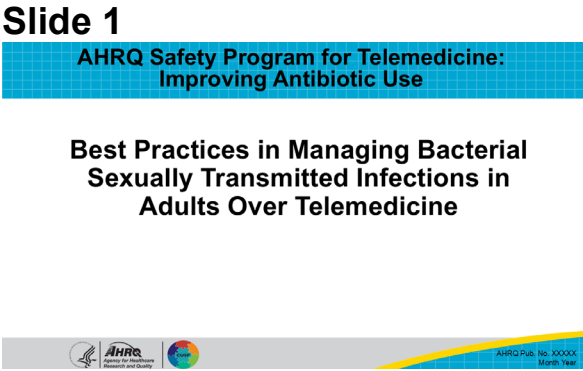
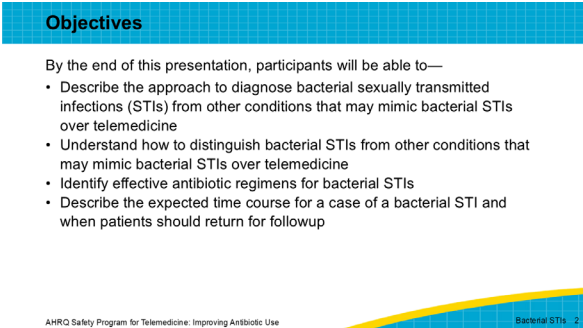
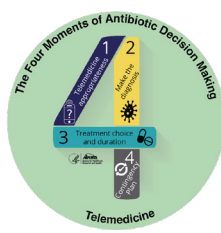
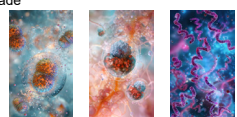
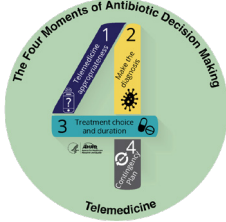
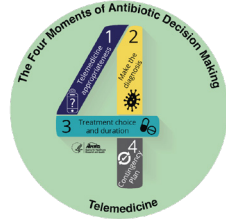


Best Practices in Managing Bacterial Sexually Transmitted Infections in Adults Over Telemedicine

Slide Title and Commentary	Slide Number and Slide
Best Practices in Managing Bacterial Sexually Transmitted Infections in Adults over Telemedicine SAY: Welcome to the presentation titled, “Best Practices in Managing Bacterial Sexually Transmitted Infections in Adults Over Telemedicine.”	Slide 1 AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Best Practices in Managing Bacterial Sexually Transmitted Infections in Adults Over Telemedicine 
Objectives SAY: This presentation will use a clinical case–based format to discuss the approach to managing bacterial sexually transmitted infections (STIs) in adults. 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.	Slide 2 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 

Slide Title and Commentary	Slide Number and Slide
The Four Moments of Antibiotic Decision Making SAY: This presentation will review a clinical case using the Four Moments of Antibiotic Decision Making framework. Briefly, this framework consists of the following moments: Moment 1: Is my patient an appropriate candidate for a telemedicine visit? Moment 2: Does my patient have signs and symptoms indicating an infection that may require antibiotics? Is a diagnostic test needed? Moment 3: If antibiotics are indicated, what is the narrowest, safest, and shortest regimen I can prescribe? Moment 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?	Slide 3 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? AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 3
Presentation Considerations SAY: The focus of this presentation is on adults presenting with concerns related to bacterial sexually transmitted infections, or STIs, over telemedicine. Adolescents presenting with these concerns, and certainly children, should be referred for an urgent in-person appointment, and potentially an emergency department visit, for a physical exam. In younger children, child protective services referrals may need to be made. As there are many STIs, this presentation is focused on the management and prevention of three common bacterial STIs: gonorrhea, chlamydia, and syphilis. You are encouraged to review resources such as STI management and treatment guidelines produced by the Centers for Disease Control and Prevention for information on other STIs.	Slide 4 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  AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 4

