

# **AHRQ Safety Program for Telemedicine: Improving Antibiotic Use**

## **Best Practices in Managing Urinary Tract Infections Over Telemedicine**

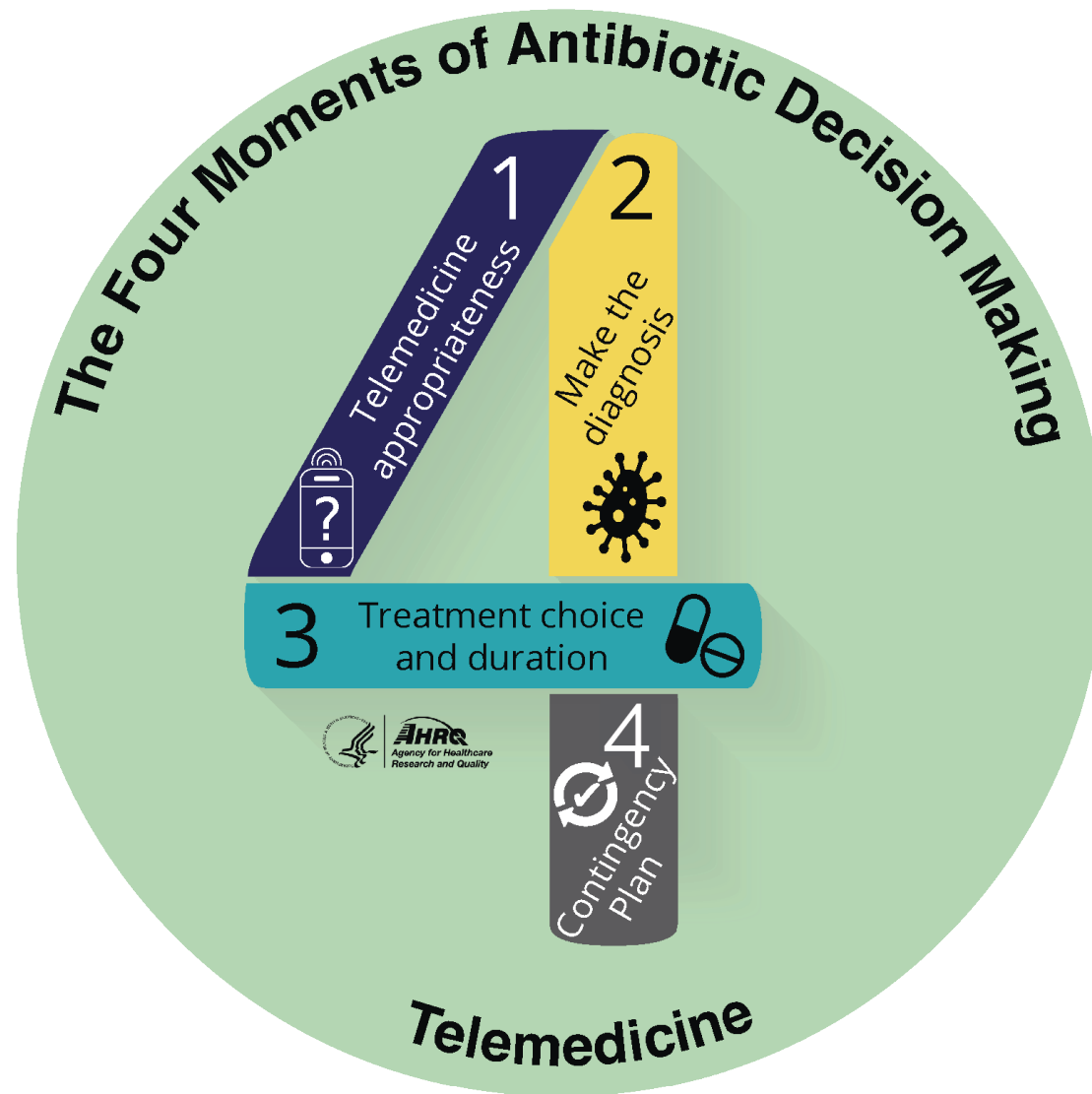


# Objectives

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

- Distinguish asymptomatic bacteriuria from a urinary tract infection (UTI)
- Discuss indications for sending a urinalysis and urine cultures
- Recommend antibiotic regimens for UTIs that maximize clinical success while minimizing adverse events
- Learn when a patient presenting with a potential UTI in a telemedicine visit may need to be evaluated in person

# 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?

# Clinical Case

- 32-year-old woman presenting via telehealth with dysuria and urgency
- Thinks she has a UTI
- Unsure if she has a fever



