exposure prophylaxis (PrEP) for HIV¹⁹
- Remind the patient to use condoms with sexual activity



Anticipatory Guidance: Doxy-PEP²⁰

- Doxycycline post-exposure prophylaxis (doxy-PEP)
- Consider in men who have sex with men or transgender women who have been diagnosed with syphilis, chlamydia, or gonorrhea within the last 12 months
- 200 mg dose of oral doxycycline to take within 72 hours after unprotected sex
- Can reduce syphilis and chlamydia acquisition by 70 percent and gonococcus acquisition by 50 percent
- Provide counseling, gonorrhea and chlamydia screening at sites of exposure, and screening for syphilis and HIV at the time of prescription and every 3–6 months afterwards
- Re-evaluate ongoing need for doxy-PEP every 3–6 months

Moment 2: Chlamydia Diagnosis²

- Most commonly reported bacterial communicable disease²¹
 - 1.5 million infections per year
- Chlamydia infections are most commonly asymptomatic in men and women
- Men: dysuria, urethral pruritis, and mucoid, mucopurulent, or purulent urethral discharge
- Women: abnormal vaginal discharge or intermenstrual vaginal bleeding⁴
 - Can lead to PID and subsequent infertility and ectopic pregnancy
- Pharyngeal infections in men and women: usually asymptomatic
 - Can cause pharyngitis
- Anorectal chlamydia in men and women: usually asymptomatic
 - Can cause proctitis

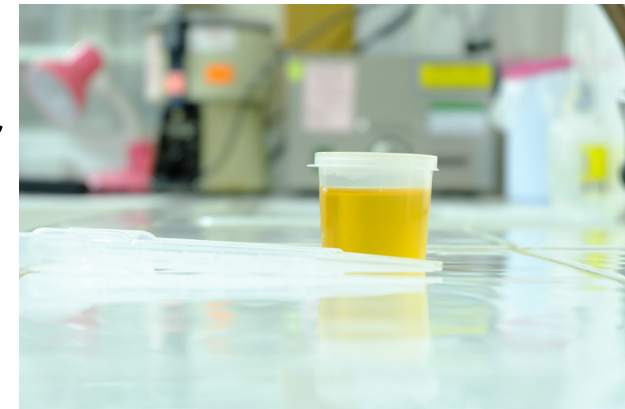
Moment 2: Testing for Chlamydia^{7-14,21}

- Chlamydia testing: with nucleic acid amplification test (NAAT)
 - Point-of-care NAAT testing available
- Endocervical or vaginal swabs (women), urethral swabs (men), and urine tests and rectal or pharyngeal swabs (men and women)
- Options: (1) Initial assessment over telemedicine and referral for in-person testing
 - (2) Self-collected sample at a lab (only FDA approved for urine or vaginal self-collected samples)
 - (3) At-home self-collected sample (urine or vaginal samples) with point-of-care test results or for patient to return to central lab



Moment 2: Screening for Chlamydia²¹

- For telemedicine patients, take samples for screening using the same approaches discussed in prior slides or refer for in-person testing
- All sexually active women <25 years: screen annually
- Women ≥25 years with (1) a new sex partner or more than one sex partner, (2) a sex partner with concurrent partners, or (3) a sex partner with a STI: screen annually
- Sexually active men in clinical settings with a high prevalence of chlamydia: screen annually
 - Examples: adolescent clinics, correctional facilities, sexually transmitted disease clinics, HIV clinics, or clinics for men who have sex with men
- Inconsistent condom use among those not in mutually monogamous relationships
- History of previous or recently diagnosed sexually transmitted infections
- Exchange of sex for money or drugs



Moment 3: Treatment of Chlamydia²¹

- ***First-line***
 - Doxycycline 100 mg by mouth twice daily for 7 days
- Alternative regimen:
 - Azithromycin 1 g orally in a single dose OR levofloxacin 500 mg orally daily for 7 days
 - Higher failure rates compared to doxycycline



Moment 4: Anticipatory Guidance for Chlamydia²⁰⁻²¹

- Abstain from sexual activity for 7 days after completion of antibiotics and resolution of symptoms and after patient's sexual partners (most recent and any within prior 60 days) are treated
- All patients should be retested in 3 months
 - At same site of infection, and can use the same testing location
- Test for other STIs such as HIV, gonorrhea, and syphilis
- Consider HIV PrEP and/or doxy-PEP
- Most recent partner and all partners within the prior 60 days should be referred for evaluation, testing, and treatment
 - If local regulations allow, consider expedited partner treatment for the partner with doxycycline 100 mg by mouth twice daily for 7 days



