

Urinary Tract Infection

Definitions

Urinary Tract Infection (UTI)

Clinical signs and symptoms (dysuria, frequency, flank pain, suprapubic pain, fever)

and

UA with pyuria and/or bacteruria (> 5 WBC/hpf, (+) nitrite or (+) leukocyte esterase(LE))

and

Growth of no more than two urinary pathogens on culture (see below box on page 4)

Definition of Presumed Bacterial Cystitis

Urinary symptoms with abnormal UA, without fever

Definition of Presumed Pyelonephritis

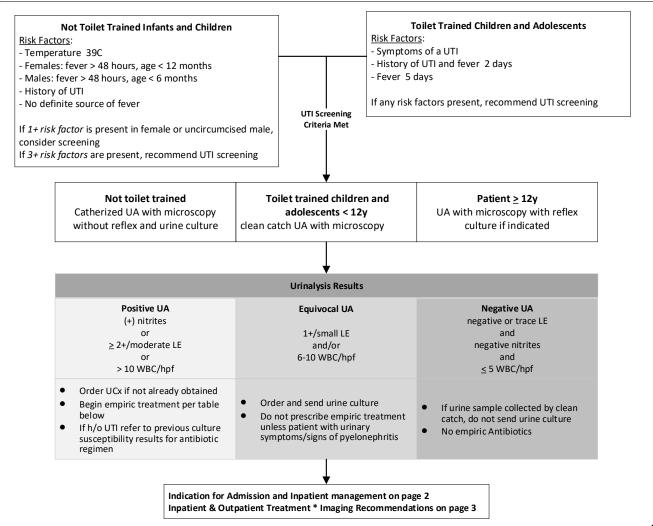
Urinary symptoms with fever and abnormal UA

Inclusion Criteria:

- Infants > 60 days to age 18 years
- Suspected or definite first time or recurrent UTI

Exclusion Criteria:

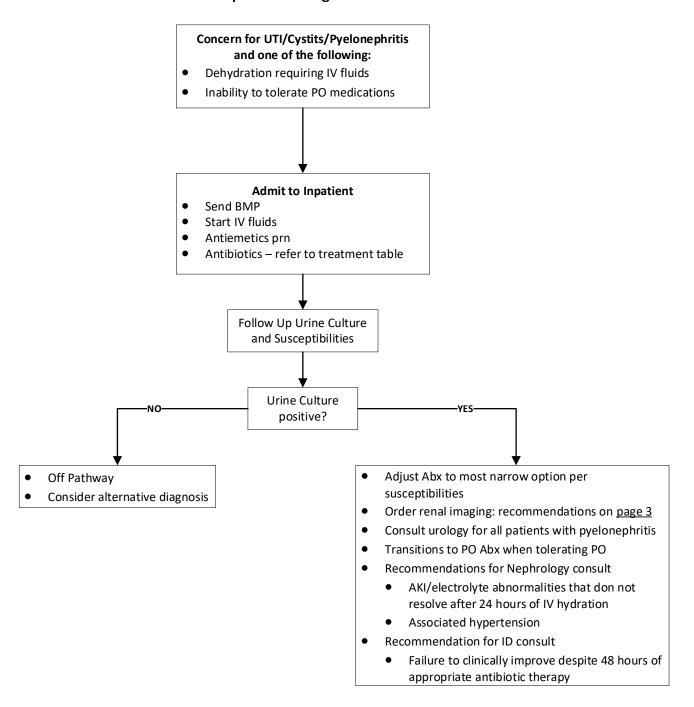
- Infants < 60 days (refer to febrile neonate inpatient pathway)
- Sepsis/Need for ICU cares
- Suspected or definite meningitis
- Immunocompromised host
- Known or suspected GU abnormality including recent GU surgery or neurogenic bladder
- Failed outpatient UTI treatmen
- Pregnancy
- Chronic Kidney Disease
- Recent history of sexual abuse (in previous 7 days)



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Inpatient Management



Discharge Criteria:

