

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 treatment
- Pregnancy
- Chronic Kidney Disease
- Recent history of sexual abuse (in previous 7 days)

Not Toilet Trained Infants and Children

Risk Factors:

- Temperature 39C
- Females: fever > 48 hours, age < 12 months
- Males: fever > 48 hours, age < 6 months
- History of UTI
- No definite source of fever

If 1+ risk factor is present in female or uncircumcised male, consider screening

If 3+ risk factors are present, recommend UTI screening

Toilet Trained Children and Adolescents

Risk Factors:

- Symptoms of a UTI
- History of UTI and fever 2 days
- Fever 5 days

If any risk factors present, recommend UTI screening

UTI Screening
Criteria Met

Not toilet trained Catherized UA with microscopy without reflex and urine culture	Toilet trained children and adolescents < 12y clean catch UA with microscopy	Patient ≥ 12y UA with microscopy with reflex culture if indicated
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Urinalysis Results

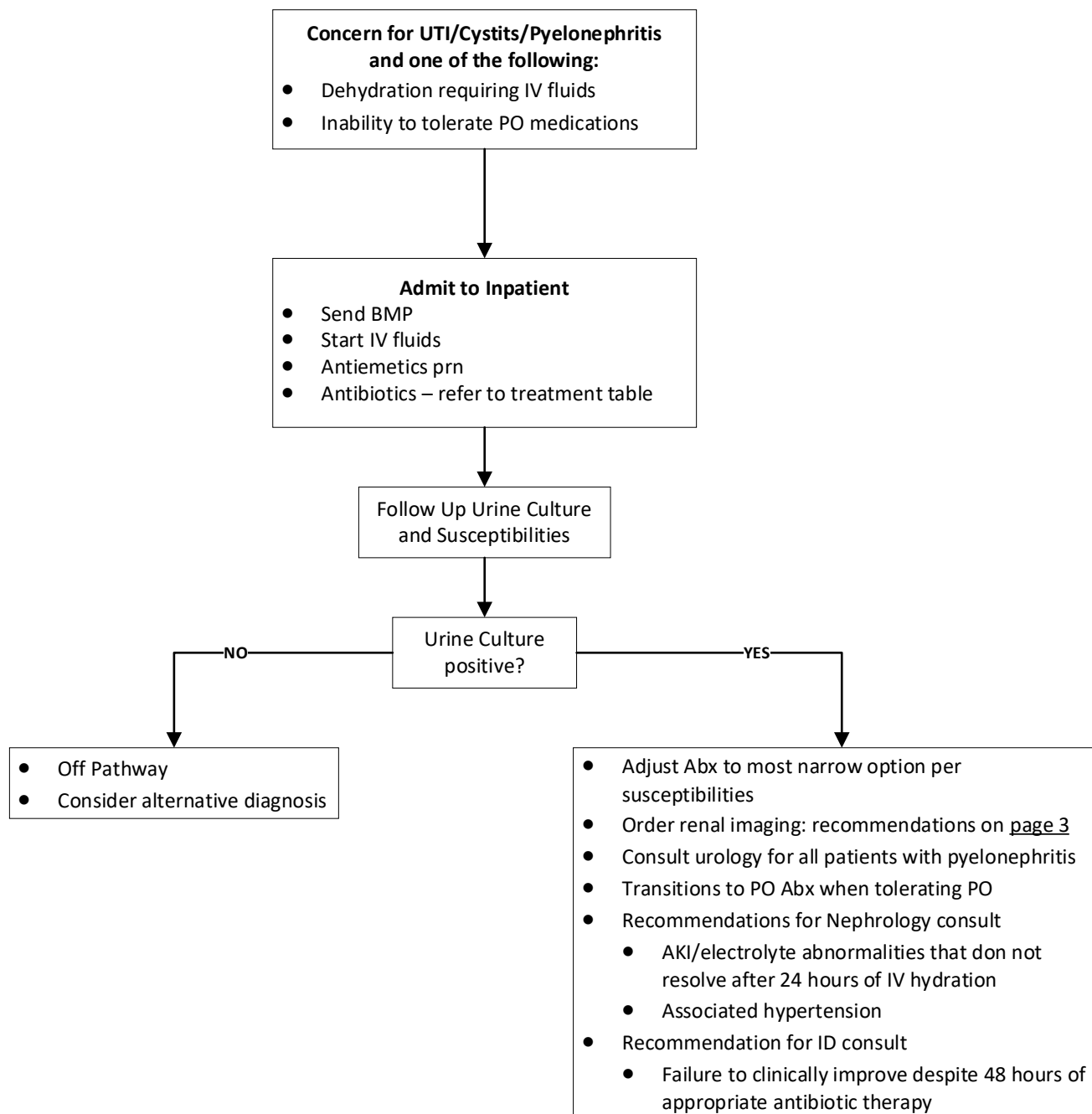
Positive UA (+) nitrites or ≥ 2+/moderate LE or > 10 WBC/hpf	Equivocal UA 1+/-small LE and/or 6-10 WBC/hpf	Negative UA negative or trace LE and negative nitrites and ≤ 5 WBC/hpf
<ul style="list-style-type: none"> Order UCx if not already obtained Begin empiric treatment per table below If h/o UTI refer to previous culture susceptibility results for antibiotic regimen 	<ul style="list-style-type: none"> Order and send urine culture Do not prescribe empiric treatment unless patient with urinary symptoms/signs of pyelonephritis 	<ul style="list-style-type: none"> If urine sample collected by clean catch, do not send urine culture No empiric Antibiotics

