Recurrent Uncomplicated UTI in Women: 2019 Guideline Updates

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Objectives

- Recall the prevalence and impact of recurrent urinary tract infections (rUTI).
- Identify important components of the history that are risk factors for developing rUTI.
- Explain the importance of urine culture results in the diagnosis and management of rUTI.
- Discuss the importance of antimicrobial stewardship.
- Incorporate the latest clinical guidelines in the management of the patient with rUTI.

Epidemiology and Impact

- rUTI is a highly prevalent condition affecting women of all ages, races, and ethnicities
- 50 - 60% of women will experience a UTI in their lifetime
- 20 - 40% of women who have had one previous cystitis episode are likely to experience an additional episode and 25 - 50% will experience multiple recurrent episodes
- 8.7 million ambulatory visits; 2.3 million ED visits per year
- $3 billion direct and indirect costs per year in the U.S.
- Significant morbidity with discomfort, dyspareunia, depression, social isolation and other effects on quality of life.

Need for Guidelines

- Uncomplicated UTI is one of the most common indications for antimicrobial exposure in otherwise healthy women
- Antimicrobial resistance among uropathogens has increased dramatically
- Collateral damage from antibiotic exposure
  - Alterations of normal gut microbiome; increased colonization with MDRO; *C. difficile* infections; allergic reactions and other significant adverse effects
- Need for antibiotic stewardship
  - Reduce inappropriate treatment
  - Decrease broad-spectrum antibiotic use
  - Tailor treatment to shortest effective duration

Participating Organizations

- American Urological Association – AUA
- Canadian Urological Association – CUA
- Society of Urodynamics, Female Pelvic Medicine & Urogenital Reconstruction – SUFU
- Electronic database searches in Ovid MEDLINE, Cochrane Central Register of Controlled Trials and Embase
- Complete guideline: https://www.auanet.org/guidelines/recurrent-uti

Definitions

- Acute bacterial cystitis / UTI: a culture proven infection of the urinary tract with a bacterial pathology associated with acute-onset symptoms such as dysuria in conjunction with variable degrees of increased urinary urgency and frequency, hematuria, and new or worsening incontinence
- Uncomplicated UTI: an infection of the urinary tract in a healthy **non-pregnant patient** with an anatomically and functionally normal urinary tract and no known factors that would make her susceptible to develop a UTI

Definitions

- Complicated UTI: An infection in a patient in which one or more complicating factors may put her at higher risk for development of a UTI and potentially decrease efficacy of therapy
  - Anatomic or functional abnormality of the urinary tract
  - Immunocompromised host
  - Pregnant
  - Multi-drug resistant bacteria
- Recurrent UTI (rUTI): two separate culture-proven episodes of acute bacterial cystitis and associated symptoms within six months or three episodes within one year
- Asymptomatic bacteriuria: Presence of bacteria in the urine that causes no symptoms of illness

Risk Factors

Premenopausal Women

- Sexual activity, especially with new partners
- Use of spermicides for contraception
- Pregnancy
- Lifestyle:
  - Deferred voiding habits, tight clothing, bubble baths, douching

Postmenopausal Women

- Advancing age
  - Pelvic organ prolapse
  - Lack of estrogen
  - Loss of lactobacilli in the vaginal flora
  - Concurrent medical conditions
    - Diabetes, Parkinson, dementia, arthritis, neurogenic bladder, immunosuppression

Differential Diagnoses

- Overactive bladder
- Genitourinary syndrome of menopause (GSM)
- Vaginitis
- STDs
- Painful bladder syndrome/interstitial cystitis
- Pelvic floor dysfunction
- Neurogenic bladder
- Psychological factors
- Bladder cancer
- Post radiation cystitis
- Kidney / ureteral stone

