Clinical Pathways Program

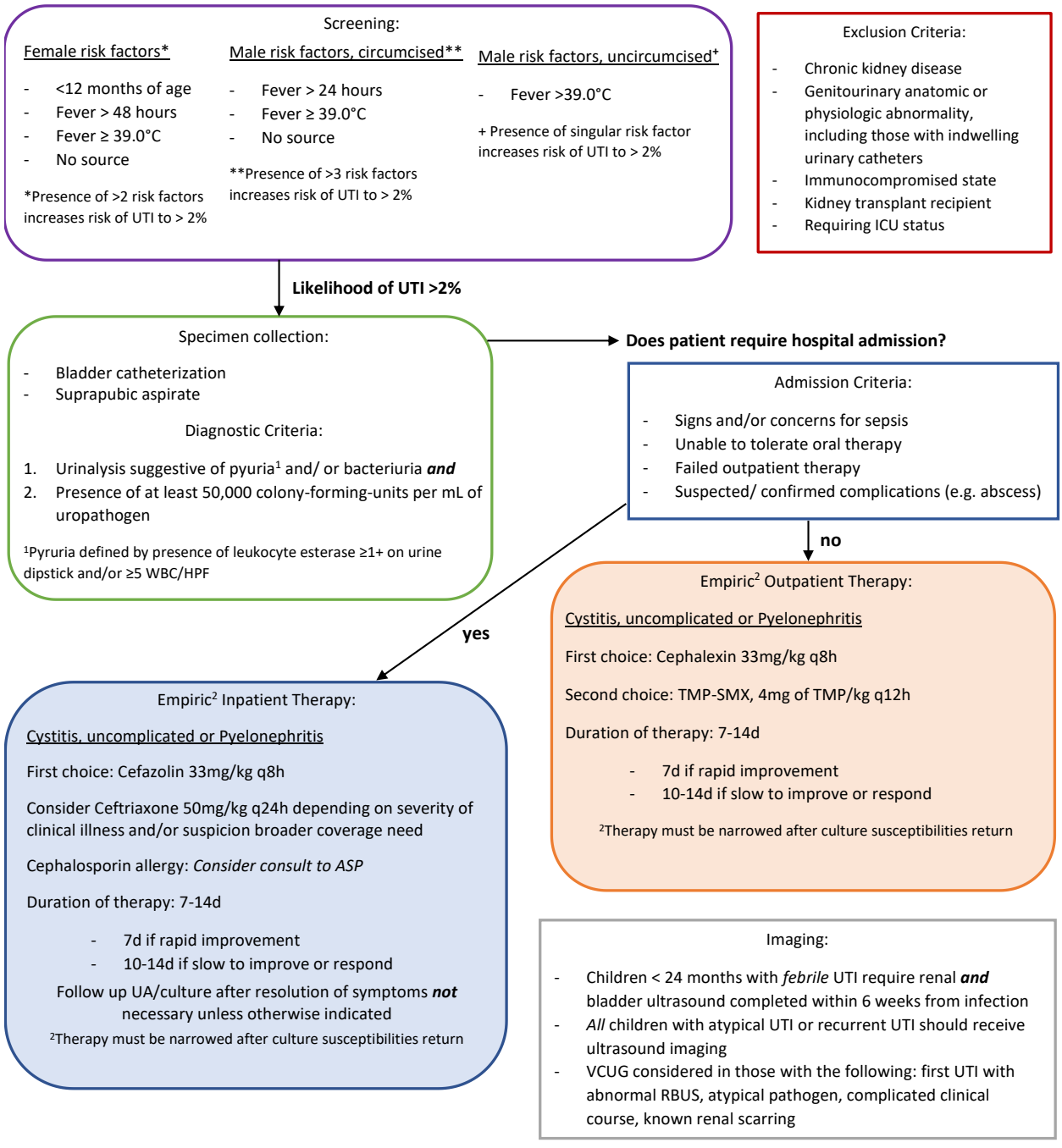
# Guideline: PEDIATRIC URINARY TRACT INFECTION

Updated: May 27, 2022

## Clinical algorithm:

Pediatric Hospital Medicine UTI Clinical Guideline, ***2- 24 months of age***

**For febrile infants younger than 2 months, please refer to Febrile Infant Clinical Practice Guideline*



Pediatric Hospital Medicine UTI Clinical Guideline, ***>24 months of age***

Screening:

Verbal children should be screened for UTI if they have dysuria, frequency, flank or abdominal pain. Symptoms can occur with or without fever.

Exclusion Criteria:

- Chronic kidney disease
- Genitourinary anatomic or physiologic abnormality, including those with indwelling urinary catheters
- Immunocompromised state
- Kidney transplant recipient
- Requiring ICU status

Specimen collection:

- Bladder catheterization
- Suprapubic aspirate (SPA)
- Urine, bag collection (>6 mo age, non-toilet trained)*
- Urine, clean catch (toilet trained)

*Cannot send for culture. If dipstick positive, needs catheterization for urine culture.