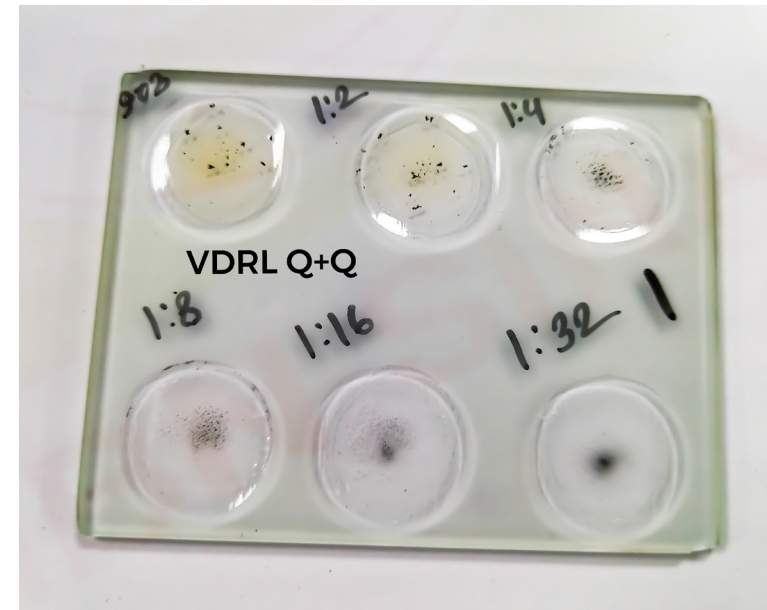
Moment 1: Syphilis Symptoms and Evaluation²²⁻²³

- Sexually transmitted infection caused by *Treponema pallidum*
- Primary syphilis: 10–90 days of exposure
 - Symptoms: one or more chancres at the site of exposure
 - In-person visit for physical exam
- Secondary syphilis: After primary syphilis and typically clears within three months
 - Mucocutaneous lesions, rashes, condylomata lata, and constitutional symptoms
 - In-person evaluation for physical exam
- Early latent syphilis: asymptomatic, infected for <1 year
- Late latent syphilis: asymptomatic, infected for ≥1 year
- Tertiary syphilis: years after infection
 - Impact on skin, bones, and the cardiovascular system
 - In-person evaluation for a physical exam
- Neurosyphilis (including ocular or otic syphilis): at any stage
 - Requires a lumbar puncture



Moment 2: Syphilis Diagnosis²²⁻²³

- Two serologic tests needed to diagnose syphilis
 - Start with a treponemal test: FTA-ABS, TP-PA, EIA, immunoblot, or rapid treponemal assay
 - Confirm positives with a nontreponemal test: VDRL, RPR
 - Can be done in a lab after a telemedicine visit
- Patients with a positive test should be referred for an in-person visit



Moment 3: Treatment of Syphilis: In Person²²⁻²³

- Primary, secondary, early latent syphilis: benzathine penicillin G 2.4 million units IM once
 - Alternative if benzathine penicillin G shortage or severe allergy in nonpregnant patient: doxycycline 100 mg PO BID for 14 days or tetracycline 500 mg PO QID for 14 days
- Late latent syphilis, latent syphilis of unknown duration, or tertiary syphilis: benzathine penicillin G 2.4 million units IM weekly for three doses
 - Alternative if benzathine penicillin G shortage or severe allergy in nonpregnant patient: doxycycline 100 mg PO BID for 28 days or tetracycline 500 mg PO daily QID for 28 days
- Neurosyphilis, ocular syphilis, or otic syphilis: penicillin G 18–24 million units IV daily for 10 days



Moment 4: Anticipatory Guidance for Syphilis²²⁻²³

- Abstain from sexual activity for 7 days after completion of treatment and until after patient's sexual partners are treated
- Retest in 3 months with the same nontreponemal test that was used in diagnosis, such as an RPR, to monitor a decline in titers
 - Can be over telemedicine with a visit to a lab
- Test for other STIs such as HIV, chlamydia, and gonorrhea in an in-person appointment with a physical exam
- Consider PrEP and/or doxy-PEP
- Most recent partner and all partners within the prior 60 days should be referred for evaluation, testing, and treatment



Take-Home Messages

- ✓ Bacterial STIs require laboratory confirmation for diagnosis.
- ✓ Test for gonorrhea and chlamydia at each body site location where transmission could have occurred.
 - For telemedicine, testing options include (1) initial assessment over telemedicine and referral for in-person testing, (2) self-collected sample at a lab (urine or vaginal samples), or (3) at-home self-collected sample (urine or vaginal samples)
- ✓ Treat gonorrhea with IM ceftriaxone.
- ✓ Treat chlamydia with doxycycline.
- ✓ Most stages of syphilis require IM penicillin for treatment.
- ✓ Partners should be referred for evaluation, testing, and treatment.
- ✓ Patients diagnosed with a bacterial STI should be tested for other STIs including HIV.
- ✓ Some patients may be eligible for PrEP and/or doxy-PEP.

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