FUS Algorithm: Fever of Unknown Source in Infants 0 to 60 days of age

Low Risk
- Negative UA (UA with <10 WBC per hpf) AND
- Biomarkers below threshold: PCT ≤ 0.5 ng/mL, ANC ≤ 4,000/ mm³

**ACTION**
- No antimicrobials, discharge home with close follow up with PCP in next 24 hours
- Family knowledgeable of when to call/return

Intermediate Risk
- Negative UA
- PCT ≤ 0.5 ng/mL BUT ANC > 4,000/ mm³

**ACTION**
- Option 1: Proceed with LP, send CSF studies and consider empiric antimicrobials
- Option 2: Defer LP and admit for observation OFF antimicrobials

High Risk
- Negative UA with
- PCT > 0.5 ng/ml regardless of ANC value

**ACTION**
- Proceed with LP and CSF studies
- Start empiric antimicrobials and admit to hospital

Abnormal UA
- Positive UA: (WBC ≥ 10 per hpf)

**ACTION**
- Option 1: Defer LP and treat empirically for presumed UTI if: PCT ≤ 0.5 ng/mL regardless of ANC value; consider admission
- Option 2: Consider LP and sending CSF studies if: PCT > 0.5 ng/mL regardless of ANC value; admit to hospital

Evidence-Based Care Guideline for Management of Infants 0 to 60 days with Fever of Unknown Source

(Horeczko, 2013 [4a]; Local Consensus, 2018-2019 [5]; Dieckmann, 2010 [5a])

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## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>ANC</td>
<td>Absolute neutrophil count</td>
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<tr>
<td>IBI</td>
<td>Invasive bacterial infection</td>
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<td>CSF</td>
<td>Cerebrospinal fluid</td>
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<td>LP</td>
<td>Lumbar puncture</td>
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<tr>
<td>ED</td>
<td>Emergency department</td>
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<td>PCT</td>
<td>Procalcitonin</td>
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<td>EV</td>
<td>Enteroviruses</td>
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<td>SBI</td>
<td>Serious bacterial infection</td>
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<tr>
<td>FUS</td>
<td>Fever of uncertain source/origin</td>
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<td>UTI</td>
<td>Urinary tract infection</td>
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## Definitions

<table>
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| Cerebrospinal Fluid (CSF) pleocytosis                                     | Neonates age 0 to 28 days: CSF white blood cell count ≥1 5/μL  
Infants 29 to 60 days CSF white blood cell count ≥ 9 uL |
| Fever of uncertain source (FUS)                                           | An acute febrile illness in which the etiology of the fever is not apparent  
after a thorough history and physical exam |
| Fever                                                                     | Temperature > 38°C (100.4 °F) |
| Invasive bacterial infection (IBI)                                         | Bacteremia and/or bacterial meningitis in infants ≤ 60 days of age |
| Ill-appearing                                                             | Infant described as: “toxic,” “limp,” “unresponsive,” “gray,” “cyanotic,” “apnea,” “weak cry,”  
“poorly perfused,” “grunting,” “listless,” “lethargic,” “irritable or any findings of the physical  
examination that indicates any clinical suspicion of sepsis |
| Neonate                                                                   | Infant birth to 28 days of age |
| Previously healthy                                                        | Term Birth (≥ 37 weeks’ gestation)  
Not treated for unexplained hyperbilirubinemia  
Not hospitalized longer than mother  
No current or previous antimicrobial therapy  
No previous hospitalization  
No chronic or underlying illness |
| Serious bacterial infection (SBI)                                          | A urinary tract infection, bacterial meningitis, bacteremia, bacterial pneumonia,  
gastroenteritis, cellulitis, osteomyelitis, or septic arthritis |
| Well appearing                                                            | Defined by a normal Pediatric Assessment Triangle (PAT): 3 components of the PAT  
are appearance, work of breathing, and circulation to the skin  
(Horeczko, 2013 [4a]; Dieckmann, 2010 [5a]) (See Appendix C) |
| Young infant                                                              | Children 29 to 60 days of age |

For more information contact: Hospital Medicine (513) 803-8092