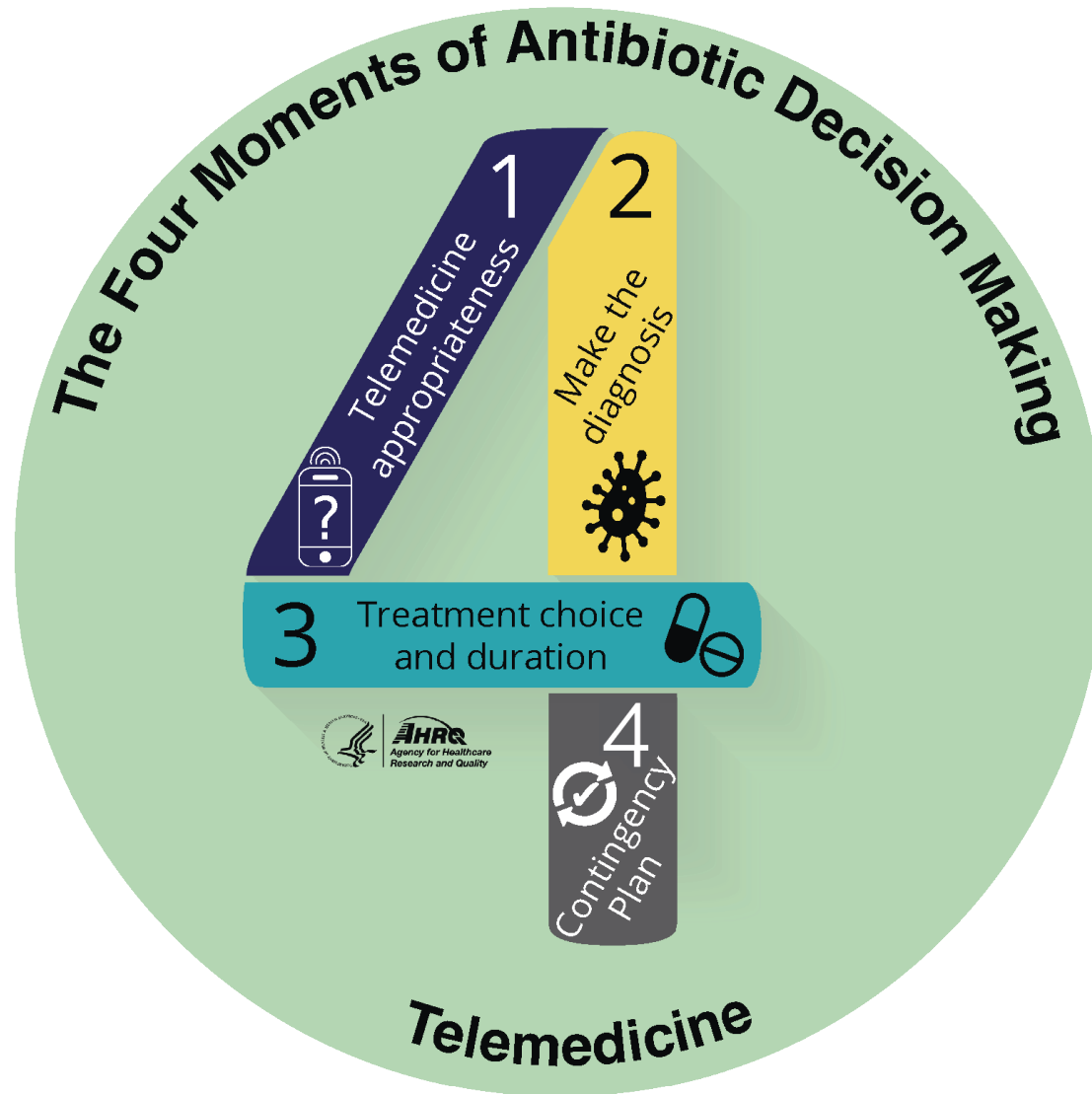
# Moment 1: Telemedicine Appropriateness<sup>1-3</sup>

- Cystitis is an infection of the bladder
  - Presents with acute onset of dysuria (painful urination), frequent need to urinate, and urgent need to urinate that began 1 day prior
    - Most cases appropriate for telemedicine visit
- Pyelonephritis is an infection of the kidney
  - Symptoms include fevers, chills, nausea, emesis, and flank pain, in addition to the symptoms of cystitis
    - In-person visit is preferred to enable obtaining urine culture and evaluation for possible hospitalization
- Foul-smelling or cloudy urine without urinary symptoms do not indicate a UTI