Diagnostic Criteria:

Urinalysis suggestive of pyuria[1] and/ or bacteriuria ***and***

1. Presence of at least 50,000 colony-forming-units per mL of uropathogen *if collected via bladder catheterization or SPA*; presence of at least 100,000 cfu/mL uropathogen *if collected via urine clean catch*

[1]Pyruria defined by presence of leukocyte esterase ≥1+ on urine dipstick and/or ≥5 WBC/HPF

**Does patient require hospital admission?**

Admission Criteria:

- Signs and/or concerns for sepsis
- Unable to tolerate oral therapy
- Failed outpatient therapy
- Suspected/ confirmed complications (e.g. abscess)

**yes**

**no**

Empiric[2] Inpatient Therapy:

<u>Cystitis, uncomplicated or Pyelonephritis</u>

First choice: Cefazolin 33mg/kg q8h (max 500mg/dose)

Consider Ceftriaxone 50mg/kg q24h depending on severity of clinical illness and/or suspicion broader coverage need

Cephalosporin allergy: *Consider consult to ASP*

Duration of therapy: 5-7d

Follow up UA/culture after resolution of symptoms ***not*** necessary unless otherwise indicated

[2]Therapy must be narrowed after culture susceptibilities return

Empiric[2] Outpatient Therapy:

<u>Cystitis, uncomplicated</u>

First choice: Cephalexin 33mg/kg q8h (max 500mg/dose) for 5-7d

Second choice: TMP-SMX, 4mg of TMP/kg q12h for 3d (max 160mg TMP/dose)

<u>Pyelonephritis</u>

First choice: Cephalexin 33mg/kg q8h (max 1000mg/dose)

Second choice: TMP-SMX, 4mg of TMP/kg q12h (max 160mg TMP/dose)

Duration of therapy: 5-7d

[2]Therapy must be narrowed after culture susceptibilities return

Imaging:

- In children older than 24 months with uncomplicated UTI, imaging *is not* recommended
- *All* children with atypical UTI or recurrent UTI should receive ultrasound imaging
- VCUG considered in those with the following: first UTI with abnormal RBUS, atypical pathogen, complicated clinical course, known renal scarring

# Clinical guideline summary

**CLINICAL GUIDELINE NAME:** Pediatric Urinary Tract Infection

**PATIENT POPULATION AND DIAGNOSIS:** Patients 2 months of age or older with urinary tract infections (UTIs).

**APPLICABLE TO:** Helen DeVos Children's Hospital and SH regional sites treating this patient population.

**BRIEF DESCRIPTION:** This guideline provides an evidence-based approach to the diagnosis and management of UTI in infants and children 2 months of age and older. It is intended for pediatricians, family medicine physicians, emergency medicine physicians, pediatric hospitalists, resident physicians, nurse practitioners and physician assistants who care for these children in the emergency department, inpatient and clinic settings. This guideline does not apply to children with chronic kidney disease, genitourinary anatomic or physiologic abnormality (including those with indwelling urinary catheters), immunocompromised patients, those with a history of kidney transplant or those ill enough to require hospitalization in a pediatric intensive care unit (ICU).

UTIs are a common and important clinical problem in childhood. Signs and symptoms include dysuria, urinary frequency and/or urgency, fever, vomiting and dehydration. Upper urinary tract infections (ie, acute pyelonephritis) may lead to renal scarring, hypertension, and end-stage kidney disease. Although children with pyelonephritis tend to present with fever, it can be difficult on clinical grounds to distinguish cystitis from pyelonephritis, particularly in children less than 2 years old. Acute management of UTI in children consists of antimicrobial therapy to treat the acute infection and evaluation for possible predisposing factors (eg, urologic abnormalities).

**IMPLEMENTATION DATE:** July 21, 2022

**LAST REVISED:** May 27, 2022

# Clinical pathways clinical approach

**TREATMENT AND MANAGEMENT**:
Inpatient preferred treatment is Cefazolin based on HDVCH antibiogram and community resistance patterns. Outpatient preferred treatment is Cephalexin and second choice TMP-SMX based on community resistance patterns. In children less than 24 months with febrile UTI, renal ultrasound should be obtained. Referral to subspecialist as necessary for abnormal findings on ultrasound and/or atypical urinary pathogen(s). Children older than 24 months without complicated UTI do not need imaging unless atypical pathogen(s) are found and/or if UTI is recurrent. Referral to subspecialist (nephrology, urology) as necessary for abnormal or atypical findings.

## Pathway information

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**CPC APPROVAL DATE:** July 21, 2022

**OTHER TEAM(S) IMPACTED:** Nursing, pharmacy

**FOR MORE INFORMATION, CONTACT:** Allison Long, MD

## References:


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