2-2022

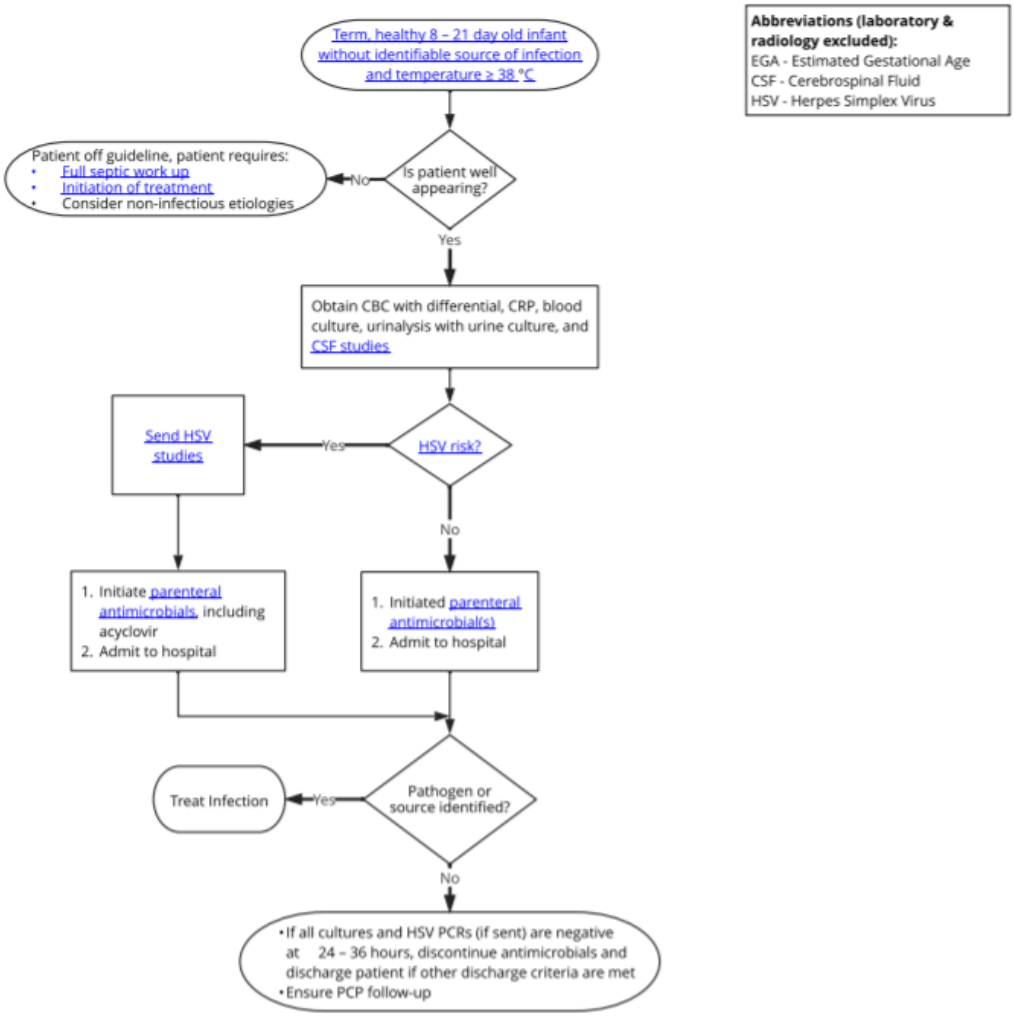
Febrile Infant Without Evidence Source of Infection