# Moment 1: Consider For In-Person Visit

- Reasons to consider referral for an in-person visit
  - Clinical signs and symptoms suggestive of pyelonephritis<sup>1-3</sup>
  - Children or non–sexually active adolescents
  - Adolescent or adult males
  - Elderly patients with mental status changes<sup>4-5</sup>
  - People with indwelling urinary catheters or known urinary stasis

# Moment 2: Need for Antibiotics



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: History

- Experiencing pain with urination, need to urinate with increased frequency, having sudden urges to urinate over past 24 hours
- Reports no fevers, chills, vomiting, or flank pain
- Reports no vaginal ulcers or lesions, blood, or unusual discharge from the vaginal region
- Reports no other symptoms
- One sexual partner; had intercourse 2 days ago
- Has had three UTIs within the past year
  - Successfully treated with nitrofurantoin

# Moment 2: Virtual Physical Examination

- Answers questions appropriately
- Not sweating or feeling flushed
- Breathing comfortably
- Normal heart rate (80 beats per minute) based on guided self-exam



# Asymptomatic Bacteriuria

- Asymptomatic bacteriuria is bacteria in the urine in the absence of UTI symptoms (e.g., dysuria, urgency, frequency, flank pain)
- Prevalence of asymptomatic bacteriuria generally increases with age<sup>6</sup>
- People experiencing asymptomatic bacteriuria do not need antibiotic therapy
  - Exceptions: pregnant women or those about to undergo urological procedures
- Prescribing antibiotics for asymptomatic bacteriuria does not reduce risk of future UTIs; increases risk that future UTIs will be more antibiotic resistant

## Moment 2: Urine Culture

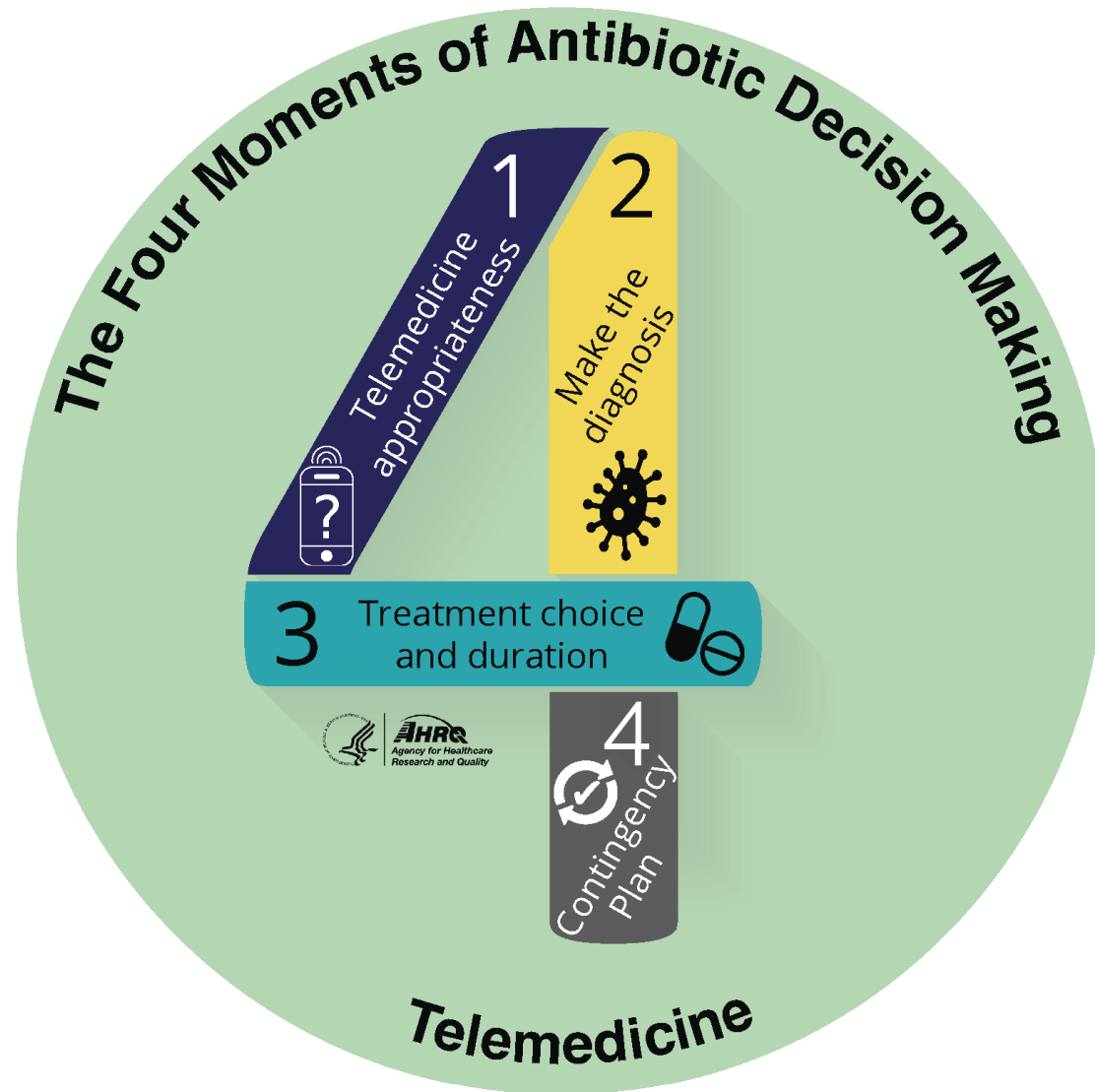
- Adolescent and adult women with symptoms of cystitis, such as dysuria, urgency, or suprapubic pain can generally be treated for a UTI even if a urinalysis or urine culture is not available
- Urine cultures should be considered in patients with a history of recurrent UTIs, given the higher likelihood of antibiotic-resistant UTIs
- If suggesting self-collection of a urine specimen at a commercial laboratory, instruct patient to—
  1. Clean the perineum from front to back
  2. Start the flow of urine
  3. Catch the urine in sterile cup
- Determine how you can access the lab results from the third-party laboratory to prescribe active antibiotic therapy