Slide Title and Commentary	Slide Number and Slide
Case Presentation SAY: Let's start with a case. The triage note mentions that your patient is a 30-year-old male with no past medical history who presents with dysuria and mucopurulent urethral discharge for the past week. He has no abdominal pain, fever, or flank pain. He recently had condomless insertional anal sex with a new male partner. He recently tested negative for HIV. He has no sore throat symptoms, rectal pain, constipation, or rectal bleeding. He does not want to be seen in person.	Slide 5 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  AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 5
Moment 1: Telemedicine Appropriateness SAY: Let's start with Moment 1, which again is, "Is my patient an appropriate candidate for a telemedicine visit?" This moment identifies patients who likely should be referred for an in-person evaluation based on the clinical presentation. His history and symptoms are more likely to be consistent with a bacterial sexually transmitted infection rather than a urinary tract infection. The evaluation can start over telemedicine but may require a lab test or transition to an in-person visit for certain tests or treatments depending on the findings and diagnosis. We will get more into symptoms that may require an in-person evaluation for a physical exam later in this presentation, but typically a patient with dysuria and mucopurulent urethral discharge alone can be evaluated over telemedicine. While there isn't a lot of data over the use of telemedicine for management of STIs, the answer to Moment 1 is, "yes."	Slide 6 Moment 1: Telemedicine Appropriateness  - 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 AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 6
Moment 2 SAY: Moment 2 asks: "Does my patient have signs and symptoms indicating an infection that may require antibiotics? Is a diagnostic test needed?"	Slide 7 Moment 2  - Is my patient an appropriate candidate for a telemedicine visit? - Does my patient have signs and symptoms indicating an infection that may require antibiotics? Is a diagnostic test needed? AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 7

Slide Title and Commentary	Slide Number and Slide
Moment 2: Need for Testing and Antibiotics SAY: Patients presenting with signs and symptoms potentially concerning for an STI require testing to confirm the diagnosis. As we will learn in the next slides, some of these tests can be done in a lab without being collected in a clinic, while other tests may need to be done in the clinic in an in-person visit. It is first worthwhile to consider whether the patient may require testing for a urinary tract infection, and whether the patient may need to go to a lab to perform a urinalysis or urine culture. However, in a patient with symptoms consistent with a bacterial STI, even in the setting of a positive urinalysis, testing for bacterial STIs is necessary. Ensure you know which local labs may be available to the patient. Many national lab testing organizations may have locations accessible to your patient.	Slide 8 Moment 2: Need for Testing and Antibiotics - Patients with signs and symptoms concerning for a 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  AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 8
Presentation of Gonorrhea SAY: The focus of this presentation is on evaluation for gonorrhea, chlamydia, and syphilis. In men, gonococcal urethritis may cause dysuria, urethral pruritis, or mucoid, mucopurulent, or purulent urethral discharge. This patient's symptoms are therefore most consistent with gonorrhea, but as we will discuss, testing is still necessary. There are over 500,000 new <i>Neisseria gonorrhoeae</i>, or gonococcal, infections each year in the United States, and gonorrhea is the second most commonly reported bacterial communicable disease. In women, gonococcal cervicitis is usually asymptomatic but can lead to abnormal vaginal discharge or intermenstrual vaginal bleeding especially after sexual intercourse. It is important to note that primary gonococcal infections occur in other body sites. Pharyngeal gonococcal infection can cause a presentation similar to pharyngitis but is more frequently asymptomatic. Anorectal gonococcal infection can also occur and is usually asymptomatic. However, some patients do experience symptoms of proctitis including tenesmus, anorectal pain, rectal fullness, constipation, anorectal bleeding, or mucopurulent discharge. Anorectal infections can be seen with anal exposure and without anal exposure in the setting of autoinoculation. Patients with symptoms of proctitis should be seen in person.	Slide 9 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 AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 9

Slide Title and Commentary

Complications of Gonorrhea

SAY:

Patients with potential complications of gonorrhea should be evaluated in person or evaluated in an emergency department.

The most common complication of gonococcus in women is pelvic inflammatory disease, or PID. It can cause lower abdominal pain, and when untreated it can lead to complications such as infertility, tubo-ovarian abscess, perihepatitis, and ectopic pregnancy. Women in whom there is a concern for gonorrheal infection who have abdominal pain or fever should be evaluated in person including a pelvic exam.

Disseminated gonococcal infection is a less frequent complication of gonococcus. This can lead to petechial or pustular acral skin lesions, asymmetric polyarthralgia, tenosynovitis, or oligoarticular septic arthritis, or even endocarditis or meningitis. Patients with disseminated gonococcal infection should be hospitalized for initial therapy.