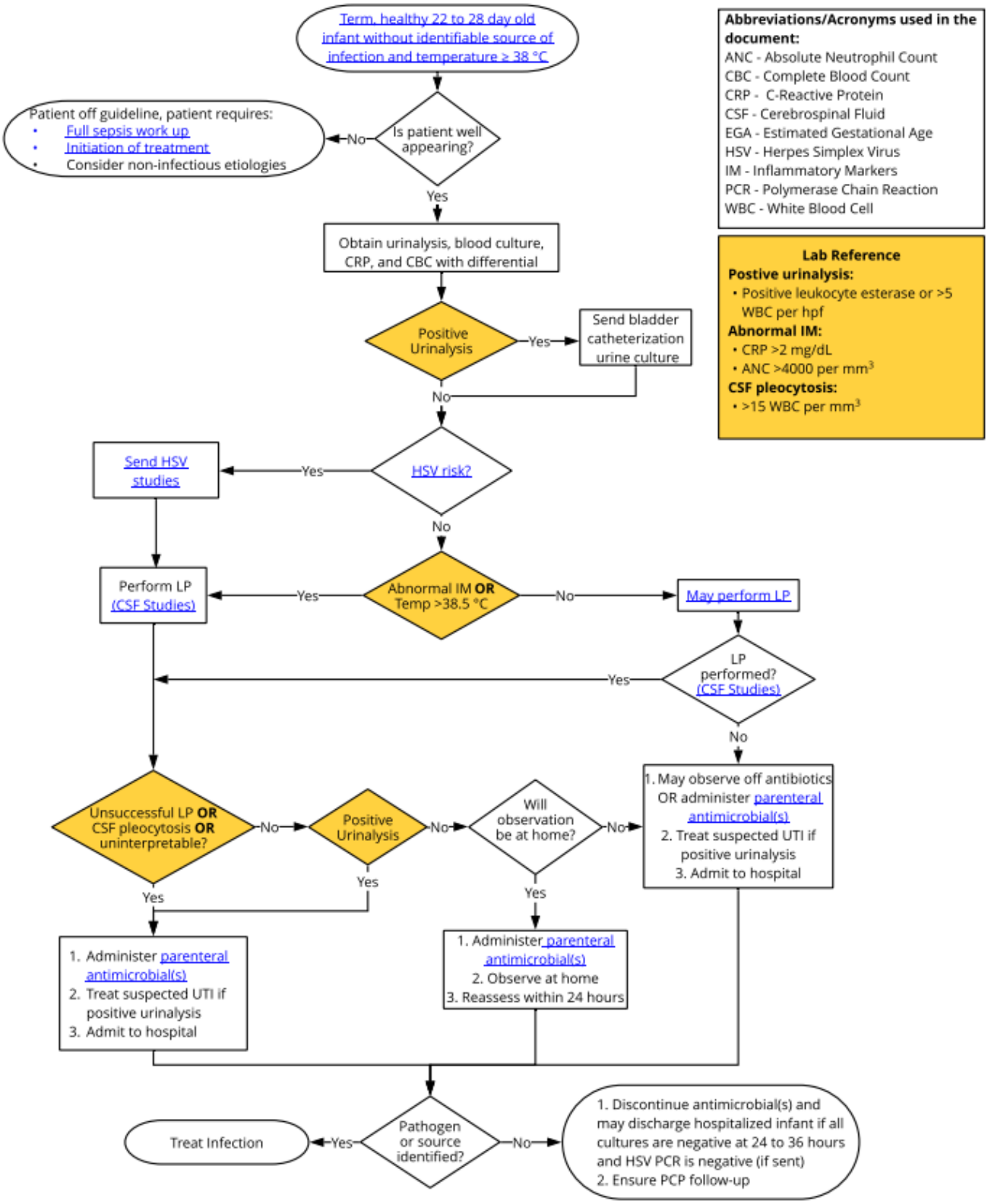
Children's Mercy Kansas City

These guidelines do not establish a standard of care to be followed in every case. It is recognized that each case is different and those individuals involved in providing health care are expected to use their judgment in determining what is in the best interests of the patient based on the circumstances existing at the time. It is impossible to anticipate all possible situations that may exist and to prepare guidelines for each. Accordingly, these guidelines should guide care with the understanding that departures from them may be required at times.

Children's Mercy Kansas City (CMKC)
Evidence Based Practice Clinical Practice Guide Committee