TABLE 2019 rUTI GUIDELINE AT A GLANCE: DOS AND DON'TS

DO
✓ Obtain a complete history and perform a pelvic exam in women presenting with rUTIs
✓ Document positive urine cultures associated with prior symptomatic episodes
✓ Obtain repeat urine studies when initial urine specimen is suspect for contamination
✓ Obtain urinalysis, urine culture, and sensitivity with each symptomatic acute cystitis episode prior to initiating treatment
✓ Use first-line therapy for the treatment of symptomatic UTIs depending on the local antibiogram
✓ Treat rUTI patients with an acute cystitis episode with as short a duration of antibiotics as reasonable
✓ Repeat urine culture to guide further management when UTI symptoms persist following antimicrobial therapy
✓ Recommend vaginal estrogen therapy to reduce the risk of future UTIs in perimenopausal and postmenopausal women with rUTIs
DON'T
× Routinely obtain cystoscopy and upper tract imaging in the index patient presenting with rUTI
× Obtain surveillance urine testing, including urine culture, in asymptomatic patients with rUTIs
× Treat asymptomatic bacteriuria
× Perform a post-treatment test of cure urinalysis or urine culture in asymptomatic patients
CONSIDER
○ Offering patient-initiated treatment to select rUTI patients with acute episodes while awaiting urine cultures
○ Treating with culture-directed parenteral antibiotics for as short a course as reasonable the patients with rUTIs with acute cystitis episodes associated with urine cultures resistant to oral antibiotics
○ Prescribing antibiotic prophylaxis to decrease risk of future UTIs in women previously diagnosed with UTIs following discussion of risks, benefits, and alternatives
○ Offering cranberry prophylaxis for rUTIs

Source: Adapted by Jennifer T. Anger, MD, MPH, and Anne Lenore Ackerman, MD, PhD from J Urol 2019; 202:282-9

1. Obtain a **complete history** and perform a pelvic examination in women presenting with rUTIs

- Symptoms
  - Bladder related: dysuria, urgency, frequency, nocturia, hematuria, incontinence
  - Non-bladder: dyspareunia, constipation, vaginal discharge or irritation, post-coital symptoms, vaginal bulge, pelvic/back/flank pain
- PMH: contraceptive method, menopausal status, comorbid conditions, triggers, risk factors for complicated UTI, stone disease, pelvic surgery, radiation therapy, sexual abuse, depression, anxiety
- Detailed history of prior infections, including culture results, antibiotic history, prior diagnostic work-up

1. Obtain a complete history and **perform a pelvic examination** in women presenting with rUTIs

- Physical examination should include abdominal and vaginal exams
- Structural abnormalities
- Pelvic support for bladder, urethra, vagina and rectum
- Direct palpation of bladder, urethra
- Degree of any pelvic organ prolapse
- Vaginal walls, vaginal atrophy, presence of vaginal cysts
- Pelvic floor muscles for tone, tenderness, trigger points
- Consider neuro exam if indicated

2. To diagnosis rUTI, clinicians must document positive urine culture associated with symptoms

- rUTI defined as two culture-proven symptomatic episodes in 6 months or 3 in one year
- Symptom resolution between episodes
- Obtaining culture PRIOR TO initiating microbial therapy
- Close follow up on culture results for sensitivity
- A lack of correlation between culture data and symptomatic episodes should prompt consideration of alternative or comorbid conditions

3. Obtain repeat urine studies when an initial specimen is suspect for contamination

- Under optimal conditions, a mid-stream voided specimen has contamination rates of <1%
- Contamination should be suspected when the specimen exhibits growth of normal vaginal flora (e.g.lactobacillus), mixed cultures containing more than one organism, or low quantities of a pathogenic organism in an asymptomatic patient
- Presence of epithelial cells or mucus on microscopic analysis
- Specimen collection: low threshold for catheterization
- Post-collection processing, particularly specimen storage, can lead to increased number of false-positive cultures

4. Cystoscopy and upper tract imaging should not be routinely obtained

- Low yield
- If patient does not respond appropriately to treatment of uncomplicated UTI, then patient should be considered complicated and then cystoscopy is necessary
- Cystoscopy indicated for patients with previous pelvic surgery
- Upper tract imaging reserved for patients with gross hematuria; persistent hematuria between symptomatic episodes, or hematuria without infection or stone