Testing for Gonococcus

SAY:

All patients at risk for or suspected of having gonorrhea should be tested with a nucleic acid amplification test, or NAAT. NAAT is more sensitive than culture. Point-of-care NAAT testing is also available. NAAT testing can be done with endocervical or vaginal swabs in women, urethral swabs in men, and a urine sample, rectal swab, or pharyngeal swab in men and women. We will talk in a moment about whether all patients must come in to a clinic for these tests.

If antimicrobial resistance is suspected, gonococcal cultures should be performed, and antimicrobial susceptibility testing should be performed. Cultures can be sent using endocervical swabs in women or urethral swabs in men, or rectal or oropharyngeal swabs in women and men.

Polymorphonuclear leukocytes with intracellular gram-negative diplococci seen on a Gram stain of urethral discharge is diagnostic for gonococcal infection in men, but the Gram stain is not sensitive.

Slide Number and Slide

Slide 10

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



AHRQ Safety Program for Telemedicine: Improving Antibiotic Use

Bacterial STIs 10

Slide 11

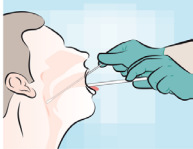
Testing for Gonococcus⁷⁻⁸

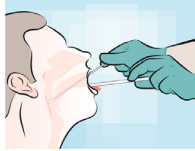
- Preferred: nucleic acid amplification test (NAAT)
 - Point-of-care NAAT testing available
- If antimicrobial resistance is suspected, gonococcal cultures and antimicrobial susceptibility testing should be performed
- Gram-stain: polymorphonuclear leukocytes with intracellular Gram-negative diplococci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

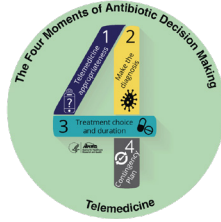
AHRQ Safety Program for Telemedicine: Improving Antibiotic Use

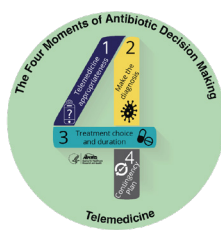
Bacterial STIs 11

Slide Title and Commentary	Slide Number and Slide
Options for Testing for Gonococcus in Telemedicine SAY: Let's talk a little bit about how to perform testing for gonococcus over telemedicine. There are three options for testing for gonococcus over telemedicine. The first option is to perform the initial assessment over telemedicine and then refer the patient for in-person testing. For telemedicine practices that have a brick-and-mortar presence, consider referring for in-person testing in your clinic for oropharyngeal, rectal, urine, urethral (men), vaginal (women), or endocervical (women) samples. Some clinics may have protocols where some of these samples could be collected by staff in the clinic. For telemedicine practices that do not have a brick-and-mortar presence, consider referring to other organizations, such as health departments and charitable organizations who may offer testing at no or low cost. The website gettested.cdc.gov offers information about where patients may be able to go for testing for gonococcus and other sexually transmitted infections.	Slide 12 Options for Testing for Gonococcus in Telemedicine⁹⁻¹² • 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/  AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 12
Options for Testing for Gonococcus in Telemedicine SAY: A second option for telemedicine is to send them to a lab to perform a self-collected NAAT sample. There are studies suggesting that patient-collected samples can be as effective as clinician-collected samples for testing of gonococcus. These include urine samples in men and women, vaginal swabs in women, and rectal and oropharyngeal swabs in men and women. The negative predictive value for these self-collected tests is 100 percent compared with clinician-collected samples. However, the Food and Drug Administration (FDA) has only approved urine and vaginal self-testing. Some labs do allow self-collection of rectal and oropharyngeal swabs. Talk with labs near the patient to understand whether self-collection of rectal or oropharyngeal swabs may be an option. Reach out to labs near the patient to see if they offer self-collected urine (in men and women) and vaginal (in women) tests. Many of these samples can also be used to test for chlamydia as well.	Slide 13 Options for Testing for Gonococcus in Telemedicine • 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  AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 13

