

FEBRILE UTI FOR PATIENTS ≥ 2 MONTHS – 12 YEARS

Inclusion Criteria

Children ≥ 2 months of age – 12 years of age with presumed or definite UTI

Exclusion Criteria

- Toxic appearing
- Prior history of UTI (defined as > 2 febrile UTIs)
- Chronic kidney disease as defined by estimated glomerular filtration rate (GFR) by the original Schwartz Formula < 80 mL/min/ 1.73m²
- Genitourinary abnormalities, including previous GU surgery (other than circumcision) neurogenic bladder conditions, known obstructive uropathy, known high-grade vesicoureteral reflux (Grades III-V)
- Septic shock
- Immunocompromised host
- Pregnancy
- Recent history of sexual abuse
- Children < 2 months of age or > 12 years of age
- Patients requiring admission to the ICU or PICU
- Premature infants

Antimicrobial Therapy

Children's Antibioqram Data

First Line

Cephalexin: 75 mg/kg/day PO in three divided doses (usual adult dose 1000 mg/day in two divided doses) for 7-14 days

- Dosing frequency in children must be more frequent than in adults in this setting due to difference in drug metabolism

Bactrim: 8 mg/kg/day PO in two divided doses (usual adult dose 320 mg/day divided two times a day, i.e. one double strength tablet two times a day) for 7-14 days

Second line

Cefixime: infants and children weighing ≤ 45 kg: 8mg/kg/day PO in one dose (usual adult dose 400 mg given once daily) for 7-14 days

- Children weighing > 45 kg and adolescents: 400 mg PO in one dose for 7-14 days

Cefuroxime: 30 mg/kg/day PO in two divided doses (usual adult dose 500 mg/day in two divided doses) for 7-14 days

Third line

Cefdinir: 14 mg/kg/day PO in one dose (usual adult dose 600 mg/day given one daily) for 7-14 days

- Cefdinir does not concentrate in the urine as well as other beta-lactam antibiotics

Ceftriaxone: 75 mg/kg (max single dose 1 gram)

- For children who are hydrated, unable to tolerate oral medication or unlikely to be adherent to the initial doses of antibiotic. If clinical improvement is observed at 24 hours, an oral antibiotic can be substituted to complete the course of therapy.

- Children who are still significantly febrile or symptomatic at 24 hours may require additional parenteral doses before switching to oral therapy.

Consider febrile UTI if unexplained fever ≥38 °C (100.4 °F)

Signs and symptoms suggestive of UTI

Age 2 months - 2 years:

- Poor feeding
- Vomiting
- Irritability
- Strong smelling urine
- Abdominal pain
- Jaundice

Children > 2 years:

- Hematuria
- Vomiting
- Strong-smelling urine
- Abdominal pain
- Enuresis/incontinence
- Urinary symptoms
 - urgency
 - frequency
 - dysuria

Physical Findings suggestive of UTI

Related to UTI:

- Abdominal tenderness to palpation
- Suprapubic
- Palpable bladder
- Costovertebral angle (CVA) tenderness to percussion

Related to abnormal anatomy:

- Dribbling, poor stream, straining to void
- Hypertension
- Sacral dimple or hair patch

Obtain Urine Sample

Refer to Policies:

- PC 07 (Procedure for clean catch urine)
- PC 32 (Specimen collection: Urinary catheterization)

Perform urine dip

Positive for leukocyte esterase &/or nitrite

Negative for leukocyte esterase & nitrite

Urine Colony Count (clinic)
or
Urine Culture (urgent care)

Regular Information Important Information Escalating Care

Disclaimer: Pathways are intended as a guide for practitioners and do not indicate an exclusive course of treatment nor serve as a standard of medical care. These pathways should be adapted by medical providers, when indicated, based on their professional judgement and taking into account individual patient and family circumstances.

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After confirmation of UTI, clinicians should instruct caregiver(s) about:

- Seeking prompt medical evaluation (ideally within 48 hours) for future febrile illnesses
- The link between bowel/bladder dysfunction (i.e. constipation) and febrile UTI and the importance of timed and double voiding

Note:
If a clinician decides that a febrile infant with no apparent source for the fever requires antimicrobial therapy to be administered because of ill appearance or another pressing reason, the clinician should ensure that a urine specimen is obtained for both culture and urinalysis before an antimicrobial is administered.

Long Term Follow-up Management:
Routine follow-up surveillance cultures are not recommended

Indications for Referral to Urology:
Any grade of reflux can be referred to Urology; under any of the following conditions, a referral *should* be made:

- Moderate-severe vesicoureteral reflux (Grades 3-5)
- ≥ third febrile UTI all ages
- Abnormal anatomy -Surgical consideration
- Recent or history of genitourinary surgery
- Persistent VUR on follow-up imaging



• Is the colony count or urine culture (+) for a single uropathogen and > 50,000 CFU/ml in an appropriately collected (clean catch or catheter) specimen?
• If urine colony count was done in clinic, send plate to hospital for organism identification & sensitivity testing

YES

NO

- Review sensitivities
- Assure appropriate antibiotics were prescribed
- Start patients on antibiotics if not prescribed at initial visit

- If > 1 uropathogen is present, collect new sample for testing (if antibiotics were not started previously)
- Consider false negatives if CFU/ml do not meet positive threshold criteria
- Discontinue antibiotic therapy (if warranted)
- Manage off pathway

Caregiver(s) should follow up with clinician if the child is not afebrile or showing improvement within 48 hours

Imaging

First Febrile UTI
Renal Bladder Ultrasound (RBUS) within 1-2 weeks for children ≥ 2 months – 2 years old with 1st febrile UTI & older children who fail to respond to antibiotics

- Normal – manage in primary clinic/observe
- Abnormal – consider voiding cystourethrogram (VCUG) & refer to Urology

Voiding Cystourethrogram (VCUG) - Consider in infant boys ≤ 1 year of age for posterior urethral valves

Second Febrile UTI
RBUS within 1-2 weeks for older children with a recurrent febrile UTI
VCUG within a few weeks of diagnosis for children ≥ 2 months- 2 years with a recurrent febrile UTI

- Normal or grade 1-2 vesicoureteral reflux (VUR) manage in primary clinic/observe & educate caregiver(s) about bowel/bladder dysfunction or refer to Urology
- Moderate-Severe VUR (Grades 3-5)
- Abnormal anatomy other than VUR, refer to Urology
- Persistent VUR on follow-up VCUG, refer to Urology

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