## Moment 2: Interpreting Urinalysis and Cultures

- Results of urinalysis and urine culture are relevant ONLY if patient has UTI symptoms
- Abnormal urinalysis
  - $\geq 10$  white blood cells per high-powered field
  - Presence of leukocyte esterase and nitrites less relevant for diagnosis of a UTI
- Abnormal urine culture
  - $\geq 100,000$  CFU/mL
  - Lower cutoffs if patient received antibiotics before urine culture obtained

# Moment 3: Antibiotic Therapy



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?

# Empiric Therapy: Uncomplicated Cystitis 1

- Preferred antibiotic options for cystitis<sup>1</sup>
  - Nitrofurantoin (Macrobid<sup>®</sup>) – 100 mg orally twice daily for 5 days<sup>7-9</sup>
  - Trimethoprim-sulfamethoxazole (Bactrim<sup>®</sup> or Septra<sup>®</sup>) – one double-strength tablet (160 mg/800 mg) orally twice daily for 3 days<sup>10</sup>
- Alternate antibiotic options for cystitis
  - Amoxicillin-clavulanate, cephalosporins, fosfomycin, gepotodacin, pivmecillinam, sulopenem

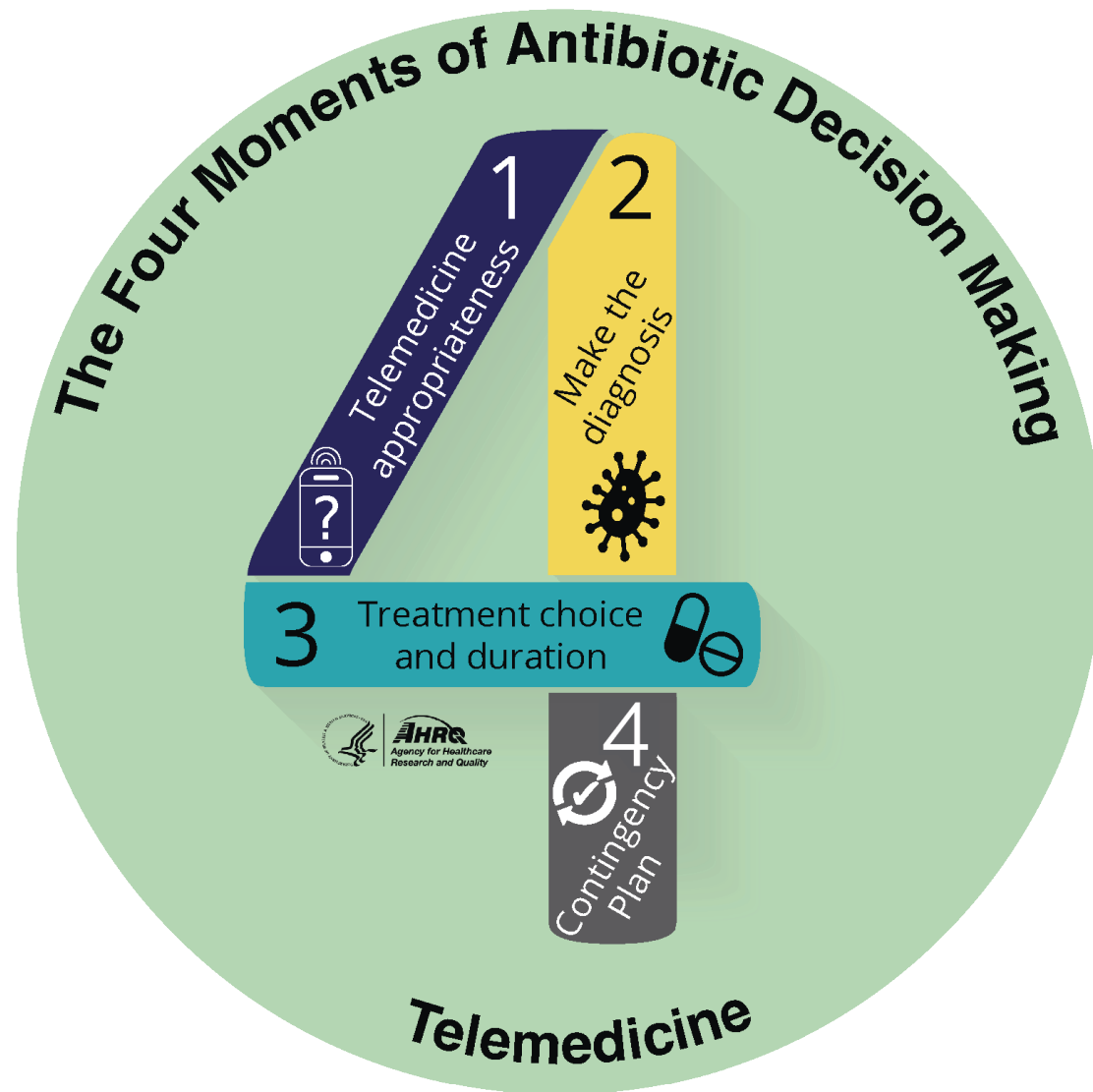


# Empiric Therapy: Uncomplicated Cystitis 2

- Fluoroquinolones not first-line therapy for uncomplicated cystitis
  - Adverse events include tendinitis (<1%), aortic dissection (<1%), *Clostridioides difficile* infection (<1%), prolonged QTc intervals (<1%), and mental status changes (1–4%)
- Review any available urine cultures and antibiotic susceptibility results within the past 12 months to guide antibiotic selection



# 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?

# Moment 4: Supportive Care

- Symptoms improve within hours of initiating antibiotic therapy and significantly improve by 48 hours
- Over-the-counter medications
  - Acetaminophen (Tylenol®) or ibuprofen (Motrin®, Advil®)
  - Urinary analgesics such as phenazopyridine (Azo Standard® or Pyridium®) can be considered
- Suggest increasing water intake



