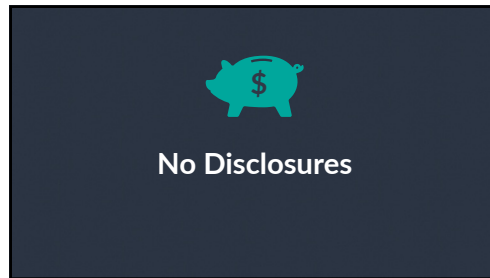
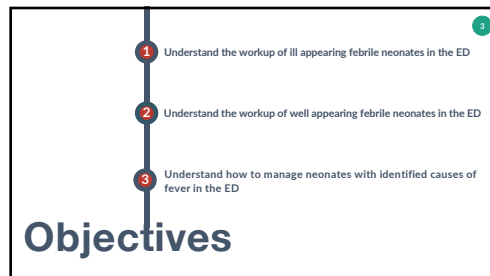


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Fever = 38.0C / 100.4F

4

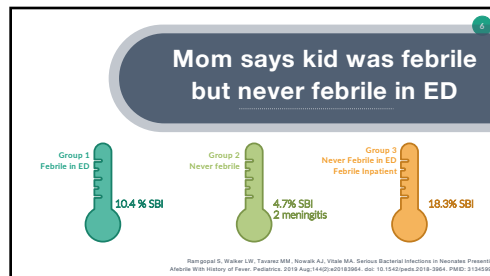
CLINICAL PRACTICE GUIDELINE

American Academy
of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

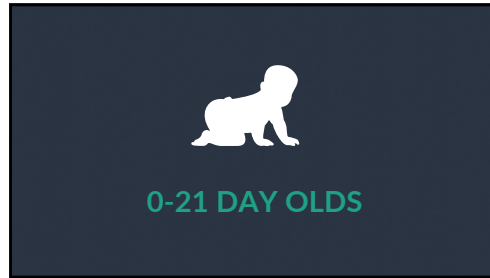
**Clinical Practice Guideline: Evaluation
and Management of Well-Appearing
Febrile Infants 8 to 60 Days Old**

Robert H. Parise, MD, FAAP; Kenneth B. Roberts, MD, FAAP; William G. Adams, MD, FAAP; Bernard F. Dreyer, MD, FAAP;
Nathan Kupperman, MD, MPH, FAAP; Paul D. Stein, T. Elzary, MD, MPH, FAAP; Kymka Danchukova, MPH;
Charles H. Woods Jr, MD, MS, FAAP. SOURCE: COMMITTEE ON FEBRILE INFANTS

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6



7

0-21 DAYS OLD
Cookbook Medicine

| BREAKDOWN | Workup | TREATMENT |
|--|---|--|
| Causes | Workup | Antibiotics |
| <ul style="list-style-type: none"> CSF PCR, Urinary Tract Infection + TB Workup ESK Meningitis Prevalence: 100% (100%) | <ul style="list-style-type: none"> Cath urine, UA and culture Blood Cx, LFT, HSV Studies No Inflammatory Markers CSF - glucose, protein, cell count, gram stain/culture, HSV PCR, enterovirus PCR | <ul style="list-style-type: none"> Ampicillin (CSF, Urine) Clonazepam or Carbamazepine @ 100% Acyclovir @ 21 days |

8

Neonatal HSV Infection
When to cover empirically?

Does History Matter?
15-30% Of neonatal HSV presented for fever alone with no other signs of HSV infection. And >75% of NHSV are acquired during delivery from newly acquired & asymptomatic mothers.

When to treat

All neonatal sepsis without any other signs of HSV

Ampicillin. Send HSV PCR on CSF!

HSV CSF PCR, HSV surface swabs, blood PCR

Highest Risk

Infants born to mothers with first-episode primary infection at time of delivery

Transmission rate: 60% (no neutralizing antibodies to transmit)

>21 days

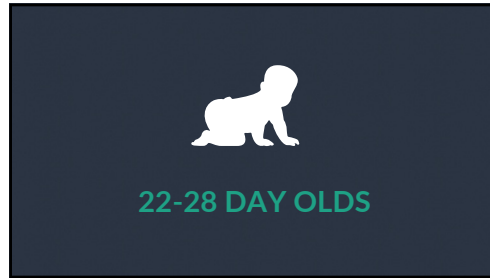
Treat any HSV if >21 days +

Maternal factors at delivery: maternal fever 48 hours before or after delivery

Infants w/ vesicles, seizures, hepatomegaly, mucosa membrane ulcers, CSF Pleocytosis in absence of positive gram stain, leukopenia, thrombocytopenia, or elevated ALT