5. Obtain UA, culture & sensitivity with each symptomatic episode **prior to initiating treatment**

- Having a urine culture 50% of the time was associated with fewer UTI-related hospitalizations and lower rates of IV antibiotic use
- Since progression from cystitis to pyelonephritis is uncommon, initiating non-antibiotic therapy while awaiting culture results may be reasonable
- Poor sensitivity and specificity with point of care dipstick analysis, so these should not be diagnose rUTI or guide treatment decisions

6. Clinicians may offer patient-initiated treatment to select rUTI patients with acute episodes while awaiting culture results

- Obtain culture prior to antibiotic treatment whenever possible.
- Very judicious patient selection
  - Travel, remote location, history of documented urosepsis within the past year, mobility/transportation barriers that impact access to care
- Use prior culture results to guide antibiotic selection

7. Omit surveillance urine testing, including urine culture, in asymptomatic patients

- Without symptoms, bacteriuria of any magnitude is asymptomatic bacteriuria (ASB)
- There is no evidence that identification of ASB between UTI episodes provides useful prognostic information
- Possible exception: women scheduled to undergo invasive urinary tract procedure

8. Do not treat asymptomatic bacteriuria

- Evaluate/treat only when acute symptoms are present
- No evidence that treatment of ASB results in improved clinical outcomes
- There is clear evidence that treatment can cause harm
- Infectious Disease Society of America (IDSA) 2019 guidelines for ASB
  - https://www.idsociety.org/practice-guideline/asymptomatic-bacteriuria/
- The only clearly recognized indications for screening/treating asymptomatic women are pregnancy and elective urologic surgery

9. Use first-line therapy for treatment

- Nitrofurantoin, TMP/SMX, Fosfomycin, dependent on local antibiogram
  - If you don’t have access to antibiogram, another resource is resistancemap.cddep.org
- Typically effective with little collateral damage
- **IDSA 2011 guidelines: if antimicrobial therapies for UTI are compared based upon efficacy in achieving clinical and/or bacteriological cure, there is relatively little to distinguish one agent from another.**

10. Treat with as short a duration of antibiotics as reasonable

- Limited high quality up to date evidence of comparative trials on the length of antibiotic therapy
- Generally, no longer than 7 days
- Single dose therapy is associated with increased risk of bacterial persistence
- Three-day course, irrespective of class, associated with increased risk of long-term bacteriological failure compared to a 5-10 day course

11. In patients with rUTIs experiencing acute cystitis episodes associated with urine cultures resistant to oral antibiotics, clinicians may treat with culture-directed parenteral antibiotics for as short a course as reasonable, generally no longer than seven days.

- If your routine panel doesn’t test for sensitivity to Fosfomycin, this should be obtained before concluding that parenteral therapy is necessary.

12. Clinicians may prescribe antibiotic prophylaxis to decrease the risk of future UTIs in women of all ages previously diagnosed with UTI.

- Nitrofurantoin 100 mg daily is the most widely studied for prophylaxis and remains a first line choice.
- Length of prophylactic treatment not established in evidence based research; commonly 3-6 months; up to 12 months in some cases.
- Must have a detailed discussion with patient about the risks, benefits and alternatives
- Few studies evaluated prophylaxis with other interventions