# Moment 4: Expectations and Followup Plan

- Cystitis symptoms typically improve within 2 days
- Seek in-person evaluation if—
  - Symptoms do not improve by day 3
  - Develop flank pain, fever
  - Generally feeling more ill
- If urine culture obtained and results indicate bacteria growing not susceptible to antibiotic prescribed, contact patient about continued symptoms
- If patient no longer has urinary symptoms, no change in antibiotic therapy indicated



# Strategies for Preventing Future UTIs 1<sup>3</sup>

- Behavioral changes
  - Liberal fluid intake (e.g., 6–8 glasses of water daily)<sup>11</sup>
  - Contraception modification
  - Planned postcoital voiding
  - Hygiene: wipe from front to back, showers instead of baths, minimize douche, sprays or powders



# Strategies for Preventing Future UTIs 2<sup>3</sup>

- Nonantibiotic treatment options
  - Peri and postmenopausal women: topical estrogen<sup>12-13</sup>
  - Mixed evidence:
    - Methenamine<sup>14-15</sup>
    - Cranberry products<sup>16-19</sup>
- Antibiotic prophylaxis: at least two UTIs in 6 months<sup>20-21</sup>
  - Postcoital<sup>20</sup>
  - Continuous

# Take-Home Messages

- ✓ Most cases of UTIs can be managed via telemedicine
- ✓ If pyelonephritis are present, the patient is a non–sexually active adolescent, an adolescent or adult male, an elderly person with mental status changes, or has risk factors for a complicated UTI, an in-person visit is preferred.
- ✓ For positive urine cultures obtained in the absence of urinary symptoms, there is no need to prescribe antibiotic therapy.
- ✓ Common first-line antibiotics for cystitis include nitrofurantoin for 5 days or trimethoprim-sulfamethoxazole for 3 days.
- ✓ Always discuss supportive care, return precautions, and preventive approaches with your patients.

# Disclaimer

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