Febrile Infant 8 to 60 Days



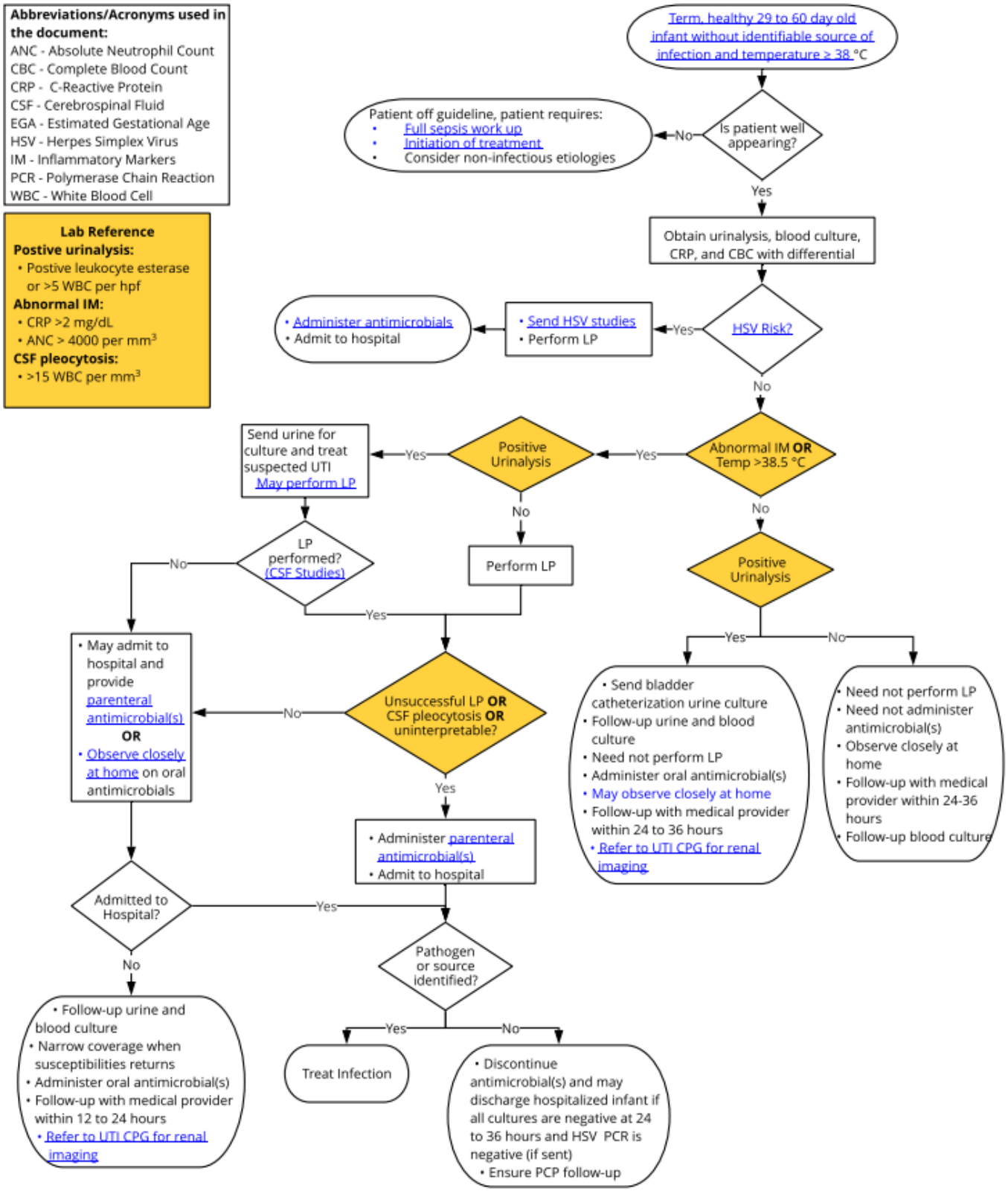

Term, healthy 22 to 28 day old infant without identifiable source of infection and temperature ≥ 38 °C
Is patient well appearing?
No
Patient off guideline, patient requires:
Full sepsis work up
Initiation of treatment
Consider non-infectious etiologies
Yes
Obtain urinalysis, blood culture, CRP, and CBC with differential
Positive Urinalysis
Yes
Send bladder catheterization urine culture
No
HSV risk?
Yes
Send HSV studies
No
Abnormal IM OR Temp >38.5 °C
Yes
Perform LP (CSF Studies)
No
May perform LP
LP performed? (CSF Studies)
Yes
No
Unsuccessful LP OR CSF pleocytosis OR uninterpretable?
No
Positive Urinalysis
No
Will observation be at home?
No
1. May observe off antibiotics OR administer parenteral antimicrobial(s)
2. Treat suspected UTI if positive urinalysis
3. Admit to hospital
Yes
Yes
Yes
1. Administer parenteral antimicrobial(s)
2. Treat suspected UTI if positive urinalysis
3. Admit to hospital
1. Administer parenteral antimicrobial(s)
2. Observe at home
3. Reassess within 24 hours
Pathogen or source identified?
Yes
Treat Infection
No
1. Discontinue antimicrobial(s) and may discharge hospitalized infant if all cultures are negative at 24 to 36 hours and HSV PCR is negative (if sent)
2. Ensure PCP follow-up
Abbreviations/Acronyms used in the document:
ANC - Absolute Neutrophil Count
CBC - Complete Blood Count
CRP - C-Reactive Protein
CSF - Cerebrospinal Fluid
EGA - Estimated Gestational Age
HSV - Herpes Simplex Virus
IM - Inflammatory Markers
PCR - Polymerase Chain Reaction
WBC - White Blood Cell
Lab Reference
Postive urinalysis:
• Positive leukocyte esterase or >5 WBC per hpf
Abnormal IM:
• CRP >2 mg/dL
• ANC >4000 per mm3
CSF pleocytosis:
• >15 WBC per mm3

Abbreviations/Acronyms used in the document:
ANC - Absolute Neutrophil Count
CBC - Complete Blood Count
CRP - C-Reactive Protein
CSF - Cerebrospinal Fluid
EGA - Estimated Gestational Age
HSV - Herpes Simplex Virus
IM - Inflammatory Markers
PCR - Polymerase Chain Reaction
WBC - White Blood Cell

Lab Reference
Postive urinalysis:
- Postive leukocyte esterase or >5 WBC per hpf

Abnormal IM:
- CRP >2 mg/dL
- ANC > 4000 per mm^3

CSF pleocytosis:
- >15 WBC per mm^3



Background

Fever in infants can at times be the only sign of invasive bacterial infection. Although rates are lower than in the past (Pantell et al, 2021), missed diagnoses can have serious long-term adverse outcomes. Many febrile infants undergo extensive laboratory evaluations, including blood, urine, and cerebrospinal fluid cultures, followed by empiric broad spectrum antibiotics and hospitalization (Powell et al, 2019). However, risks associated with these medical interventions are increasingly recognized (Pantell et al, 2021), prompting the development of evidence-based strategies for a more targeted approach. In 2021, the American Academy of Pediatrics (AAP) Subcommittee on Febrile Infants updated the clinical practice guidelines, providing recommendations based on patient age, clinical presentation, and laboratory findings. These recommendations assist providers in identifying infants at low risk of invasive bacterial infection and choosing diagnostic and therapeutic interventions for those at higher risk (Pantell et al, 2021).

Objective of Guideline

To provide care standards for well-appearing febrile infants throughout the care continuum.

Perspective of Guideline

- Provider
- Patient/Family
- Health System (CMKC)
- Community

Target Users

- Emergency Department and Urgent Care Clinic Providers
- General Pediatricians
- Pediatric Hospitalists
- Fellows
- Resident Physicians
- Pediatric Nurse Practitioners

Target Population

Guideline Inclusion Criteria

- Well-appearing
- Full-term (≥ 37 weeks estimated gestational age)
- 8 to 60-days of age
- Temperature ≥ 38 °C at home in the past 24 hours or determined in a clinical setting
- Without an identifiable source of infection

Guideline Exclusion Criteria

- ≤ 7 days
- Preterm infants ≤ 37 weeks
- Younger than 2 weeks of age whose perinatal courses were complicated by maternal fever, infection, and/or antimicrobial use
- High suspicion of herpes simplex virus (HSV) infection (e.g., vesicles).
- Focal bacterial infection (eg, cellulitis, omphalitis, septic arthritis, osteomyelitis). These infections should be managed according to accepted standards
- Infants with clinical bronchiolitis, with or without positive test results for respiratory syncytial virus (RSV)
- Documented or suspected immune compromise
- Neonatal course was complicated by surgery or infection
- Congenital or chromosomal abnormalities
- Medically fragile infants requiring some form of technology or ongoing therapeutic intervention to sustain life
- Infants who have received immunizations within the last 48 hours

Clinical Questions Answered by Guideline

The American Academy of Pediatric national Guidelines provided guidance to the Febrile Infant CPG committee (Pantell et al., 2021). See Table 1 for AGREE II.

