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

**Inclusion Criteria**
Children ≥ 2 months – 18 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
- Patients requiring admission to ICU
- Premature infants

**Signs and symptoms suggestive of UTI**
- Age 2 mos – 2 yrs:
  - Poor feeding
  - Vomiting
  - Irritability
  - Abdominal pain
  - Jaundice
- Children > 2 yrs:
  - Hematuria
  - Vomiting
  - 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**
Consider initiating UTI smart set
- Specimen collection urinary catheterization
- Clean catch

**What are the results of urine dip?**
- Positive for leukocyte esterase and/or nitrite
- Negative for leukocyte esterase and nitrite

**Urine Colony Count (clinic) or Urine Culture (urgent care).** If urine colony count was completed in clinic, send plate to hospital for organism identification & sensitivity testing.

**Is the colony count or urine culture (+) for a single uropathogen and > 50,000 CFU/mL in an appropriately collected (suprapubic aspiration or catheter) specimen? Or 100,000 CFU/mL in a clean catch specimen?**

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**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.

ChildrensNebraska.org/Pathways

Updated 04/2022
URINARY TRACT INFECTION (FEBRILE) FOR PATIENTS ≥ 2 MONTHS – 18 YEARS

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

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Children's Nebraska

Disclaimer:

**Antimicrobial Therapy: Children’s Antibiogram 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

- Ceftriaxone: 75 mg/kg (max single dose 1 gram)
  - For children who are dehydrated, unable to tolerate oral medication or unlikely to be adherent to the initial dosages of antibiotic. If clinical improvement is observed at 24H, an oral antibiotic can be substituted to complete the course of therapy.
  - Children who are still significantly febrile or symptomatic at 24H may require additional parenteral doses before switching to oral therapy.

**Second Line**

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

**Cephalexin-allergic Patient**

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

**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