MSH Emergency Department

Pediatric Urinary Tract Infection Pathway

Date Created: *10/14/2021*
Date Reviewed:
Reviewed By: *S Bhadiraju, M Boyle, A Buttigieg, L Douglas, J Fune, N Hodo, D Lee, A Lim, L Ngai, R Posada, L Spina, J Tokarski, C Tran, L Zinns*

History and physical exam
2 months - 2 years old
- Fever
- Poor feeding
- Vomiting
- Lethargy, hypoactivity, irritability

>2 years old
- Fever
- Dysuria
- Urinary frequency, hesitancy, urgency
- Enuresis/incontinence
- Abdominal pain, flank pain, suprapubic pain

Note:
Consider vaginitis in pre-toilet trained females
Consider yeast infection, bacterial vaginosis, trichomonas, and pelvic inflammatory disease (PID) in sexually active females

Specimen collection
Toilet-trained: Midstream clean catch

Not toilet trained: Cath specimen
- If unable/refusal, bag UA with microscopy
  - UC collection is ONLY acceptable by transurethral catheterization

Diagnosis
Unlikely UTI
- UA negative

Possible UTI
- High clinical suspicion and/or persistent fevers without identified infectious source ***AND***
- Equivocal or positive UA ***AND***
- Culture growth of single bacteria:
  - Cath: ≥10,000 cfu/mL
  - Clean catch: ≥50,000 cfu/mL
  - *Note: Positive culture from bagged urine specimen cannot be used to diagnose UTI*

Probable UTI
- UA positive: >5 WBC/hpf, +leukocyte esterase, +/-nitrite ***AND***
- Urine culture growth of a single bacteria:
  - Cath: ≥50,000 cfu/mL
    - *≥10,000 CFU/mL in infants up to 2 years old when fever is also present*
  - Clean catch: ≥100,000 cfu/mL
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Empiric Antibiotics
Cephalexin: 33 mg/kg/dose PO q8h (max: 1000 mg/dose)
Ciprofloxacin: 20 mg/kg/dose PO q12h (max: 750 mg/dose)
Levofloxacin: 6 mo to <5 y: 10 mg/kg/dose PO q12h (max: 375 mg/dose); ≥5 y: 10 mg/kg/dose PO q24h (max: 750 mg/dose)
TMP/SMX: 5 mg/kg of TMP PO q12h (max: 160 mg of TMP/dose)

Culture Information
If multi-drug-resistant organism in last 12mo, discuss with Infectious Disease

If history of Enterococcus, may hold active empiric therapy against enterococcus in most cases

For *E. coli*, *Klebsiella*, and *Proteus*, use cefazolin susceptibility as a surrogate for efficacy for ALL oral cephalosporins

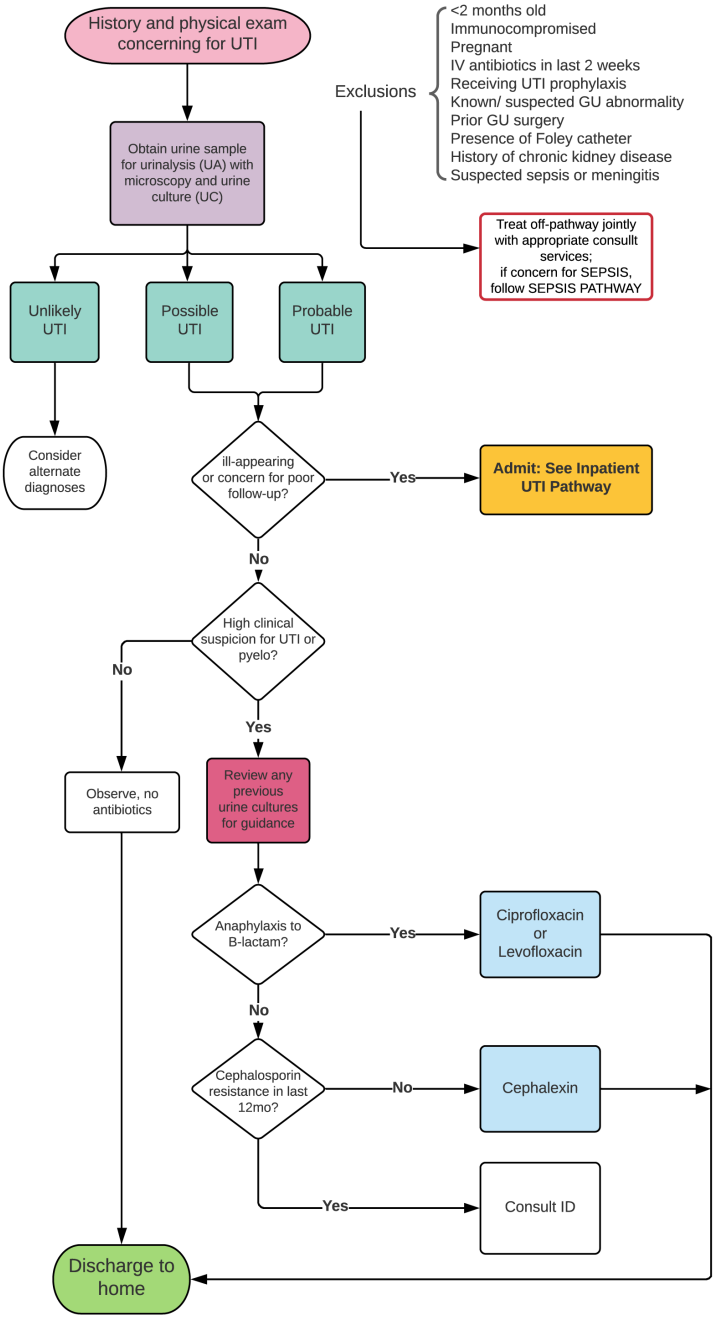
Do NOT use ceftriaxone to predict susceptibility for oral 3rd gen cephalosporins (e.g. cefpodoxime, cefdinir)

Discharge Instructions
Follow up with PCP within 2d

Antibiotic duration if treating:
Cystitis: 3 days
Pyelonephritis < 2y: 10 days
Pyelonephritis ≥2y: 7 days

Pediatric Urinary Tract Infection (UTI) Pathway

This pathway serves as a guide and DOES NOT replace clinical judgment



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Pediatric Urinary Tract Infection (UTI) Inpatient Pathway

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Antibiotics
***Aztreonam** 30 mg/kg/dose IV q8h (max 1000 mg/dose)
Cefazolin 33 mg/kg/dose IV q8h (max 1000 mg/dose)
***Cefepime** 50 mg/kg/dose IV q8h (max 1000 mg/dose)
***Ceftazidime** 50 mg/kg/dose IV q8h (max 1000 mg/dose)
Ceftriaxone 75 mg/kg/dose IV q24h (max 1000 mg/dose)
Cephalexin: 33 mg/kg/dose PO q8h (max 1000 mg/dose)
***Ciprofloxacin:** 10mg/kg/dose IV q8h (max 400mg/dose); 20 mg/kg/dose PO q12h (max 750 mg/dose)
***Levofloxacin**: 6 mo to <5 y: 10 mg/kg/dose IV/PO q12h (max 375 mg/dose); ≥5 y: 10 mg/kg/dose IV/PO q24h (max 750 mg/dose)
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***Requires Infectious Diseases approval**

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Discharge Criteria
Eating, drinking, voiding
PO meds

Discharge Instructions
Follow up with PCP within 2-3d
Cystitis: Antibiotics for 3d
Pyelonephritis < 2y: Antibiotics for 10d
Pyelonephritis ≥2y: Antibiotics for 7d