Indication for Admission and Inpatient management on page 2
Inpatient & Outpatient Treatment * Imaging Recommendations on page 3

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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)

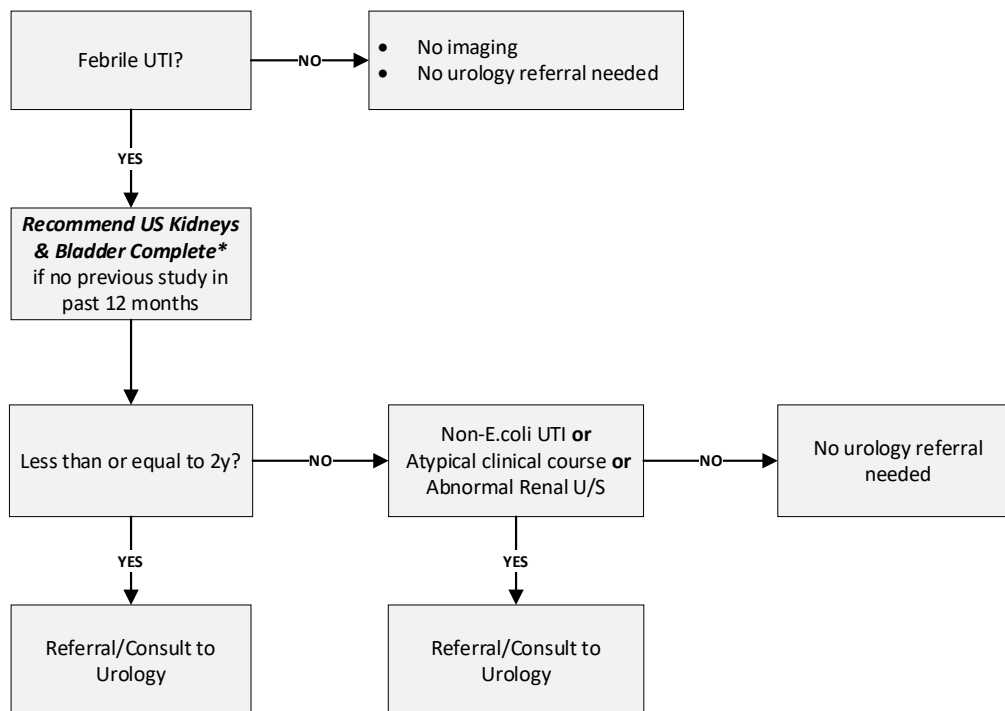
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Antibiotic Treatment and Imaging Recommendations

Treatment: Antibiotic Regimens				
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 (<i>for adolescents</i>) monohydrate/microcrystal 100mg PO q12h	Cefazolin: 30mg/kg/dose IV q8h (max 2000mg/dose)	Cephalexin: 5 days Sulfamethoxazole-trimethoprim: 3 days Nitrofurantoin: 5 days
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 (<i>for adolescents</i>) 10 mg/kg/dose PO q12h (max 500mg/dose)	Ceftriaxone: 50mg/kg/dose IV q24h (max 2000mg/dose)	7 days
*Please contact pharmacy for inpatient alternative regimen in patients with PCN or cephalosporin allergies				

