Fever/Suspected Sepsis in Infants 29-60 days Clinical Pathway

March 2022

Outcomes/Goals	1. Identification and treatment of infants 29-60 days with rectal/axillary temperature ≥ 38 C 2. Create a team-oriented approach to efficient and timely evaluation and work-up
Inclusion	Aged 29-60 days with rectal/axillary temperature ≥ 38.0 C at home, other healthcare facility, or in ED
Exclusions	History of prematurity < 37 weeks, pre-existing medical conditions, indwelling devices, focal bacterial infections (except otitis media), clinical bronchiolitis, received immunizations in last 48 hours
NURSE documentation	Chief complaint. Onset of fever. Documented route of measuring temperature. Associated symptoms. Birth and medical history, immunizations, medications, allergies, vital signs, weight.
INTERVENTIONS Initiate on arrival	ESI Triage level II Full set of vitals including rectal temperature and weight Oxygen to maintain SaO2 > 93% LMX to lumbar puncture (LP) site and/or J-tip LP tray to bedside IV placement for all ill appearing/toxic presentations. Consider IO per policy guidelines
DIAGNOSTICS	Bedside CBG for ill appearing/hypoglycemic symptoms/vomiting/decreased po intake Catheter specimen UA Micro and Mandatory Culture CBC with differential, Procalcitonin (serum), Blood culture, BMP/CMP (if ill-appearing chem8), CRP (if PCT not available) CSF (gram stain, cell count, protein, glucose, culture, hold extra fluid) per MD Chest x-ray if tachypnea, hypoxia, respiratory symptoms), stool sample if diarrhea VBG/lactate POC if ill/toxic appearing
PHYSICIAN (LIP)	
Fluids (if indicated)	Normal Saline bolus 20 ml/kg
Medication	
Hypoglycemia	D10 5ml/kg for CBG <50
Antipyretics	Acetaminophen 12.5 mg/kg PO or Acetaminophen 15-30 mg/kg PR
Antibiotics	**Acutely Ill/Toxic appearing infant/Positive Inflammatory Markers** If suspected meningitis (CSF ≥ 10 WBCs) or toxic appearing infant: Ceftriaxone 100mg/kg/day IV q12 hours +Vancomycin 20 mg/kg once Positive inflammatory markers with traumatic CSF or CSF not obtained Ceftriaxone 50mg/kg dose IV qday Positive inflammatory markers with negative CSF and negative UA Ceftriaxone 50mg/kg dose IV qday If UA positive, complete additional 9-13 days of cefdinir 14mg/kg daily **Negative inflammatory markers with positive UA** Cephalexin 50-100mg/kg/day divided QID or cefdinir 14mg/kg daily **Negative inflammatory markers with negative UA** Antibiotics discouraged
DISPOSITION	**Admit:** Acutely ill/toxic appearing Positive inflammatory markers and positive CSF (≥10WBCs, + gram stain) **Consider admission for observation vs discharge with close follow-up:** Positive inflammatory markers with traumatic tap vs CSF not obtained Positive inflammatory markers with negative CSF with positive or negative UA **Discharge:** Negative inflammatory markers with positive or negative UA

Clinical Pathway Decision Making Process

Fever/Suspected Sepsis

Temp >38 R in infants 29-60 days*

(* Rectal or axillary temperature by parent, clinic or ED)