Slide Title and Commentary	Slide Number and Slide
Options for Testing for Gonococcus in Telemedicine SAY: A third option for testing for gonorrhea is to perform at-home self-testing with NAAT. This is an especially helpful option in a telemedicine setting. At-home self-collected samples are only approved for patient-collected urine and vaginal samples. The patient would purchase the kit and perform the testing. Read the instructions on the kit, as many may also test for chlamydia or trichomonas. One at-home self-collected kit approved for vaginal samples is also a point-of-care test, for which the patient can follow the instructions and receive a test result in about 30 minutes. Other tests require mailing the sample into the lab and receiving a result in a few days. For this patient, referring him to a lab for a urine test for gonorrhea as well as other STIs may be a good option, or recommending that he purchase and use an at-home self-collected test that he would then mail in.	Slide 14 Options for Testing for Gonococcus in Telemedicine⁷⁻¹⁴ • 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  AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 14

Slide Title and Commentary	Slide Number and Slide
Screening for Gonorrhea SAY: There are also groups of patients who should be screened for gonorrhea. In a telemedicine setting, patients could potentially go for screening in the same testing locations as where you would send the patient for symptomatic testing: to an in-person clinic after an initial telemedicine visit, to a lab for self-collected testing, or for self-collected at-home testing. However, as these screenings typically occur as part of routine healthcare where a physical exam may also be needed, screening exams often occur in person. To reduce the risk of PID, all sexually active women under the age of 25, and women at least 25 years of age with either a new sex partner, a sex partner with concurrent partners, or a sex partner with a STI should be screened annually for gonococcal infection. All patients with HIV also should be screened annually for gonococcal infections. You should consider screening patients for gonococcal infection if there is inconsistent condom use among those not in mutually monogamous relationships, have had previous or recently diagnosed STIs, or have exchanged sex for money and drugs. Men who have sex with men who are at risk for HIV acquisition or have had multiple partners or substance use should be screened for gonococcus with anal, oropharyngeal, and urethral or urine testing.	Slide 15 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. AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 15
Moment 2: Back to the Case SAY: The patient in your case has not had symptoms of pharyngeal gonococcus or anorectal gonococcus. He is HIV negative. He has not had receptive oral or anal sex. You elect to have him present to a local lab for gonococcal NAAT testing via a urine specimen, as well as testing for other STIs including chlamydia. The day after he drops off the specimen, the gonococcal NAAT returns as positive.	Slide 16 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  AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 16

Slide Title and Commentary	Slide Number and Slide
Moment 3 SAY: You diagnose the patient with uncomplicated gonococcal infection of the urethra. Now let's get to Moment 3. Moment 3 is: If antibiotics are indicated, what is the narrowest, safest, and shortest regimen I can prescribe?	Slide 17 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? AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 17
Treatment of Gonorrhea SAY: Please note that intramuscular, or IM, ceftriaxone is the first line treatment for gonorrhea. This means that your patient should present to clinic for an IM injection of ceftriaxone. Oral cefixime is only recommended in the setting of ceftriaxone not being available, as oral cefixime is less effective than IM ceftriaxone. For a patient like this one with an uncomplicated gonococcal infection of the urethra, or of the cervix, rectum, or oropharynx, if they weigh less than 150 kilograms, the treatment is ceftriaxone 500 mg IM once. If they weigh at least 150 kilograms, the treatment is ceftriaxone 1 g IM once. If ceftriaxone is completely unavailable, prescribe cefixime 800 mg once, but remember that this is less effective, and is not effective at all for pharyngeal gonococcus. If chlamydial infection has not been excluded, you should also prescribe oral doxycycline 100 mg twice daily for 7 days. You should always test for chlamydia as well. For patients with cephalosporin allergies, an alternative is gentamicin 240 mg IM once with azithromycin 2 g orally once, but this treatment does not reliably work for pharyngeal gonorrhea. In December 2025, two new oral medications were approved for treatment of gonorrhea. Zoliflodacin is prescribed as a single oral dose of 3 grams dissolved in water. Gepotidacin is prescribed as two 3-gram doses taken every 12 hours. Of note, both should primarily be considered for patients who have few alternative treatment choices.	Slide 18 Treatment of Gonorrhea³ • First-line (adults): Requires in-person visit ◦ Intramuscular, or 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 3g orally once¹⁵ • Approved in December 2025: gepotidacin 3g orally every 12 hours for 2 doses¹⁵  AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 18

