Ann & Robert H. Lurie Children's Hospital of Chicago

ED Evaluation of Febrile Infant

*LOW RISK CRITERIA

- 29 days or older
- Normal vital signs (for age)
- NO comorbid conditions
- NO antibiotics (PO or IV) within 72 hours

Blood:
- ANC < 4000
- Procalcitonin < 0.5 ng/mL

Urinalysis:
- UA (-) for nitrates, leukocyte esterase, AND WBC < 5/hpf

Chest X-ray (if obtained):
- NO infliltrate seen

History
- Age >37 weeks GA
- NICU < 72 hours
- NO unexplained hyperbilirubinemia

This guideline is based on a validated clinical prediction rule for infants at "LOW RISK" for bacterial infection. This rule should not be applied to infants 28 days or younger, or infants in whom prematurity or significant medical conditions are present. All infants must be assessed using clinical judgement and close medical follow-up.

See evidence for this guideline

Febrile infant 0-60 days (Temperature ≥ 38°C)

If patient has critical vitals/is ill -Notify MD -Consider Sepsis Pathway

Skin/Soft Tissue Infection → YES → Cellulitis, omphalitis **OFF PATHWAY**

NO

Age?

0-28 Days

Laboratory evaluation:
- CBC with Differential
- Blood culture
- Bedside Glucose if indicated
- Catheterize for Urinalysis with Micro
- Catheterize for Urine Culture

Lumbar Puncture:
Cell count, gram stain, culture
- HSV Risk Assessment
- *CXR if pulmonary findings only*
- Consider viral testing in season and as indicated

Additional testing per provider discretion

IV Antibiotics

Admit

29-60 Days

Laboratory evaluation:
- CBC with Differential
- PCT (procalcitonin)
- Blood culture
- Bedside Glucose if indicated
- Catheterize for Urinalysis with Micro
- Urine Culture
- *CXR if pulmonary findings only*
- Consider viral testing in season and as indicated
- **Clinical Bronchiolitis?** Please see Bronchiolitis CCG in Weblinks

Additional testing per provider discretion

*Low Risk Criteria Met?

NO
- Consider LP
- Consider Antibiotics for confirmed/ suspected infection

Consider admission for patients who do not meet Low-Risk criteria (must also meet discharge criteria)

YES

Discharge criteria met:
- Vital signs are normal
- Tolerating PO
- No social concerns

NO → Admit

YES → **Discharge** with follow up

**PROCALCITONIN interpretation should only be used in conjunction with other low risk factors and should NOT replace clinical judgment regarding treatment.

Last update: 01.20.2021 KB

DISCUSSION

These guidelines may not be applicable to every patient and do not replace clinical judgement. They should be used to direct care with the understanding that deviation may be required on a case-by-case basis.

Return to algorithm

Management of Low Risk Infants

- Low risk infants can be closely monitored off antibiotics[1,2,3,10]
- Low risk infants did not have increased rates of serious bacterial infections[1,3,10]

Length of Stay

- No increase in readmission & missed SBI rates with shorter LOS[4]
- Most pathogens in febrile infants under 90 days were identified within 24 hours[5]

Lumbar Puncture

- If starting antibiotics, consider obtaining CSF studies prior to administering antibiotics.
- Recommend sending enterovirus PCR during summer through early fall for patients with CSF pleocytosis.
- In the case of pretreated CSF studies, pretreatment should not affect CSF WBC or ANC counts.[8] Consider an ID consult to discuss management for these cases.

REFERENCES

[1] Huppler AR, Eickhoff JC, Wald ER. Performance of low-risk criteria in the evaluation of young infants with fever: review of the literature. Pediatrics 2010;125(2):228–33.
[2] Jaskiewicz JA, McCarthy CA, Richardson AC, et al. Febrile infants at low risk for serious bacterial infection–an appraisal of the Rochester criteria and implications for management. Febrile Infant Collaborative Study Group. Pediatrics 1994;94(3):390–6.
3 Dagan R, Sofer S, Phillip M, et al. Ambulatory care of febrile infants younger than 2 months of age classified as being at low risk for having serious bacterial infections. J Pediatr 1988;112(3):355–60.
[4] Byington CL, Reynolds CC, Korgenski K, et al. Costs and infant outcomes after implementation of a care process model for febrile infants. Pediatrics 2012; 130(1):e16–24.
[5] Biondi EA, Mischler M, Jerardi KE, et al. Blood culture time to positivity in febrile infants with bacteremia. JAMA Pediatr 2014;168(9):844–9.
[6] Biondi E, Evans R, Mischler M, et al. Epidemiology of bacteremia in febrile infants in the United States. Pediatrics 2013;132(6):990–6.
[7] Greenhow TL, Hung YY, Herz AM, et al. The changing epidemiology of serious bacterial infections in young infants. Pediatr Infect Dis J 2014;33(6):595–9.
[8] Nigrovic LE, Malley R, Macias CG, et al. Effect of antibiotic pretreatment on cerebrospinal fluid profiles of children with bacterial meningitis. Pediatrics 2008;122(4):726-730.
[9] Red Book®: 2015 Report of the Committee on Infectious Diseases, 30th Edition.
[10] Kuppermann, N, Dyan, P, Levine,D. A Clinical Prediction Rule to Identify Febrile Infants 60 days and Younger at Low Risk for Serious Bacterial Infection. JAMA Pediatr. 2019;173(4):342-351. doi:10.1001/jamapediatrics.2018.5501 Published online February 18, 2019.
[11] Aronson PL; Shabanova V; Shapiro E, et. al. A Prediction Model to Identify Febrile Infants ≤60 Days at Low Risk of Invasive Bacterial Infection. Pediatrics Jul 2019, 144 (1) e20183604; DOI: 10.1542/peds.2018-3604
[12] Aronson PL, Wang ME, Shapiro ED, et. al. Risk Stratification of Febrile Infants ≤60 Days Old Without Routine Lumbar Puncture. Pediatrics. 2018 Dec;142(6):e20181879. doi: 10.1542/peds.2018-1879. Epub 2018 Nov 13. PMID: 30425130; PMCID: PMC6317769.
[13] Hernández-Bou S, Trenchs V, Cano I, Girona M, Luaces C. Neonates With Urinary Tract Infection: Is a Lumbar Puncture Always Indicated? Pediatr Infect Dis J. 2020 Sep;39(9):849-853. doi: 10.1097/INF.0000000000002683. PMID: 32379200.

Contributors

The team responsible for reviewing evidence and updating this content includes: Jacqueline Corboy, MD; Kiran Kulkarni, MD; SangHee Kim MD, and Sameer Patel, MD. Please contact jcorboy@luriechildrens.org to request changes or updates to this algorithm and supplement. Version history: 2017, 2018, January 2021.