Febrile Young Infant 8-21 Days Old

Monroe Carell Jr. Children's Hospital at Vanderbilt

Explanatory text and footnotes for infants 8-21 days of age

1. This guideline applies to pts 8 – 21 days of age with documented T ≥ 38° C; gestational age ≥37 - >42 weeks; and no soft tissue or other focus of bacterial infection that may have other management guidelines.
2. **Inflammatory Markers are optional, with elevations defined as:**
   PCT ≥ 0.3 ng/ml
   ANC ≥ 4,000/mm^3 or ≤ 1,000/mm^3
   Temperature > 38.5 ° C

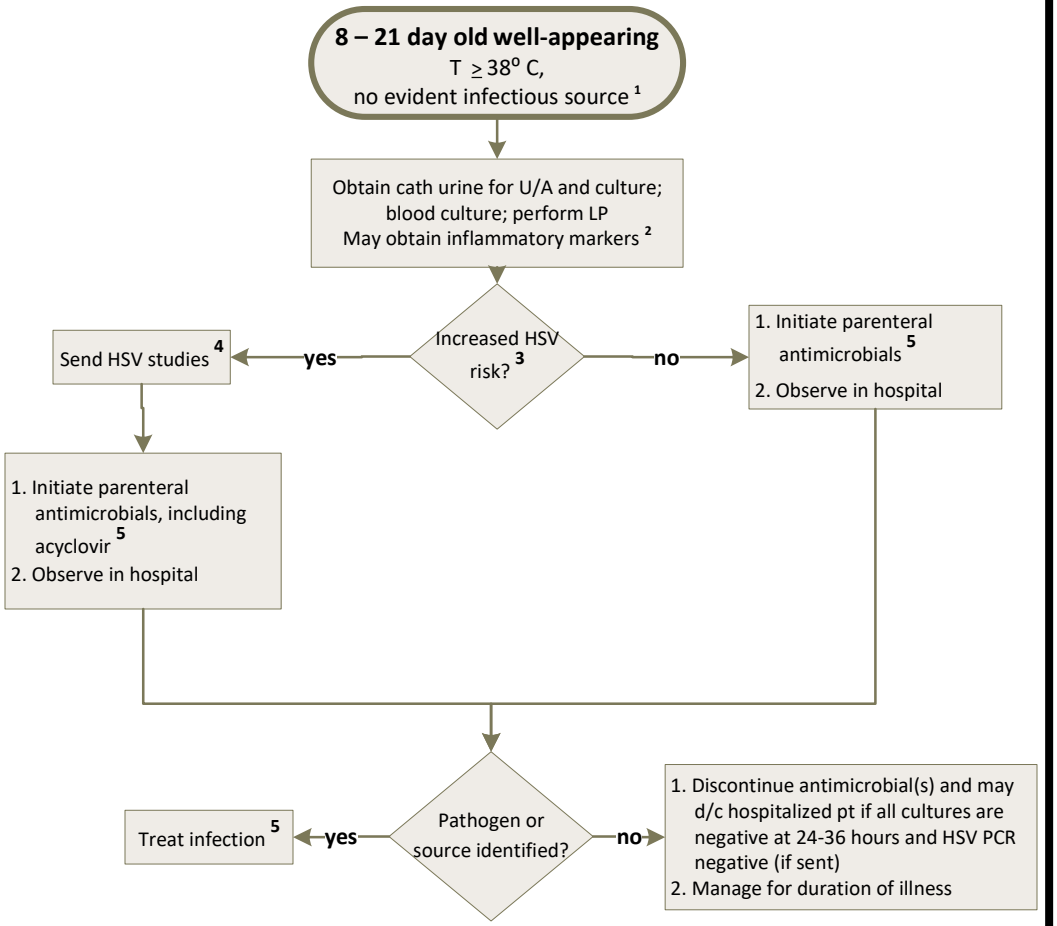
***Inflammatory markers do not impact moving forward with evaluation and empiric treatment**

3. **HSV risk:** HSV should be considered in patients with vesicles, seizures, hypothermia, mucous membrane ulcers, CSF pleocytosis in the absence of a positive Gram stain result, leukopenia, thrombocytopenia, or elevated alanine aminotransferase levels.