Table 1.
AGREE II[a] Summary for the Guideline Patell et al. (2021)

Domain	Percent Agreement	Percent Justification
Scope and purpose	97%	The aim of the guideline, the clinical questions posed and target populations **were** identified.
Stakeholder involvement	88%	The guideline **was developed** by the appropriate stakeholders and represents the views of its intended users.
Rigor of development	95%	The process used to gather and synthesize the evidence, the methods to formulate the recommendations and to update the guidelines **were** explicitly stated.
Clarity and presentation	100%	The guideline recommendations **are** clear, unambiguous, and easily identified; in addition, different management options are presented.
Applicability	96%	Barriers and facilitators to implementation, strategies to improve utilization and resource implications **were addressed** in the guideline.
Editorial independence	100%	The recommendations **were not** biased with competing interests.
Committee's recommendation for guideline use	Yes with modification	

Note: Three Evidence Based Practice (EBP) Scholars completed the AGREE II on this guideline.

Practice Recommendations:

Please refer to the American Academy of Pediatrics (Pantell et al., 2021) Clinical Practice Guideline for full practice recommendations, evaluation, and treatment recommendations.

Children's Mercy Practice Recommendations and Reasoning:

Children's Mercy adopted the majority of the practice recommendations made by the AAP Clinical Practice Guideline. Deviations include:

- The AAP recommends gentamicin for infants 8-21 days of age with suspected UTI or suspected infection with no focus identified. Gentamicin is generally not preferred at Children's Mercy; choices should be made based on clinical factors and local susceptibility patterns.
- The AAP advises that providers **may** obtain inflammatory markers (i.e., procalcitonin, CRP, CBC) for infants 8-21 days of age. They are not strongly recommended due to the fact that lumbar puncture is recommended in infants of this age regardless of inflammatory markers. However, Children's Mercy does recommend CRP and CBC for infants 8-21 days of age. Lumbar puncture may be unsuccessful, yield too little CSF, or yield CSF with many red blood cells, making it difficult to interpret CSF WBC count and/or culture. In these cases, inflammatory markers may help guide the treatment plan.
- The AAP recommends that providers **may** obtain CSF studies for those infants 29-60 days of age with positive inflammatory markers and a negative urinalysis. However, we recognize the importance of consistency in care among settings and providers across our institution. To safely minimize variation in practice, Children's Mercy recommends providers obtain CSF

for infants 29-60 days of age with elevated inflammatory markers and no identifiable source.

Measures
In coordination with the AAP Value in Pediatrics Network REVISE II collaborative, quality measures include:

- Primary Outcomes
  - Appropriately obtained CSF, if indicated
  - Appropriate disposition from the emergency department
  - Correct receipt of antibiotics, if indicated
  - Timely discharge from the hospital within 36 hours of blood culture being received by the lab
- Balancing Measures
  - Emergency department revisit within 7 days
  - Readmission within 7 days
  - Delayed diagnosis of invasive bacterial infections

Cost Implications:
The following potential improvements may reduce costs and resource utilization for healthcare facilities and reduce healthcare costs and non-monetary costs (e.g., missed school/work, loss of wages, stress) for patients and families.

- Decreased risk of overdiagnosis
- Decreased risk of overtreatment (i.e., treatment for meningitis when treatment for urinary tract infection is more appropriate)
- Decreased frequency of admission
- Decreased inpatient length of stay
- Decreased unwarranted variation in care

Organizational Barriers:

- Variability of acceptable level of risk among providers
- Challenges with follow-up faced by some families

Organizational Facilitators:

- Collaborative engagement across care settings in CPG development
- High rate of use of CPG
- Standardized order set for Urgent Care Clinic, Emergency Department, and Hospital Medicine

Order Sets (see Appendix)

How guideline was placed into practice
Once approved, the guideline was presented to appropriate care teams and implemented. In coordination with the AAP Value in Pediatrics Network REVISE II collaborative, care measurements will be assessed and shared with appropriate care teams to determine if changes need to occur.

Guideline Preparation
This guideline was prepared by the Evidence Based Practice (EBP) Department in collaboration with content experts at Children's Mercy Kansas City. The development of this guideline supports the Service and Performance Excellence initiative to promote care standardization that builds a culture of quality and safety that is evidenced by measured outcomes. If a conflict of interest is identified, the conflict will be disclosed next to the committee member's name.