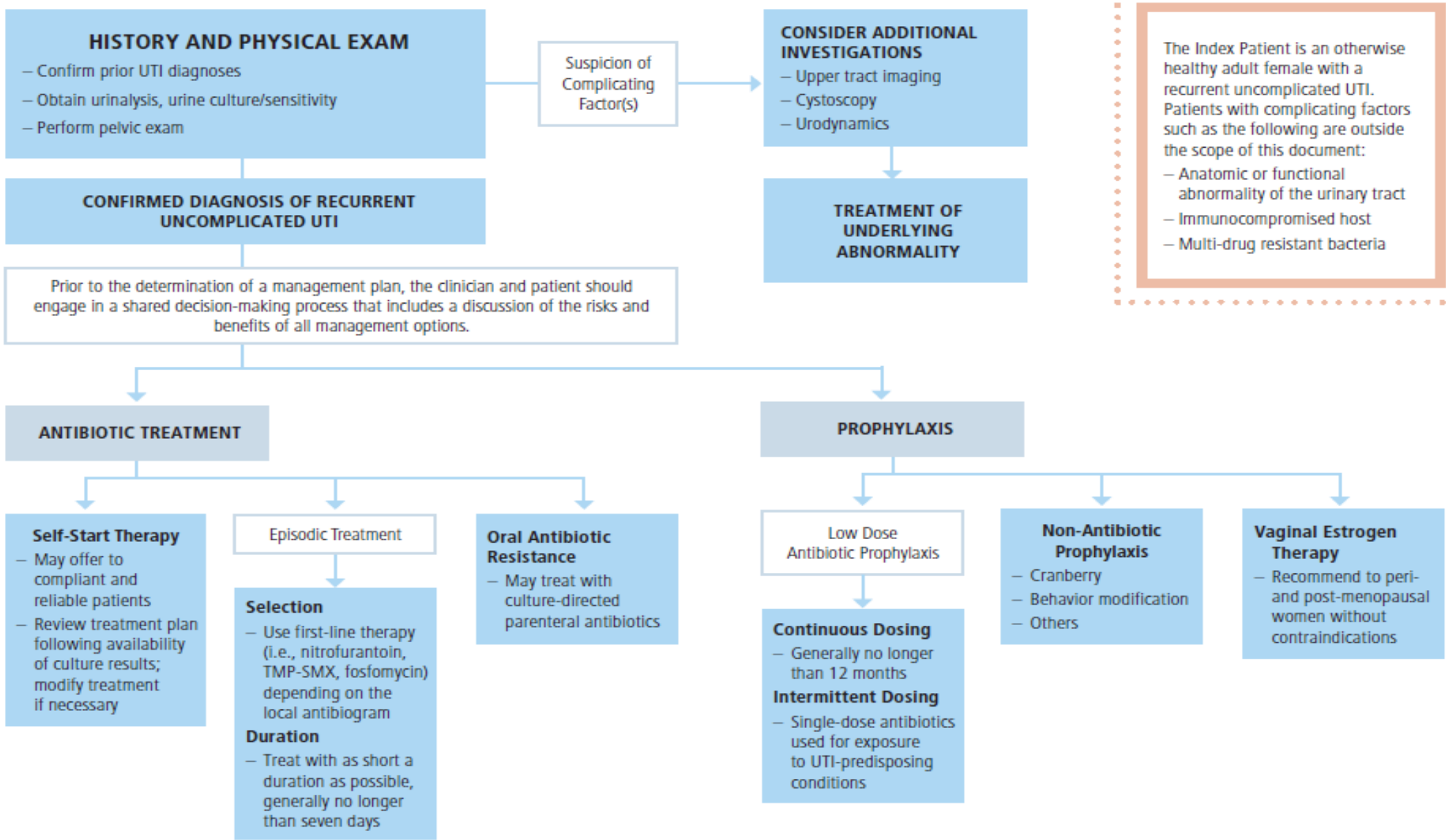
13. Clinicians may offer cranberry prophylaxis for women with rUTIs.

- Growing number of randomized clinical trials
- Proposed mechanisms of action is thought be to related to proanthocyanidins (PACs) present in cranberries and their ability to prevent adhesion of bacteria to the urothelium
- Various forms: juice, tablet, powder; cranberry alone or with cherries, lingonberries; with or without lactobacillus
- Insufficient evidence to recommend one form over another
  - Juices typically have high sugar content, so consider this for diabetic patients

Follow-Up Recommendations

- 14. Clinicians should not perform a post-treatment test of cure UA or culture in asymptomatic patients.
- 15. Clinicians should repeat urine cultures to guide further management when UTI symptoms persist following antimicrobial therapy.
- 16. In peri- and post-menopausal women with rUTIs, clinicians should recommend vaginal estrogen therapy to reduce the risk of future rUTIs if there are is no contraindication to estrogen.

Recurrent Uncomplicted Urinary Tract Infections in Women: AUA/CUA/SUFU Diagnosis & Treatment Algorithm



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