***Inflammatory markers do not impact moving forward with evaluation and empiric treatment of HSV**

4. **HSV studies:** In addition to CSF MEP, if HSV is a consideration, obtain ALT; HSV Serum PCR; PCR from surface swabs of mouth, nasopharynx, conjunctivae, and anus. Vesicles should be unroofed and sent for HSV PCR.
5. **Antimicrobial selection and doses are in Table 1.**

Abbreviations: BC, blood culture; CSF, cerebrospinal fluid; HSV, Herpes simplex virus;; LP, lumbar puncture; PCT, procalcitonin; U/A, urinalysis; UC, urine culture



Key references

1. Pantell RH et al. Evaluation and Management of Well-Appearing Febrile Infants 8 to 60 Days Old. *Pediatrics* 2021; 148.
2. Milcent K et al. Use of Procalcitonin Assays to Predict Serious Bacterial Infection in Young Febrile Infants. *JAMA pediatrics* 2016; 170: 62-69.
3. Cruz AT et al. Predictors of Invasive Herpes Simplex Virus Infection in Young Infants. *Pediatrics* 2021; 148.
4. Gomez B et al. Performance of blood biomarkers to rule out invasive bacterial infection in febrile infants under 21 days old. *Arch Dis Child* 2019; 104: 547-551

Last edited in Aug 2022

Table 1. Initial empirical antimicrobial therapy for well-appearing febrile infants 8 – 60 days old			
Suspected infection	**8 – 21 day old**	**22 – 28 day old**	**29 – 60 day old**
UTI [a]	Ampicillin IV or IM (150 mg/kg per d divided every 8 h) and either cefotaxime IV(150 mg/kg per d divided every 8 h) or gentamicin IV or IM (4 mg/kg per dose every 24 h)	Ceftriaxone IV or IM (50 mg/kg per dose every 24 h)	Ceftriaxone IV or IM (50 mg/kg/dose every 24 h). Oral medications for infants older than 28 d.[b] Cephalexin 50–100 mg/kg per d in 4 doses or cefixime 8 mg/kg per d in 1 dose
Bacterial meningitis [c]	Ampicillin IV or IM (300 mg/kg per d divided every 6 h) and cefotaxime IV (200 mg/kg per d divided every 6 h)	Ampicillin IV or IM (300 mg/kg per d divided every 6 h) and ceftriaxone IV or IM (100 mg/kg per d divided every 12 h).	Ceftriaxone IV (100 mg/kg per d r divided every 12 h) and vancomycin [f] IV (60 mg/kg per d divided every 8 h)
No focus identified [e] (Empiric coverage if needed)	Ampicillin IV or IM (150 mg/kg per d divided every 8 h) and either cefotaxime IV (200 mg/kg per d divided every 6 h) or gentamicin IV or IM (4 mg/kg per dose every 24 h) [d]	Ceftriaxone IV or IM (100 mg/kg per d divided every 12 h)	Ceftriaxone IV (100 mg/kg per d divided every 12 h)
HSV concern [g]	Acyclovir 20 mg/kg/dose q 8hr.		

Use VCH antibiogram to guide choices. Note: If a focus of infection such as pneumonia, cellulitis, gastroenteritis, or musculoskeletal infection is identified, different regimens that cover typical microbial pathogens for the site of infection should be administered. Antibiotics should be tailored based on culture and susceptibility data.

IM, intramuscular; IV, intravenous. Adapted from AAP guideline that gave attribution to Bradley JS, Nelson JD, Barnett ED, et al, eds. 2019 Nelson's Pediatric Antimicrobial Therapy. 25th ed. Itasca, IL: American Academy of Pediatrics; 2019; and Kimberlin DW, Barnett ED, Lynfield R, Sawyer MH, eds. Red Book: 2021-2024 Report of the Committee on Infectious Diseases. 32nd ed. Itasca, IL: American Academy of Pediatrics; 2021.

a. On the basis of urinalysis results.

b. AAP Subcommittee on Urinary Tract Infection.73

c. For 22 to 28 day neonate, providers may decide that observation without initiation of therapy is appropriate. Refer to algorithm.

d. Gentamicin may provide clinical benefit because of synergy with ampicillin against GBS and enterococcal species.

e. On the basis of CSF analysis results. Some experts will add gentamicin or another aminoglycoside to this regimen, particularly if the CSF Gram stain reveals Gram-negative organisms.

f. Vancomycin is part of empirical therapy because of the possibility of resistant S pneumoniae. It should be stopped if an organism other than S pneumoniae is identified, even if susceptibilities are still pending.

g. HSV should be considered in patients with vesicles, seizures, hypothermia, mucous membrane ulcers, CSF pleocytosis in the absence of a positive Gram stain result, leukopenia, thrombocytopenia, or elevated alanine aminotransferase levels. In addition to CSF MEP, if HSV is a consideration, obtain HSV PCR from surface swabs of mouth, nasopharynx, conjunctivae, and anus.