Febrile Infant CPG Committee Members and Representation

- Christopher Veit, MD, MHPE, FAAP | Hospital Medicine | Committee Chair
- Stephanie Karnik, MD | Emergency Medicine | Committee Chair
- Josh Herigon, MD, MPH, MBI | Infectious Diseases | Committee member
- Maria Blanco, MD | Urgent Care | Committee member
- Alaina Burns, Pharm.D., BCPPS | Pharmacy | Committee member
- Jordan Marquess, MD | Pediatric Resident | Committee member

EBP Committee Members

- Katie Berg, MD, FAAP | Evidence Based Practice & Hospital Medicine | Committee member
- Jarrod Dusin, MS, RD, LD, CPHQ | Evidence Based Practice | Committee member

Guideline Development Funding

The development of this guideline was underwritten by the Department of EBP and the divisions of Hospital Medicine, Emergency Medicine, Infectious Diseases, and Urgent Care.

Approval Process

This guideline was reviewed and approved internally by Hospital Medicine, Emergency Medicine, Infectious Diseases, Urgent Care, Content Expert Committee, the EBP Department, Medical Executive, and other appropriate hospital committees deemed suitable for this guideline's intended use. Guidelines are reviewed and updated as necessary every 3 years within the EBP Department at CMKC. Content expert committees will be involved with every review and update.

Approval Obtained

Department/Unit	Date Approved
Hospital Medicine	February 2022
Emergency Medicine	February 2022
Infectious Diseases	February 2022
Urgent Care	February 2022
Medical Executive	March 2022

Version History

Date	Comments
2/2/2022	Version 2

Disclaimer

The content experts and the Office of EBP are aware of the controversies surrounding the Febrile Infant CPG. When evidence is lacking or inconclusive, options in care are provided in the guideline and the order sets that accompany the guideline.

These guidelines do not establish a standard of care to be followed in every case. It is recognized that each case is different, and those individuals involved in providing health care are expected to use their judgment in determining what is in the best interests of the patient based on the circumstances existing at the time.

It is impossible to anticipate all possible situations that may exist and to prepare guidelines for each. Accordingly, these guidelines should guide care with the understanding that departures from them may be required at times

References

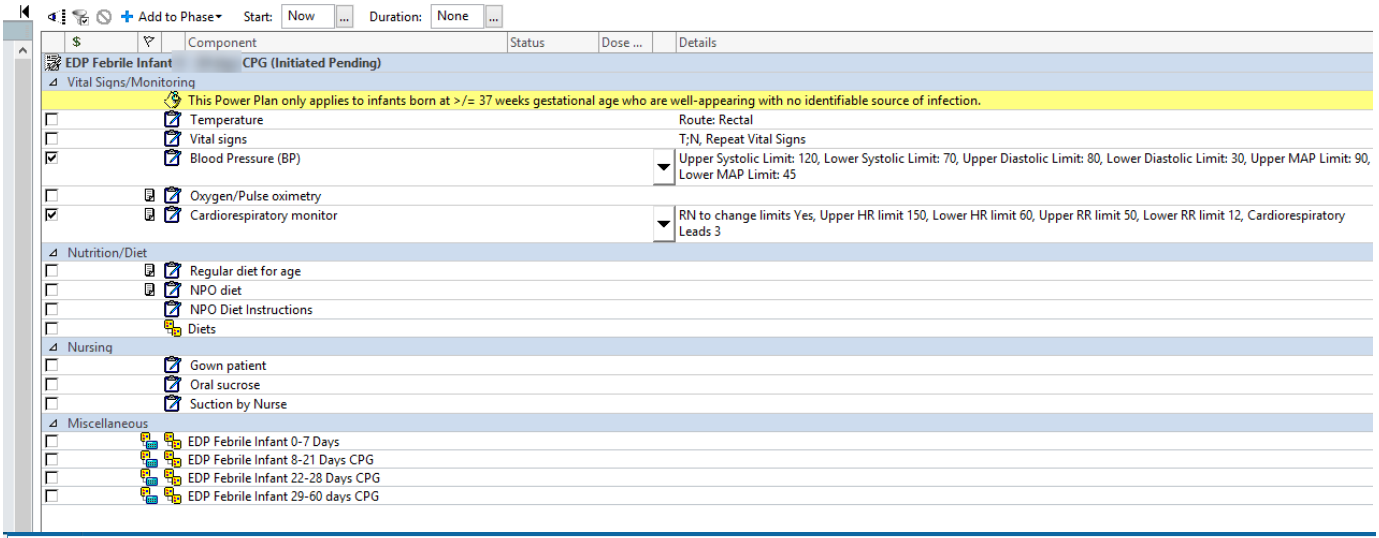
Brouwers, M.C. et al. for the AGREE Next Steps Consortium. (2010) AGREE II: Advancing guideline development, reporting and evaluation in healthcare. *Canadian Medical Association Journal, 182*, E839-842. Retrieved from https://www.agreetrust.org/wp-content/uploads/2017/12/AGREE-II-Users-Manual-and-23-item-Instrument-2009-Update-2017.pdf