Slide Title and Commentary	Slide Number and Slide
Moment 4 SAY: Moment 4 is: 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?	Slide 19 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? AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 19
Anticipatory Guidance for Gonococcus SAY: To prevent ongoing transmission of gonococcus, you should tell your patient to abstain from sexual activity for 7 days after treatment and until after their sexual partners are treated, including the last patient they have had sex with, as well as other partners with whom they had sex in the last 60 days. They should inform their partners as well, although there may be an option in many parts of the country to have the health department perform notification as well. Symptoms typically resolve within a week. Patients with pharyngeal gonorrhea should be seen in person by a clinician in 14 days for a test of cure. All other patients treated for gonorrhea should be retested in 3 months at the same site of infection, and they can use the same testing modalities and location as was first used to perform testing.	Slide 20 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  AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 20

Slide Title and Commentary	Slide Number and Slide
Partner Testing and Treatment SAY: You should also tell your patient that gonococcus is a reportable disease and so will be reported to the state or local health department. The patient may get contacted by the state or local health department and asked about their sexual partners so that these partners can also be approached for testing and treatment. This is done in a confidential manner. All partners should be referred for evaluation, testing, and treatment, which could start over telemedicine or in person. However, if partners cannot present to a healthcare provider for evaluation, testing, or treatment, there are some states and local regions that allow expedited partner treatment. If allowed, expedited partner treatment can be considered for the most recent sex partner, and all sex partners within the prior 60 days. In expedited partner treatment, the clinician orders 1 dose of oral cefixime 800 mg, which the patient can deliver to the partner, along with educational materials regarding gonorrhea. If the patient was not tested for chlamydia, the clinician can also order doxycycline 100 mg twice daily for 7 days for the partner, which the patient delivers to the partner.	Slide 21 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  AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 21
Moment 4: Additional Considerations SAY: In patients presenting for one STI, such as gonorrhea, remember to screen for other STIs as well, such as chlamydia, syphilis, and HIV, which may require an in-person evaluation. You may also want to consider pre-exposure prophylaxis, or PrEP, to prevent HIV. The CDC has published guidance regarding PrEP. Remember to remind the patient to use condoms with all sexual activity to reduce the risk of STIs.	Slide 22 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  AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 22

Slide Title and Commentary	Slide Number and Slide
Anticipatory Guidance: Doxy-PEP SAY: You may also consider discussing doxycycline post-exposure prophylaxis, or doxy-PEP, with your patient. Bacterial sexually transmitted infections, particularly syphilis, gonorrhea, and chlamydia, are increasing in the United States. As these infections do not have vaccines, other preventive options may be helpful. Doxy-PEP has been shown to reduce syphilis and chlamydia acquisition by 70 percent and gonococcus acquisition by 50 percent among men who have sex with men. Doxy-PEP consists of a 200 mg dose of oral doxycycline that patients have on hand to take within 72 hours after unprotected sex. Patients should be told to not exceed 200 mg every 24 hours. You may want to consider doxy-PEP in men who have sex with men who have been diagnosed with syphilis, chlamydia, or gonorrhea within the last 12 months. If you prescribe this, follow up with the patient every 3 to 6 months to readdress the ongoing need for doxyPEP. Remember to provide risk reduction counseling, and gonorrhea and chlamydia screening at sites of exposure at the time of prescription and every 3-6 months afterwards, and screening for syphilis and HIV at the time of prescription and every 3–6 months afterward.	Slide 23 Anticipatory Guidance: Doxy-PEP²⁰ • Doxycycline post-exposure prophylaxis (doxy-PEP) • Consider in men who have sex with men 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 AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 23

Slide Title and Commentary	Slide Number and Slide
Moment 2: Chlamydia Diagnosis SAY: For the patient we discussed before, you should also test for chlamydia. Chlamydia is the most commonly reported bacterial communicable disease, and over 1.5 million new <i>Chlamydia trachomatis</i> infections occur yearly in the United States. Chlamydia infections are most commonly asymptomatic in men and women. However, chlamydia urethritis in men can present similarly to gonococcal urethritis in men, with dysuria, urethral pruritis, and mucoid, mucopurulent, or purulent urethral discharge. Pharyngeal chlamydia in men and women, like gonorrhea, is usually asymptomatic, but can cause pharyngitis. Similarly, anorectal chlamydia in men and women is usually asymptomatic, but can cause proctitis. In women, cervicitis is typically asymptomatic but can cause abnormal vaginal discharge or intermenstrual vaginal bleeding, especially after sexual intercourse. Left untreated, chlamydia in women can lead to PID, which can lead to serious conditions such as ectopic pregnancy as well as infertility. Women in whom there is a concern for PID should be evaluated in person.	Slide 24 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 AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 24