Allen UD, Robinson JL, Canadian Paediatric Society, Infectious Diseases and Immunization Committee. Prevention and management of neonatal herpes simplex virus infections. Paediatr Child Health. 2011;16(6):505-512. doi:10.1093/pch/nkq124

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10

What is an abnormal Inflammatory Marker (IM)?

| | | | |
|---|-------------------------|---|---|
| ANC ANC significantly better than WBC ANC >4000 or <1000 | CRP ≥ 20 mg/L | Procalcitonin > 0.5 ng/ml Do not use alone = 20% false infants with meningitis have normal procalcitonin | No Procalcitonin Use temp of > 38.5C (101.3F) as a positive procalcitonin |
|---|-------------------------|---|---|

The committee does not recommend use of abnormal inflammatory markers in LP

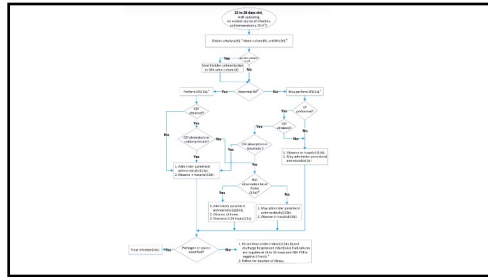
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22-28 DAYS OLD

I thought this was cookbook?

| | | |
|---|---|---|
| BREAKDOWN Causes 100% urinary tract infection 10% meningitis Pneumonia, Sepsis, Osteomyelitis | Workup Cath urine, UA and culture Blood Cs, LFT Inflammatory Markers (IM) If LP (2-4): CRP, glucose, protein, WBC count, gram stain/culture, enterovirus PCR | TREATMENT Antibiotics Use for cause of UTI Ceftriaxone 50mg/kg Meningitis = Amoxicillin + Ceftriaxone Asteroid only if not febrile or meningitis |
|---|---|---|

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13

LP in 22-28 day olds
Applicable to just one

Data from Step by Step study
From 2014, very similar to the new AAP guidelines

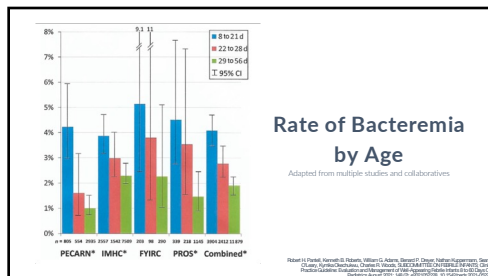
21-90 days
 Study aimed to risk-stratify infants
19 other previous studies included 21-28 day infants

Pathway includes
LACTOGEN, PROCRISPOT
 CRP and ANC

Validation Misses
7 babies were misclassified as low risk and had
 LR: 4 babies non-BI (total: 1.5%)
 But 4 or the 7 BI babies were 21-28 days

Boris Gomez, Santiago Mihalek, Silvia Brossmer, Lidiana Da Dal, Alan Gerardo, Laurence Lacroix, on behalf of the European Group for
 Validation of the Step-by-Step Approach, Validation of the "Step-by-Step" Approach in the Management of Young Febrile Infants
 Pediatrics August 2016; 138(2): e20154381 | 10.1542/peds.2015-4381

14



15

Can I skip the LP if the urine is dirty? 16

0-28 days

> J Pediatr. 2017 May;184:199-203. doi: 10.1016/j.peds.2017.01.022. Epub 2017 Feb 6.

Prevalence of Concomitant Acute Bacterial Meningitis in Neonates with Febrile Urinary Tract Infection: A Retrospective Cross-Sectional Study

Sowjanya S Vasbani¹, Danielle N Brown², Andrea T Cruz³

Affiliations + expand

PMID: 28186626 DOI: 10.1016/j.peds.2017.01.022

**236 infants with UTI, 2 with bacterial meningitis,
1 with HSV meningoencephalitis**

16

Can I skip the LP if the urine is dirty? 17

0-28 days

Comparative Study | J Pediatr Emerg Care. 1999 Dec;11(1):280-4. doi: 10.1097/00005666-199910000-00004.

