

# Urinary Tract Infection UTI

## FAST FACTS

~**3.5%**

of all children develop UTI annually

>**80%**

of UTI are caused by E. coli

**Nearly 10X  
lower risk**

of UTI in circumcised boys during first year of life

~**12 – 30%**

of children with UTI will develop a recurrence

~**15%**

of children who, after a single febrile UTI, will have abnormal renal and bladder ultrasound; up to 40% will have VUR, and up to 20% will have high-grade VUR

A urinary tract infection (UTI) is any inflammatory change in the urinary tract from an infectious agent. UTI is common in the pediatric population, accounting for more than 1.5 million outpatient visits and 13,000 inpatient hospitalizations annually. UTI occurs in all ages, ranging in severity from lower urinary tract symptoms to cystitis to life-threatening sepsis due to pyelonephritis.

## ASSESSMENT

Perform a detailed history, focusing on presence, severity, and duration of fever >38°C. Perform a complete physical exam with focus on abdomen and genitals. Symptoms vary widely. Infants and young children have non-specific symptoms such as lethargy, irritability, poor feeding, emesis, diarrhea and abdominal distention. Older children complain of urinary frequency, urgency, dysuria, incontinence, gross hematuria and abdominal/flank pain. Urine qualities (color/odor) are not reliable indicators.

## HPE RED FLAGS/RISK FACTORS FOR UTI

### History/physical

- Female gender, except during first year of life
- Age <12 months
- Caucasian
- Temperature ≥ 39°C
- Fever ≥ 2 days or longer
- Absence of other source of fever
- Prior UTI
- Uncircumcised

- Anatomic abnormalities
- Bladder/bowel dysfunction
- Neurogenic bladder
- Sexual activity
- Recent urologic instrumentation

### Family history

- UTI in childhood
- Vesicoureteral reflux (VUR)

## MANAGEMENT/TREATMENT

Prior to starting antibiotic therapy, obtain a urinalysis (U/A) with microscopy, with specimen collected by catheter or suprapubic aspiration in children who are not toilet trained. Confirm UTI through positive urine culture, positive U/A for pyuria, and associated symptoms.

Repeat urine culture to determine treatment adequacy is not recommended unless symptoms persist.

## WHEN TO REFER

Most children with UTIs should be referred to Cincinnati Children's Urology for renal and bladder ultrasound (RBUS) to screen for any anatomic abnormalities in the urinary tract, and for consideration of a voiding cystourethrogram (VCUG) to screen for VUR. A referral is helpful even when the RBUS is normal.

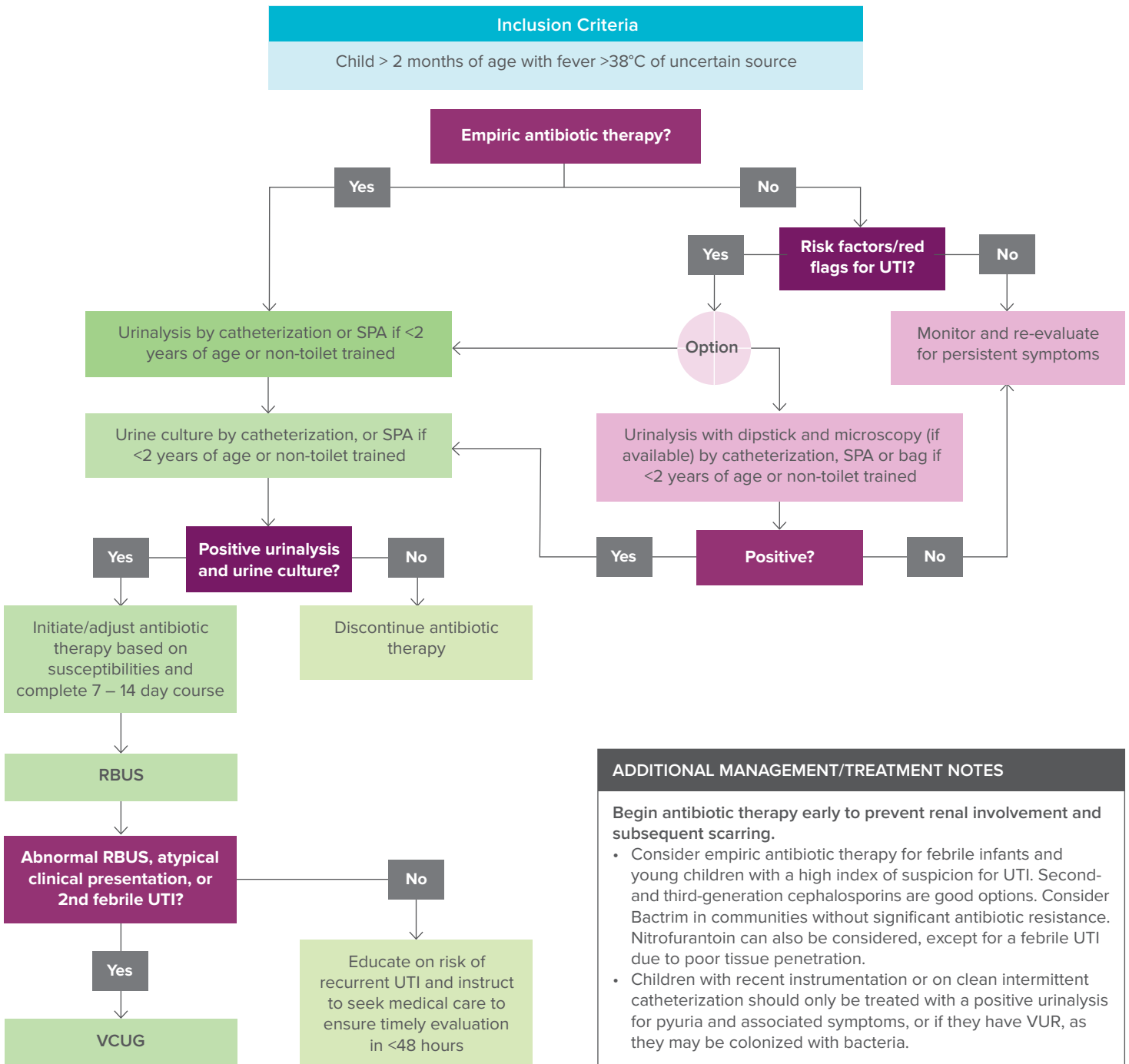
### Refer to Cincinnati Children's Emergency:

- Febrile infant <2 months of age
- Toxic appearance
- Poor oral intake/dehydration
- Failure to respond to outpatient treatment

If you would like additional copies of this tool, or would like more information, please contact the Physician Outreach and Engagement team at Cincinnati Children's.

If you have clinical questions about patients with UTI, email [PedsUrology@cchmc.org](mailto:PedsUrology@cchmc.org).

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**ADDITIONAL MANAGEMENT/TREATMENT NOTES**

Begin antibiotic therapy early to prevent renal involvement and subsequent scarring.

- Consider empiric antibiotic therapy for febrile infants and young children with a high index of suspicion for UTI. Second- and third-generation cephalosporins are good options. Consider Bactrim in communities without significant antibiotic resistance. Nitrofurantoin can also be considered, except for a febrile UTI due to poor tissue penetration.
- Children with recent instrumentation or on clean intermittent catheterization should only be treated with a positive urinalysis for pyuria and associated symptoms, or if they have VUR, as they may be colonized with bacteria.

For urgent issues, or to speak with the specialist on call 24/7, call the Physician Priority Link at 1-888-636-7997.