UTI Imaging and Referral Recommendations



*Inpatient

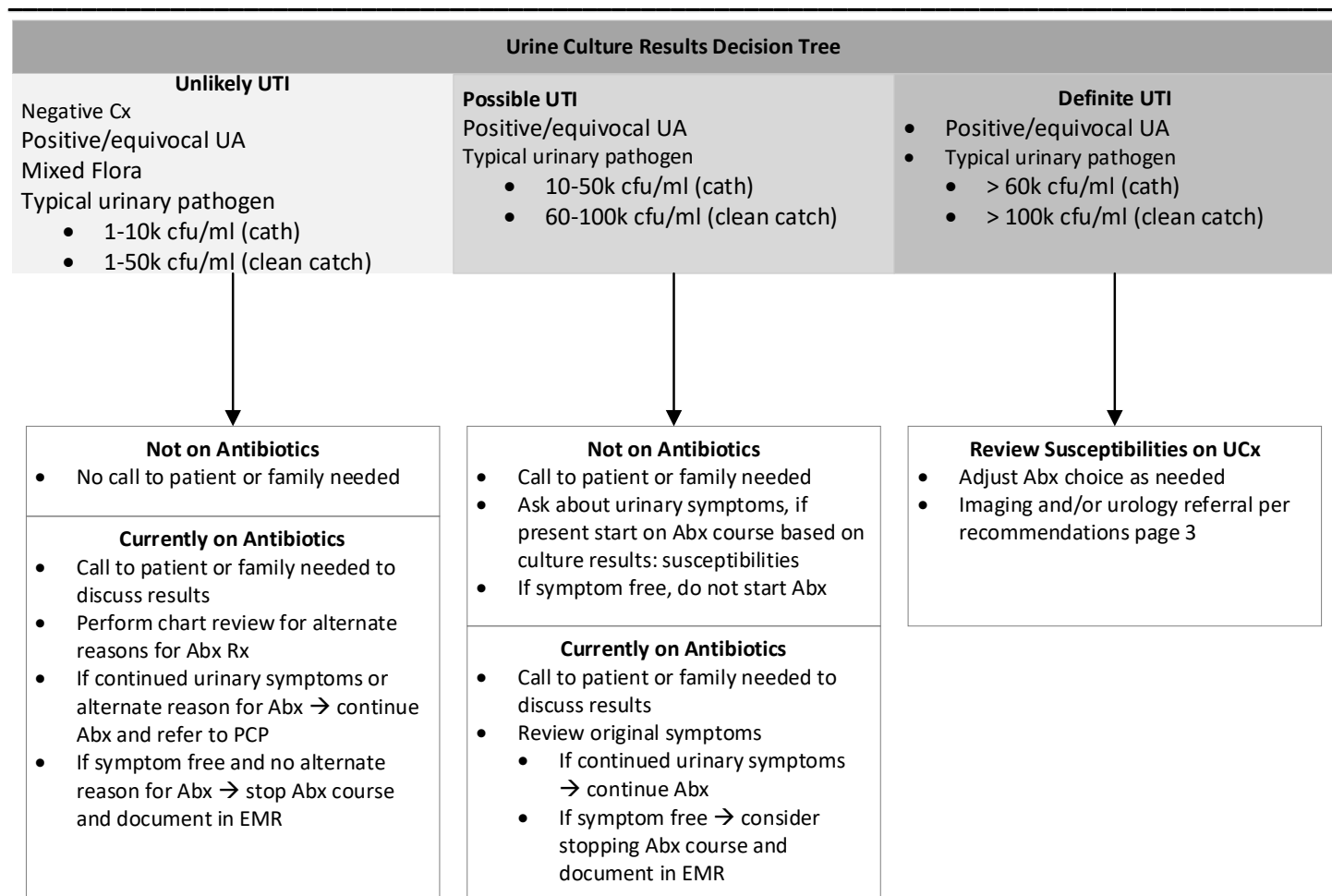
- Complete U/S during admission

*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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