Moment 2: Testing for Chlamydia

SAY:

You should test all patients at risk for or suspected of having chlamydia with NAAT. There are some point-of-care (POC) NAAT tests for chlamydia as well. Testing for chlamydia can be performed in many of the same potential sites of infection as testing for gonococcal infections. Testing should include urethral or urine testing in men and vaginal, cervical, or urine testing in women. If symptoms or exposures indicate anal or pharyngeal infection, anal or pharyngeal testing should be performed.

There are three options for testing for chlamydia over telemedicine. The first option is to perform the initial assessment over telemedicine and then refer the patient for in-person testing, similar as with gonorrhea. For telemedicine practices that have a brick-and-mortar presence, consider referring for in-person testing in your clinic for oropharyngeal, rectal, urine, urethral (men), vaginal (women), or endocervical (women) samples. Some clinics may have protocols where some of these samples could be collected by staff in the clinic. For telemedicine practices that do not have a brick-and-mortar presence, consider referring to other organizations, such as health departments and charitable organizations that may offer testing at no or low-cost. The website gettested.cdc.gov offers information about where patients may be able to go for testing for sexually transmitted infections.

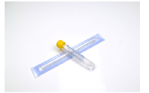
A second option for telemedicine is to send them to a lab to perform a self-collected NAAT sample. These include urine samples in men and women, vaginal swabs in women, and rectal and oropharyngeal swabs in men and women. However, the FDA has only approved urine and vaginal self-testing. Some labs do allow self-collection of rectal and oropharyngeal swabs. Talk with labs near the patient to understand whether self-collection of rectal or oropharyngeal swabs may be an option.

A third option for testing is to perform at-home self-testing with NAAT. This is an especially helpful option in a telemedicine setting. At-home self-collected samples are only approved for patient-collected urine and vaginal samples. The patient would purchase the kit and perform the testing. Reach the instructions on the kit, as many may also test for gonorrhea or trichomonas. One at-home self-collected kit approved for vaginal samples is also a point-of-care test, where the patient can follow the instructions and receive a test result in about 30 minutes. Other tests require mailing the sample into the lab and receiving a result in a few days.

Slide 25

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



AHRQ Safety Program for Telemedicine: Improving Antibiotic Use

Bacterial STIs 25

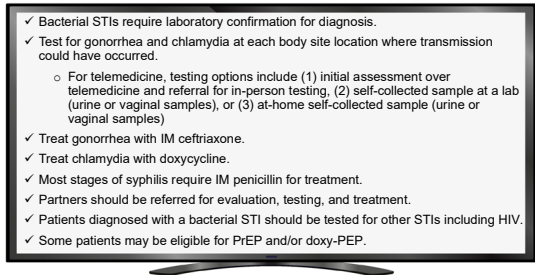
Slide Title and Commentary	Slide Number and Slide
Moment 2: Screening for Chlamydia SAY: Some asymptomatic patients should be screened for chlamydia. In a telemedicine setting, patients could potentially go for screening in the same testing locations as where you would send the patient for symptomatic testing: to an in-person clinic after an initial telemedicine visit, to a lab for self-collected testing, or for self-collected at-home testing. However, as these screenings typically occur as part of routine healthcare where a physical exam may also be needed, screening exams often occur in person. All sexually active women <25 years, as well as 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 should be screened annually for chlamydia infection. Screening of sexually active men should be considered in clinical settings with a high prevalence of chlamydia, like adolescent clinics, correctional facilities, or sexually transmitted disease clinics, HIV clinics, or clinics for men who have sex with men. Men and women should be screened for chlamydia infection if there is inconsistent condom use among those not in mutually monogamous relationships, a history of previous or recently diagnosed sexually transmitted infections, or there has been exchange of sex for money or drugs.	Slide 26 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 - E.g., 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  AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 26
Moment 3: Treatment of Chlamydia SAY: Standard treatment of patients with chlamydia includes doxycycline 100 mg by mouth twice daily for 7 days. If doxycycline is not tolerated, there are alternatives including azithromycin 1 g orally in a single dose or levofloxacin 500 mg orally daily for 7 days, but these alternatives have higher failure rates than doxycycline. You can consider directly observing the patient taking the first dose over telemedicine.	Slide 27 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  AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 27