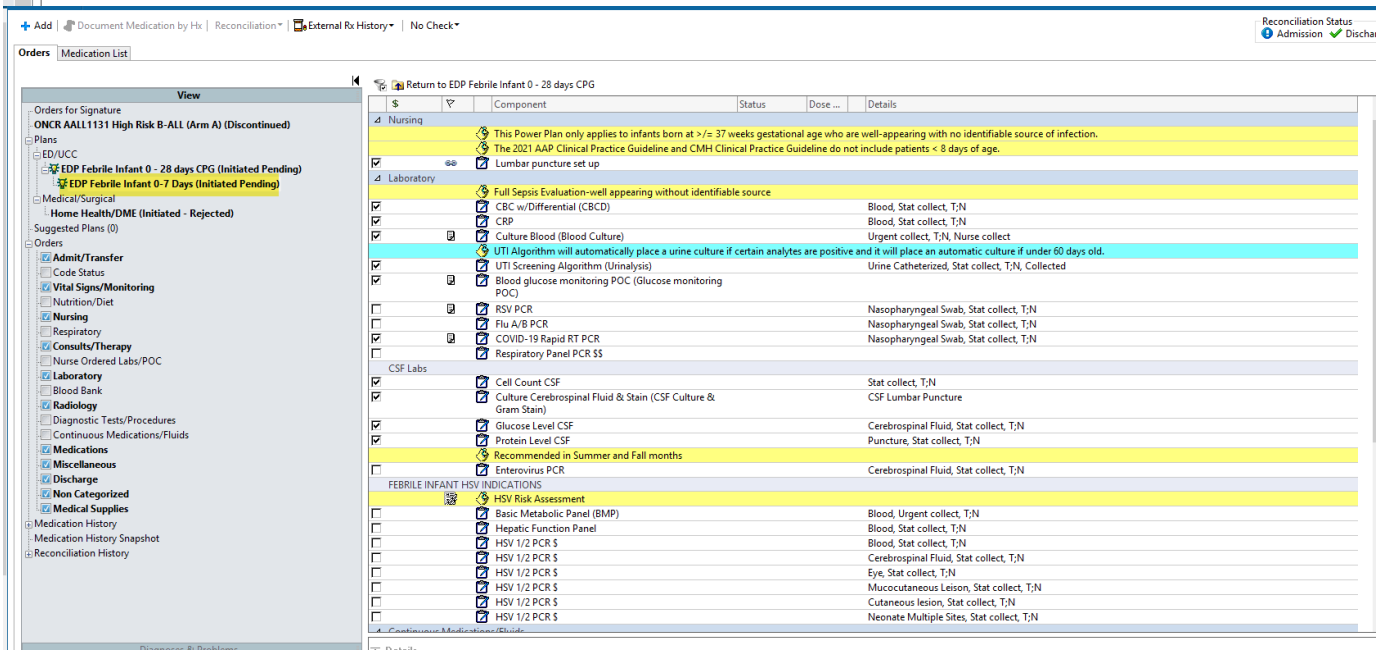
Pantell, R. H., Roberts, K. B., Adams, W. G., Dreyer, B. P., Kuppermann, N., O'Leary, S. T., ... & Teichman, J. S. (2021). Evaluation and management of well-appearing febrile infants 8 to 60 days old. *Pediatrics*, *148*(2).

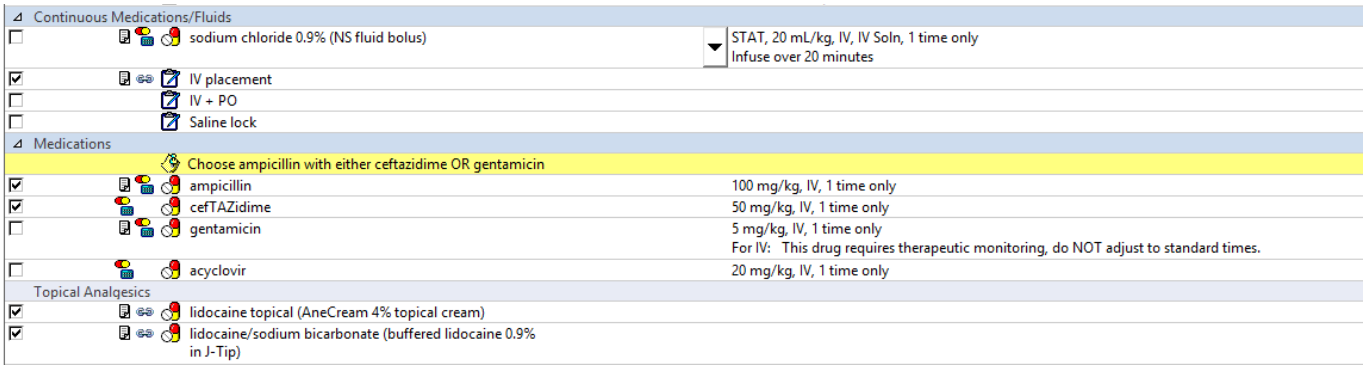
Powell, E. C., Mahajan, P. V., Roosevelt, G., Hoyle Jr, J. D., Gattu, R., Cruz, A. T., ... & Lillis, K. (2018). Epidemiology of bacteremia in febrile infants aged 60 days and younger. *Annals of emergency medicine*, *71*(2), 211-216.

