

Neonatal and Young Infant (7-60 day) Urinary Tract Infection (UTI) Pathway

Pathway purpose: To improve early transition from IV to oral antibiotics in neonates and young infants with urinary tract infection and reduce hospital length of stay

Inclusion Criteria:

- 7-60 days old admitted for concern for UTI
- Gestational age or post-menstrual age \geq 35 weeks
- Urinalysis and urine culture obtained prior to admission (e.g. in the ED or clinic) or within 24 hours of admission to hospital (e.g. UTI acquired at home)
- No known or suspected immunodeficiency

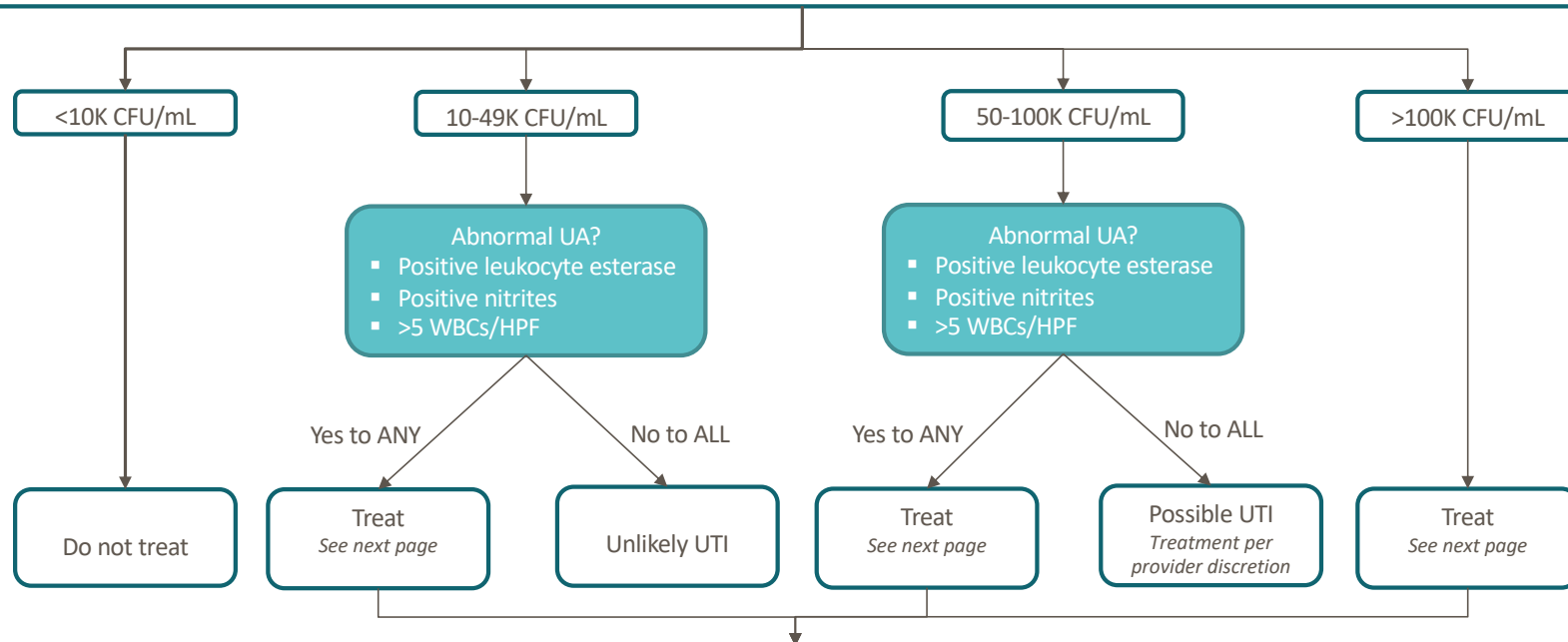
Exclusion Criteria:

- Urinalysis and urine culture obtained $>$ 24 hours after admission to hospital (e.g. UTI acquired in the hospital)
- Patients on prophylactic antibiotics due to urologic abnormalities
- Patients with concurrent meningitis

Diagnostic Interpretation

Urinalysis (UA) and Urine Culture obtained by straight catheterization

**If urine was obtained by suprapubic aspiration, any growth on the urine culture is considered positive and should be treated*



Imaging

- Obtain RBUS (renal bladder ultrasound) during hospitalization if **ANY** of the following: history of prior UTI, atypical UTI (bacteremia, failure to improve within 48 hours of antibiotics; non-E. coli organism), or concern for compliance/follow-up
 - If RBUS is abnormal: consider repeat US as an outpatient or pediatric urology consult
- Obtain RBUS as outpatient within 3-6 weeks if **ALL** of the following: first UTI, responds well to antibiotics within 48 hours, and not an atypical UTI
- VCUG (voiding cystourethrogram) is not recommended as first imaging modality

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Treatment

If confirmed UTI diagnosis based on UA and culture criteria:

- Initiate or continue treatment with empiric broad spectrum IV antibiotics
- Narrow antibiotics once cultures and sensitivities are available

Does patient meet the following criteria for oral antibiotics?

- Organism sensitive to oral antibiotic (*see Treatment Considerations below*)
 - Clinically well-appearing
 - Afebrile for >24 hours
 - Able to tolerate enteral medications
- *If patient is bacteremic, please see Treatment Considerations below*

Yes to ALL

No to ANY

Transition to oral antibiotics

- Total duration of treatment: 7 days
- Consider giving 1 dose of oral antibiotics prior to discharge to ensure tolerability

Continue treatment with narrow spectrum IV antibiotics

- Reassess oral antibiotic criteria every 12 to 24 hours

Common oral antibiotic regimens for infants 7-60 days (choice based on culture sensitivities)

Medications	Treatment Dose
Cephalexin (if cefazolin susceptible)	25 mg/kg/dose three times daily
Amoxicillin (if ampicillin susceptible)	15 mg/kg/dose two times daily
Amoxicillin-clavulanate	15 mg/kg/dose (based on amoxicillin component) two times daily <ul style="list-style-type: none"> ▪ Preferred formulation: amoxicillin 125mg/clavulanate 31.25mg per 5mL ▪ Alternate formulation: amoxicillin 250mg/clavulanate 62.5mg per 5mL

Treatment Considerations

- Always follow sensitivity results from culture for definitive therapy
- Treatment duration and antibiotic choice subject to clinician judgement to provide optimal approach to each infant
- Discuss with the Antimicrobial Stewardship Program (on Voalte) or consult Infectious Disease if culture is positive for multi-drug resistant organism (including ceftriaxone resistance)
- If patient has a positive blood culture, consider the appropriate duration of IV antibiotics. The provider may still transition to oral antibiotics when the other criteria are met based on provider discretion.
- **Per the AAP clinical practice guideline for the evaluation and management of well-appearing febrile infants age 28-60d, clinician may initiate oral antimicrobial therapy if all of the following apply: CSF analysis (if obtained) is normal; urinalysis result is positive; no inflammatory marker obtained is abnormal.**

References

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- Glissmeyer E, et al. Dipstick Screening for Urinary Tract Infection in Febrile Infants. *Pediatrics*, 133(5).
- Schroeder A, et al. Diagnostic Accuracy of the Urinalysis for Urinary Tract Infection in Infants <3 Months of Age. *Pediatrics*, 135(6).
- Chang P, et al. Diagnosis and Management of UTI in Febrile Infants Age 0-2 Months: Applicability of the AAP Guideline. *Journal of Hospital Medicine*, 15(3).
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