Slide Title and Commentary	Slide Number and Slide
Moment 4: Anticipatory Guidance for Chlamydia SAY: Patients who have been diagnosed with chlamydia should abstain from sexual activity until 7 days after completion of antibiotics and resolution of symptoms, and until all sex partners are treated. This includes the last patient they have had sex with, as well as other partners with whom they had sex in the last 60 days. They should inform their partners as well. Patients should be retested in 3 months at same site of infection. They can use the same testing location. As with patients diagnosed with gonorrhea, test for other STIs such as HIV, gonorrhea, and syphilis. Consider discussing PrEP for HIV and doxy-PEP with the patient. Sex partners, including the most recent sex partner and any sex partners within the prior 60 days, should be referred for evaluation, testing, and treatment. If local regulations allow, and the partner cannot present to a provider for evaluation, testing, and treatment, the patient can deliver expedited partner treatment for chlamydia to the partner with doxycycline 100 mg by mouth twice daily for 7 days, along with educational materials about chlamydia.	Slide 28 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 AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 28

Slide Title and Commentary	Slide Number and Slide
Moment 1: Syphilis Symptoms and Evaluation SAY: Syphilis is a sexually transmitted disease caused by <i>Treponema pallidum</i>. It causes systemic disease and progresses in stages. Primary syphilis occurs within 10 to 90 days of exposure and typically presents with one or more chancres at the site of exposure. These chancres may go unnoticed. Patients who have symptoms should be evaluated in person. Secondary syphilis then occurs afterward and typically clears by 3 months. Signs of secondary syphilis include mucocutaneous lesions (rashes that classically occur on the palms or soles but are very frequently seen on the trunk), condylomata lata, and constitutional symptoms. Some patients may experience neurologic symptoms or patchy alopecia. Not everyone has symptoms, however. Patients with symptoms of secondary syphilis should be evaluated in person for a physical exam. After secondary syphilis comes latent syphilis. Patients with early latent syphilis are asymptomatic and have been infected for less than 1 year. Late latent syphilis includes those who are asymptomatic but have been infected for at least a year. Tertiary syphilis typically occurs years after infection. Patients with symptoms of tertiary syphilis should be seen in person for a physical exam as these patients can have manifestations including skin, bones, and the cardiovascular system. Neurosyphilis, which includes ocular syphilis or otic syphilis, can occur at any stage. A lumbar puncture is required for diagnosis. These patients should be seen in person.	Slide 29 Moment 1: Syphilis Symptoms and Evaluation²²⁻²³ - Sexually-transmitted infection caused by <i>Treponema pallidum</i> - 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 AHRQ Safety Program for Telemedicine: Improving Antibiotic Use  Bacterial STIs 29