Appendix

Emergency Order Set



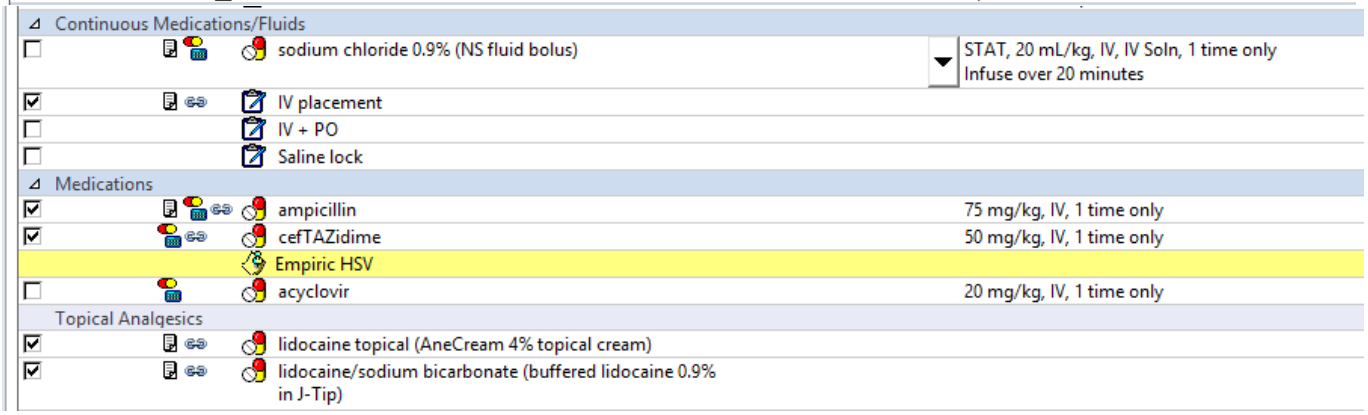




Continuous Medications/Fluids		
☐	sodium chloride 0.9% (NS fluid bolus)	STAT, 20 mL/kg, IV, IV Soln, 1 time only Infuse over 20 minutes
☑	IV placement	
☐	IV + PO	
☐	Saline lock	
Medications		
	Choose ampicillin with either ceftazidime OR gentamicin	
☑	ampicillin	100 mg/kg, IV, 1 time only
☑	cefTAZidime	50 mg/kg, IV, 1 time only
☐	gentamicin	5 mg/kg, IV, 1 time only For IV: This drug requires therapeutic monitoring, do NOT adjust to standard times.
☐	acyclovir	20 mg/kg, IV, 1 time only
Topical Analgesics		
☑	lidocaine topical (AneCream 4% topical cream)	
☑	lidocaine/sodium bicarbonate (buffered lidocaine 0.9% in J-Tip)	

8-21 days

$	Component	Status	Dose ...	Details
EDP Febrile Infant [redacted] CPG, EDP Febrile Infant 8-21 Days CPG (Initiated Pending)				
Nursing				
	This Power Plan only applies to infants born at >/= 37 weeks gestational age who are well-appearing with no identifiable source of infection.			
☑	Lumbar puncture set up			
Laboratory				
☑	CBC w/Differential (CBCD)			Blood, Stat collect, T;N, Nurse collect
☑	CRP			Blood, Stat collect, T;N
☑	Culture Blood (Blood Culture)			Urgent collect, T;N, Nurse collect
	UTI Algorithm will automatically place a urine culture if certain analytes are positive and it will place an automatic culture if under 60 days old.			
☑	UTI Screening Algorithm (Urinalysis)			Urine Catheterized, Urgent collect, T;N, Collected
☐	RSV PCR			
☐	Flu A/B PCR			
☑	COVID-19 Rapid RT PCR			
☐	Respiratory Panel PCR $$			
CSF Labs				
☑	Cell Count CSF			Stat collect, T;N
☑	Culture Cerebrospinal Fluid & Stain (CSF Culture & Gram Stain)			CSF Lumbar Puncture, Stat collect, T;N
☑	Glucose Level CSF			Cerebrospinal Fluid, Stat collect, T;N
☑	Protein Level CSF			Puncture, Stat collect, T;N
	Recommended in summer and fall months			
☐	Enterovirus PCR			Cerebrospinal Fluid, Stat collect, T;N
FEBRILE INFANT HSV INDICATIONS				
	HSV Risk Assessment			
☐	Basic Metabolic Panel (BMP)			Blood, Urgent collect, T;N
☐	Hepatic Function Panel			Blood, Stat collect, T;N
☐	HSV 1/2 PCR $			Blood, Stat collect, T;N
☐	HSV 1/2 PCR $			Cerebrospinal Fluid, Stat collect, T;N
☐	HSV 1/2 PCR $			Eye, Stat collect, T;N
☐	HSV 1/2 PCR $			Mucocutaneous Leison, Stat collect, T;N
☐	HSV 1/2 PCR $			Cutaneous lesion, Stat collect, T;N
☐	HSV 1/2 PCR $			Neonate Multiple Sites, Stat collect, T;N



Continuous Medications/Fluids		
☐	sodium chloride 0.9% (NS fluid bolus)	STAT, 20 mL/kg, IV, IV Soln, 1 time only Infuse over 20 minutes
☑	IV placement	
☐	IV + PO	
☐	Saline lock	
Medications		
☑	ampicillin	75 mg/kg, IV, 1 time only
☑	cefTAZidime	50 mg/kg, IV, 1 time only
	Empiric HSV	
☐	acyclovir	20 mg/kg, IV, 1 time only
Topical Analgesics		
☑	lidocaine topical (AneCream 4% topical cream)	
☑	lidocaine/sodium bicarbonate (buffered lidocaine 0.9% in J-Tip)	