- Clinical response to appropriate antibiotic therapy (improving fever curve)
- Able to tolerate feeding and oral medications
- Selection of outpatient antibiotics to complete 5-day minimum total course*
- If indicated, renal ultrasound and/or VCUG completed or scheduled
- Appropriate follow-up scheduled with PCP (and consultants if indicated)

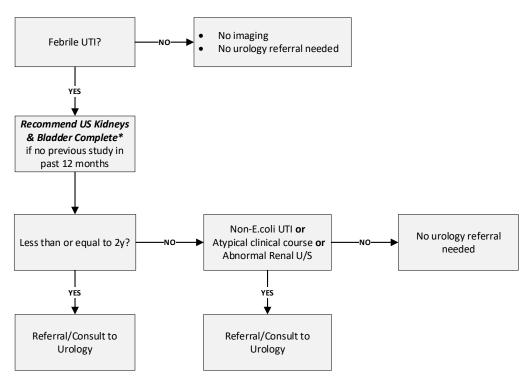
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Antibiotic Treatment and Imaging Recommendations

Diagnosis	Preferred Outpatient Regimen	Alternative Outpatient Regimen	Inpatient Regimen	Duration
Bacterial Cystitis	Cephalexin: 25mg/kg/dose PO Q8h (max 500 mg/dose)	Sulfamethoxazole-trimethoprim: 5mg/kg/dose of TMP PO q12h (max 160mg/dose of TMP) or Nitrofurantoin (for adolescents) monohydrate/microcrystal 100mg PO q12h	Cefazolin: 30mg/kg/dose IV q8h (max 2000mg/dose)	Cephalexin: 5 days Sulfamethoxazole- trimethoprim: 3 days Nitrofurantoin: 5 day
Pyelonephritis	Cephalexin: 25mg/kg/dose PO Q8h (max 1000 mg/dose)	Sulfamethoxazole-trimethoprim: 5mg/kg/dose of TMP PO q12h (max 160mg/dose of TMP) or Ciprofloxacin (for adolescents) 10 mg/kg/dose PO q12h (max 500mg/dose)	Ceftriaxone: 50mg/kg/dose IV q24h (max 2000mg/dose)	7 days

UTI Imaging and Referral Recommendations



*Inpatient

• Complete U/S during admission

*ED Discharges

- Discharge instructions to complete U/S within 1 month for patients with appropriate PMD follow up. Consider sooner than 1 month if severe infection or not improving by 48h
- Consider completing U/S in ER if patient does not have established PMD follow up

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Urine Culture Results Decision Tree Definite UTI Possible UTI **Unlikely UTI** Negative Cx Positive/equivocal UA Positive/equivocal UA Positive/equivocal UA Typical urinary pathogen Typical urinary pathogen Mixed Flora 10-50k cfu/ml (cath) > 60k cfu/ml (cath) 1-10k cfu/ml (cath) 60-100k cfu/ml (clean catch) > 100k cfu/ml (clean catch) 1-50k cfu/ml (clean catch) **Not on Antibiotics Not on Antibiotics Review Susceptibilities on UCx** No call to patient or family needed Call to patient or family needed Adjust Abx choice as needed Ask about urinary symptoms, if Imaging and/or urology referral per present start on Abx course based on recommendations page 3 **Currently on Antibiotics** culture results: susceptibilities Call to patient or family needed to If symptom free, do not start Abx discuss results Perform chart review for alternate **Currently on Antibiotics** reasons for Abx Rx Call to patient or family needed to If continued urinary symptoms or alternate reason for Abx → continue discuss results Abx and refer to PCP Review original symptoms If continued urinary symptoms If symptom free and no alternate → continue Abx reason for Abx → stop Abx course If symptom free → consider and document in EMR stopping Abx course and document in EMR

Typical Urinary Pathogens

- E. Coli
- Other enteric gram negative bacilli such as: klebsiella, proteus, citrobacter
- Enterococcus
- Staphylococcus saprophyticus
- Pseudomonas

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