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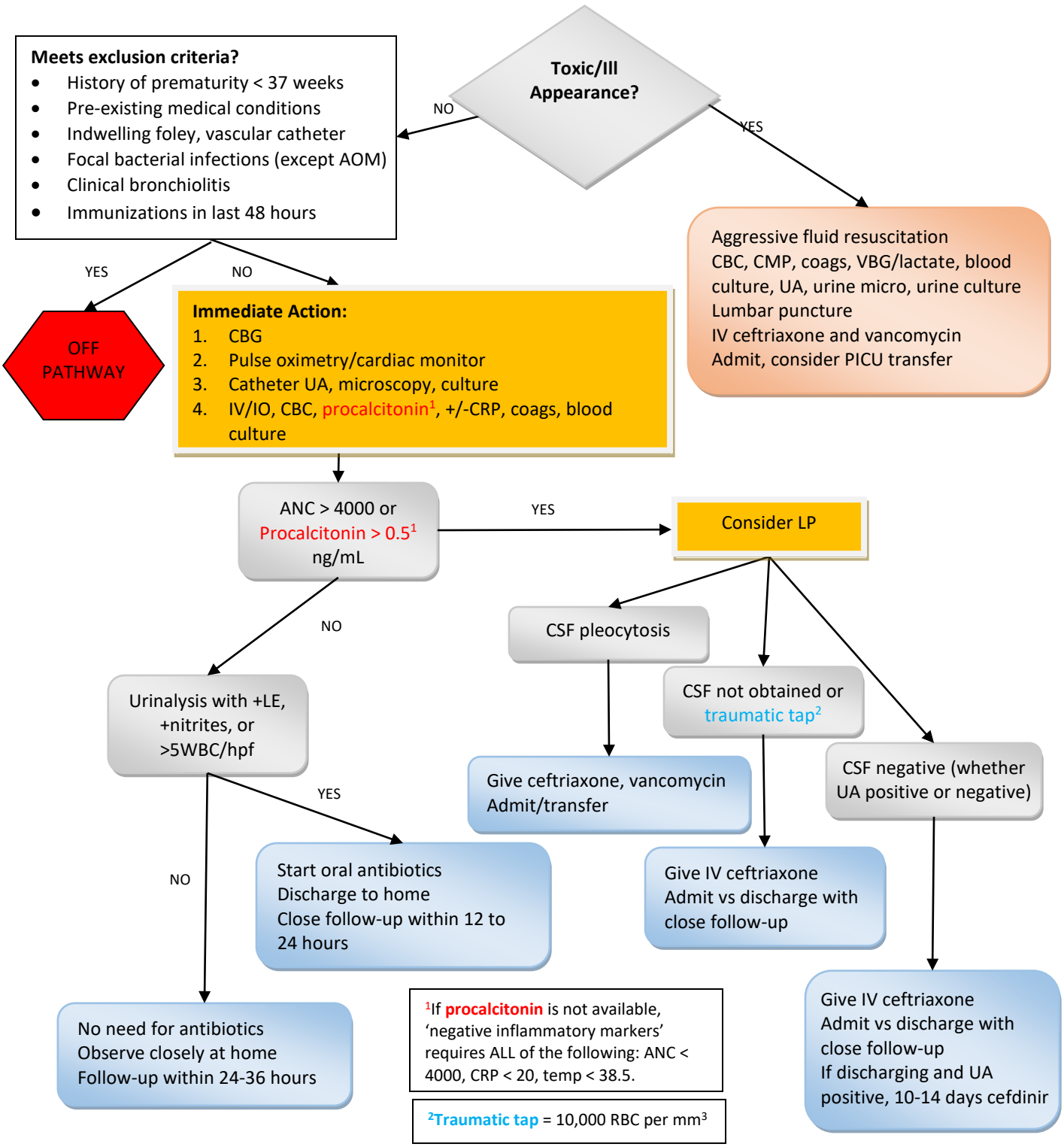

[1]If **procalcitonin** is not available, 'negative inflammatory markers' requires ALL of the following: ANC < 4000, CRP < 20, temp < 38.5.

[2]**Traumatic tap** = 10,000 RBC per mm^3

Febrile Infant 29-60 Days Rationale and Data

Goals of Clinical Pathway

1. Rapid identification and treatment of infants 29-60 days with presenting complaint of documented fever ≥38 C
2. Create a team-oriented approach to efficient and timely evaluation and work-up.
3. Antibiotic administration within 60 minutes for acutely ill/toxic appearing infants

Data Considerations	Interventions	Rationale
Fever	Documented rectal temperature	Defined as rectal temperature >38°C (100.4F). Rectal thermometry is the gold standard, and studies have demonstrated greatest discordance in young children between rectal thermometry and temporal measurements. Parental report of tactile fever is likely to be accurate. Range of reported sensitivity 82-89%, specificity 76-86%.
Urine collection	Catheter specimen collection	Bladder catherization or suprapubic bladder aspiration is the methods of choice for obtaining urine samples according to AAP guidelines. Bag collection sample has an increased risk of contamination, false-positive rate in excess of 67%.
Urine Analysis	Urine culture	Urine culture should be obtained in conjunction with dipstick and microscopy if LE is trace or greater, nitrites +, or if > 5 WBCs or bacteria present on micro. Historically, UA with micro not felt to be sensitive marker in infants. However, high quality recent studies suggest sensitivity of UA with micro is excellent, with LE of 94% or higher. Pyuria (>5WBCs) adds additional sensitivity incrementally.
White blood cell count, UA, Procalcitonin	Lumbar puncture	Lumbar puncture is not necessary in patients aged 29-60 days with negative inflammatory markers, as this group appears to be at very low risk for bacterial meningitis (no missed cases in PECARN, Step-by-Step, or PROS). Lumbar puncture should be considered in infants with ANC >4000 or PCT > 0.5 and in ill appearing infants in whom the risk of meningitis is likely substantially greater than 0.25%.
Procalcitonin ANC	Empiric antibiotics	In the setting of negative urine, ANC < 4000 and procalcitonin <0.5ng/mL has sensitivity 97.7% (95% CI 91.3-99.6%) and negative predictive value of 99.6% (98.4-99.9%) in identifying infants with invasive bacterial infection per multicenter PECARN study. Therefore, empiric antibiotics are not warranted in this subgroup, though close-follow-up is.

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