Bacteremia and meningitis in neonates with urinary tract infections

NOPE!

Bachur¹, Gil-Caballero

Affiliations + expand


PMID: 8570449 DOI: 10.1097/00005666-199910000-00004

**21% of ≤ 28 day olds with UTI had bacteremia
4 infants <math>< 2</math> months had Cx positive CSF or CSF pleocytosis**

17

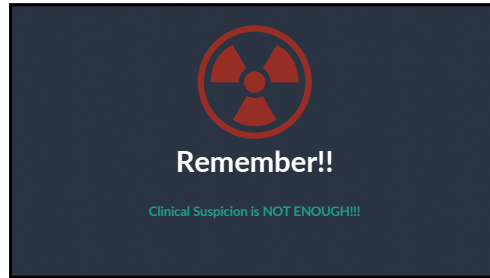
Age 29-60 days 18

No one knows. Don't feed back.

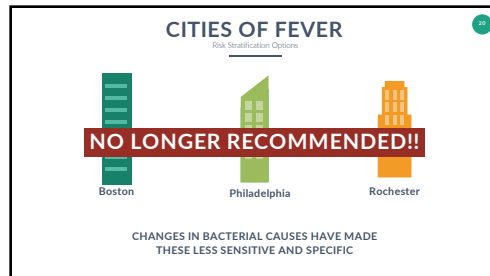


WHAT DO WE DO?

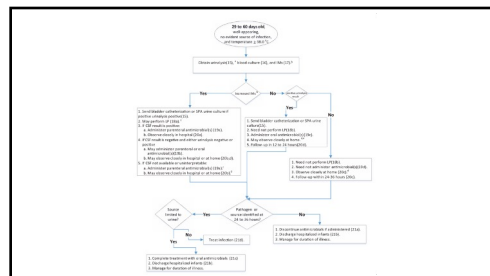
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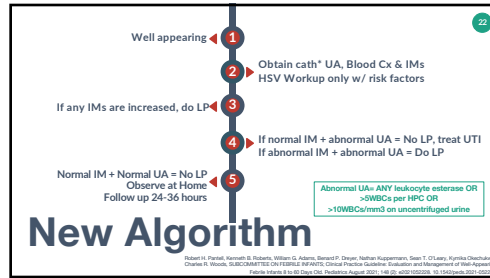
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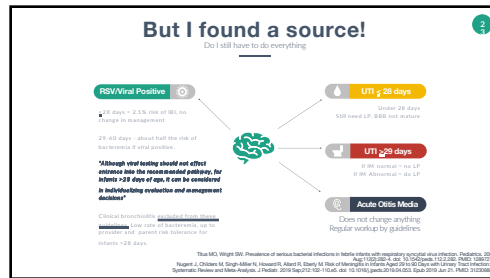
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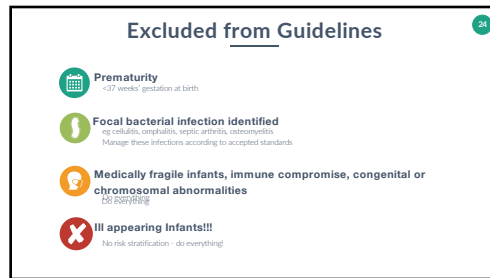
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Summary

| 0-21 days | 21-28 days | 29-60 days | Inflammatory Markers |
|---|---|--|--|
| CRP, WBC, Blood Cx, UA, LFTs CRP >0.5mg/L CRP >10mg/L, CRP >100mg/L, CRP >1000mg/L Anemia + gastroenteritis/UTI + Anemia Rash/UTI | CRP, WBC, Blood Cx, UA, LFTs, Procalcitonin, CRP, ANC, WBC, cultures if not febrile If any IM abnormal → CRP UTI or Urinary tract + Cholelithiasis Meningitis + Anemia + Anemia + Rash/UTI | CRP, UA, Blood Cx, and WBC UA abnormal + normal IM → Do LP UA abnormal + abnormal IM → Do LP Normal UA + Normal IM + No UTI, Ob at home | ANC <4000 or >1000 CRP >20mg/L Procalcitonin >0.5 ng/ml If no Procalcitonin + Use temp >38.5C as a positive test result |

Well appearing infants only!!

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Questions?



Ashley Grigby, DO, FAAP, FACP
ashgrig@gmail.com

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