Slide Title and Commentary	Slide Number and Slide
Moment 2: Syphilis Diagnosis SAY: Diagnosis of syphilis includes a blood test. To diagnose syphilis, you need two serologic tests including a treponemal test (which include FTA-ABS, TP-PA, EIA, immunoblot, or rapid treponemal assays) and a nontreponemal test (either VDRL or RPR). Often a treponemal test is done first, and if positive, a nontreponemal test is performed to confirm the positive treponemal test. If the treponemal and nontreponemal tests are discordant, an additional treponemal test is performed. Use nontreponemal tests such as an RPR to follow response to treatment. Of note, these tests can be performed in a lab after a telemedicine visit. Patients with a positive test for syphilis should be referred for an in-person visit for a thorough physical exam, as well as a history that includes a good medical and sexual history, a history of prior syphilis testing and treatment, and identification of risk factors and sexual partners. They will also need to be seen in person for treatment.	Slide 30 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 AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 30
Moment 3: Treatment of Syphilis in Person SAY: Syphilis treatment involves intramuscular or IM injections, so requires an in-person visit. Primary, secondary, and early latent syphilis should be treated with one dose of IM benzathine penicillin G 2.4 million units. Patients with late latent syphilis, latent syphilis of unknown duration, or tertiary syphilis should be treated with three weekly doses of IM benzathine penicillin G 2.4 million units. Patients with neurosyphilis, ocular syphilis, or otic syphilis should be treated via crystalline penicillin G 18–24 million units per day for 10 days, typically in the hospital or via outpatient parenteral antimicrobial therapy. In times of IM penicillin shortages, or if there is a severe penicillin allergy in a nonpregnant patient, there are alternatives that are considered less preferred than benzathine penicillin G. For primary, secondary, or early latent syphilis, less-preferred options include doxycycline 100 mg orally twice daily for 14 days or tetracycline 500 mg orally four times daily for 14 days. For late latent syphilis, latent syphilis of unknown duration, or tertiary syphilis, less-preferred options include doxycycline 100mg orally twice daily for 28 days or tetracycline 500 mg orally four times daily for 28 days.	Slide 31 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 non-pregnant patient: doxycycline 100mg PO BID for 14 days or tetracycline 500mg PO daily 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 3 doses - Alternative if benzathine penicillin G shortage or severe allergy in non-pregnant patient: doxycycline 100mg PO BID for 28 days or tetracycline 500mg PO daily QID for 28 days - Neurosyphilis, ocular syphilis, or otic syphilis: Penicillin G 18-24 million units IV daily for 10 days AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 31

Slide Title and Commentary	Slide Number and Slide
Moment 4: Anticipatory Guidance for Syphilis SAY: Patients should abstain from sexual activity for 7 days after treatment completion and until all sex partners are treated. All patients should be retested in 3 months with the same nontreponemal test that was used in diagnosis, such as an RPR, to monitor a decline in titers. This can be done over telemedicine with laboratory-based testing. Sexual partners should be referred for testing and treatment. This includes the last patient they have had sex with, as well as other partners with whom they had sex in the last 60 days. Patients should know that they may be contacted by the state or local health department for information about sexual partners so that their partners can be appropriately tested and treated. Patients who test positive for syphilis should be tested for other STIs such as HIV, chlamydia, and gonorrhea, typically in an in-person appointment during which they will also have a physical exam. Consider providing pre-exposure prophylaxis or PrEP for HIV, or doxy-PEP.	Slide 32 Moment 4: Anticipatory Guidance for Syphilis²²⁻²³ • Abstain from sexual activity for 7 days after completion of treatment <u>and</u> until after patient's sexual partners are treated • Retest in 3 months with the same non-treponemal 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 AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 32 

Slide Title and Commentary	Slide Number and Slide
Take-Home Messages SAY: In summary, patients may present over telemedicine for initial evaluation of symptoms consistent with a bacterial STI, but these diagnoses require laboratory confirmation. For gonorrhea and chlamydia, NAAT testing is most sensitive, and you should ensure that testing is done at each body site location where transmission could have occurred. This includes the urine in men and women, ectocervical or vaginal swabs in women, urethral swabs in men, oropharyngeal swabs in men and women, and anorectal swabs in men and women. 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). For gonorrhea, first-line treatment is IM ceftriaxone. For chlamydia, first-line treatment is doxycycline. Syphilis requires a blood test for diagnosis and has multiple stages. Syphilis treatment involves IM penicillin. 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 pre-exposure prophylaxis for HIV and post-exposure prophylaxis with doxycycline for bacterial STI prevention.	Slide 33 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.
Disclaimer SAY: Please review this disclaimer.	Slide 34 Disclaimer • The findings and recommendations in this presentation are those of the authors, who are responsible for its content, and do not necessarily represent the views of AHRQ. No statement in this presentation should be construed as an official position of AHRQ or of the U.S. Department of Health and Human Services. • Participants have an implied responsibility to use the newly acquired information to enhance patient outcomes and their own professional development. The information presented in this activity is not meant to serve as a guideline for patient management. Any procedures, medications, or other courses of diagnosis or treatment discussed or suggested in this activity should not be used by clinicians without evaluation of their patient's conditions and possible contraindications and/or dangers in use, review of any applicable manufacturer's product information, and comparison with recommendations of other authorities. AHRQ Safety Program for Telemedicine: Improving Antibiotic Use Bacterial STIs 34

Slide Title and Commentary	Slide Number and Slide
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AHRQ Pub. No. 26(27)-0021
October 2026