Clinical Guideline
Neonatal Fever
Febrile infant, 1-28 DAYS OF AGE

Fever ≥38°C/100.4°F or hypothermia <36°C/96.8°F in patients 1-28 days of age

Full Diagnostic Testing
- UA (by microscopy)
- Urine culture (by cath)
- CBC/Diff smear
- Consider AST/ALT
- Blood culture
- CSF studies with culture (defer if unstable)
- CXR IF with concern for pneumonia
- Viral studies - perform IF:
  - Resp Pathogen Direct Testing IF with respiratory signs/symptoms
  - HSV studies IF with concern for HSV and/or with CSF pleocytosis, seizures, etc. (see Box A)
  - Enterovirus PCR on blood and CSF IF with CSF pleocytosis, or June through November
- Stool culture if with diarrhea

If any one of the following, will go off algorithm:
- Evidence of focal infection
- Known immunodeficiency or cancer
- Patients with central venous catheters or VP shunts
- Meeting criteria for septic shock or severe sepsis, OR if critically ill-appearing

**Consider presumptive testing and treatment if under 3 weeks of age**

A Test and treat for HSV if ANY ONE of the following:
1. Suspected HSV infection
2. Severely ill
3. Vesicular lesions
4. Seizure
5. CSF pleocytosis
6. Elevated transaminases/hepatitis
7. Thrombocytopenia
8. Postnatal HSV exposure

Send:
- HSV PCR in CSF and blood
- HSV PCR of vesicles
- HSV culture of conjunctiva, nasopharynx, and anus

Treat:
Acyclovir

Antibiotic Regimen: Goal within one hour of initial evaluation
- Ampicillin
  AND
- Gentamicin OR cefotaxime

If suspect bacterial meningitis or with CSF pleocytosis*:
- Always add/include cefotaxime
- May consider vancomycin if high risk for S. aureus

*Definition of CSF Pleocytosis?
1-28 days: CSF WBC ≥18/mm3

If have CSF pleocytosis OR grossly bloody tap (>10,000 RBC) OR high suspicion for HSV OR abnormal neurological exam, ADD:
- Acyclovir

DISCHARGE CRITERIA:
≤ 28 days of age — may consider discharge at 36 hours if meets all criteria:
- Blood and urine cultures negative at 36 hours, CSF cultures negative for two consecutive mornings, CSF HSV PCR negative
- Feeding well and well-appearing
- No social or family concerns
- Reliable follow-up in 12-24 hours
- Outpatient plan accepted by family and primary care doctor

Admit
Neonatal Fever
Febrile infant, 29-60 days of age

Fever >38°C/100.4°F or hypothermia <36°C/96.8°F in patients, AND clinical impression of high risk (e.g. prematurity <37 weeks, underlying medical condition, prolonged NICU stay, not-well appearing)

Full Diagnostic Testing
• UA (by microscopy)
• Urine culture (by cath)
• CBC/Diff smear
• Consider AST/ALT if ≤ 42 days
• Blood culture
• CSF studies with culture (defer if unstable)
• CXR IF with concern for pneumonia
• Viral studies - perform IF:
  • Resp Pathogen Direct Testing IF with respiratory signs/symptoms
  • HSV studies (≤ 42 days) IF with concern for HSV and/or with CSF pleocytosis, seizures, etc. (see Box B)
  • Enterovirus PCR on blood and CSF IF with CSF pleocytosis, or June through November
• Stool culture if with diarrhea

Limited Testing
• UA (by dip) and urine culture (by cath)
• CBC/Diff smear
• Blood culture
• Consider AST/ALT if ≤ 42 days

Consider FULL testing and treatment
***Obtain CSF prior to ANY antibiotics, if stable***

HIGH RISK FOR SBI (IF WITH ANY POSITIVE OR ABNORMAL RESULT)?
• UA positive for LE/nitrite/pyuria or ≥10 WBC/hpf
• WBC <5,000 or >15,000
• Absolute band count ≥1,500
• OR suspected neonatal HSV (see Box B)
• OR continued clinical impression of high risk

LOW RISK FOR SBI:
• No CSF studies needed
• May consider respiratory panel if not yet done

Need for supportive care OR barriers to care or follow-up OR social/family concerns
Admit

Well-appearing AND no barriers to care or follow-up AND no social/family concerns
DISCHARGE TO HOME
Follow-up within 12-24 hours

Antibiotic Regimen if suspect UTI or no focus identified:
• Ceftriaxone
• Prefer add ampicillin if gram stain of urine demonstrates GPC

If suspect bacterial meningitis or with CSF ≥9WBC/mm³:
• Vancomycin
• Ceftriaxone (unless with hyperbilirubinemia, then cefotaxime)

If have CSF pleocytosis (≥9WBC/mm3) OR grossly bloody tap (≥10,000 RBC) OR suspicion for HSV OR abnormal neurological exam ADD:
• Acyclovir

Admit

If any one of the following, will go off algorithm:
• Evidence of focal infection
• Known immunodeficiency or cancer
• Patients with central venous catheters or VP shunts
• Meeting criteria for septic shock or severe sepsis, OR if critically ill-appearing

Test and treat for HSV if suspected HSV infection OR if ≤ 42 days AND any of the following:
1. Severely ill
2. Vesicular lesions
3. Seizure
4. CSF pleocytosis
5. Elevated transaminases/hepatitis
6. Thrombocytopenia
7. Postnatal HSV exposure
8. Thrombocytopenia
9. Postnatal HSV exposure

Send:
• HSV PCR in CSF and blood
• HSV PCR of vesicles
• HSV culture of conjunctiva, nasopharynx, and anus

Treat:
Acyclovir

DISCHARGE CRITERIA:
29-60 days of age — may consider discharge at 24 hours if meets all criteria:
• All cultures negative x 24 hours
• Feeding well and well-appearing
• No social or family concerns
• Reliable follow-up in 12-24 hours
• Outpatient plan accepted by family and primary care doctor

Yes
No

For questions concerning this guideline, contact:
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This guideline should not replace clinical judgement

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Neonatal Fever Guideline

Executive Summary

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References


Cincinnati Children’s Hospital Medical Center. “Fever of Uncertain Source”. 2010