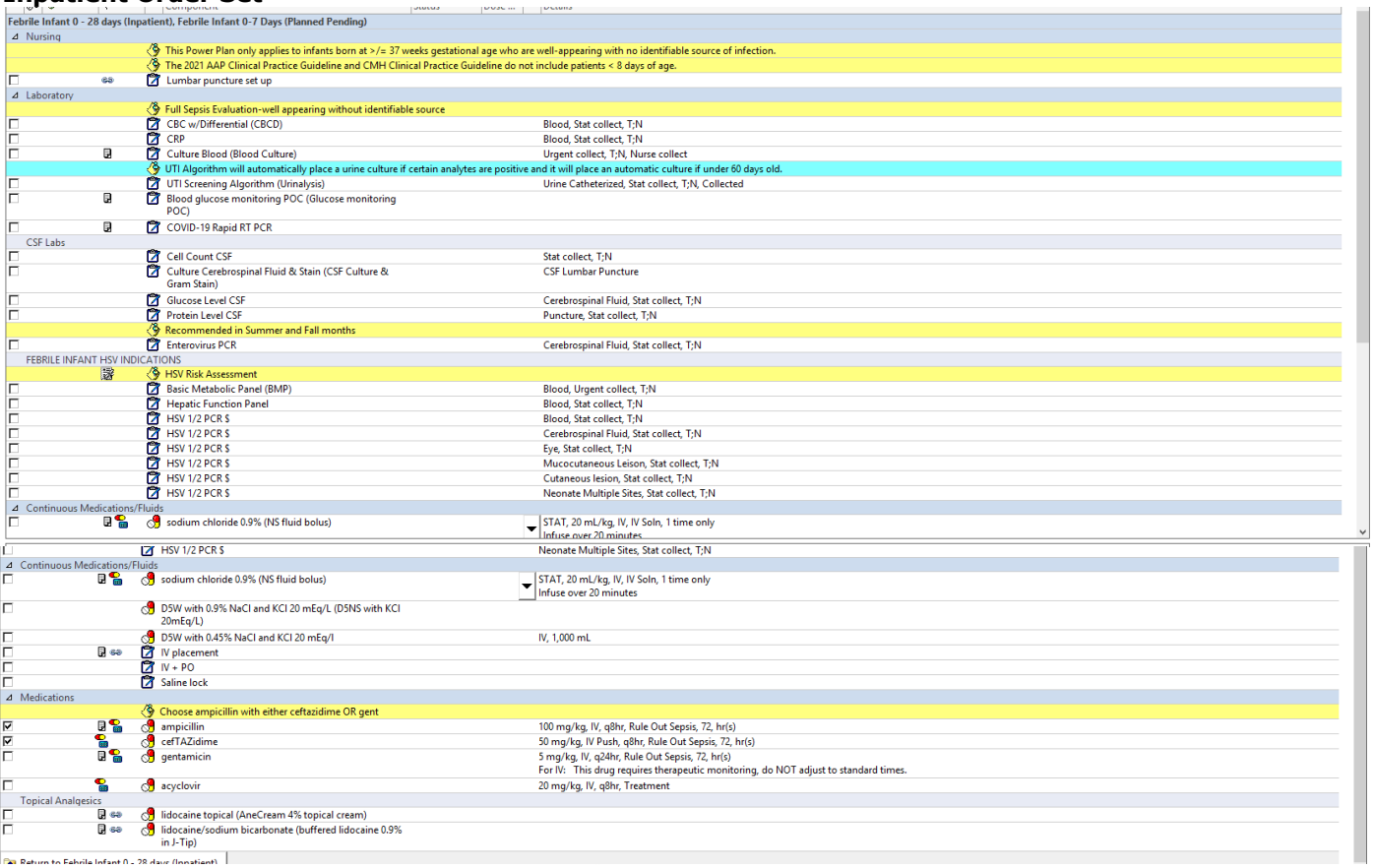
22-28 days

EDP Febrile Infant s CPG, EDP Febrile Infant 22-28 Days CPG (Initiated Pending)		
Nursing		
	This Power Plan only applies to infants born at >/= 37 weeks gestational age who are well-appearing with no identifiable source of infection.	
	The CMH Febrile Infant Clinical Practice Guideline algorithm should be used determine which patients require lumbar puncture, empiric antimicrobials, and/or hospital admission.	
☐	Lumbar puncture set up	
Laboratory		
☑	CBC w/Differential (CBCD)	
☑	CRP	
☑	Culture Blood (Blood Culture)	
	UTI Algorithm will automatically place a urine culture if certain analytes are positive and it will place an automatic culture if under 60 days old.	
☑	UTI Screening Algorithm (Urinalysis)	Stat collect, T;N
☐	RSV PCR	Nasopharyngeal Swab, Stat collect, T;N
☐	Flu A/B PCR	Nasopharyngeal Swab, Stat collect, T;N
☑	COVID-19 Rapid RT PCR	Nasopharyngeal Swab, Stat collect, T;N
☐	Respiratory Panel PCR $$	
FEBRILE INFANT HSV INDICATIONS		
	HSV Risk Assessment	
☐	Basic Metabolic Panel (BMP)	Blood, Urgent collect, T;N
☐	Hepatic Function Panel	Blood, Stat collect, T;N
☐	HSV 1/2 PCR $	Blood, Stat collect, T;N
☐	HSV 1/2 PCR $	Cerebrospinal Fluid
☐	HSV 1/2 PCR $	Eye, Stat collect, T;N
☐	HSV 1/2 PCR $	Mucocutaneous Leison, Stat collect, T;N
☐	HSV 1/2 PCR $	Cutaneous lesion, Stat collect, T;N
☐	HSV 1/2 PCR $	Neonate Multiple Sites
CSF Labs		
	Abnormal Inflammatory Markers or Temp >38.5 degrees celcius	
☐	Cell Count CSF	Stat collect, T;N
☐	Culture Cerebrospinal Fluid & Stain (CSF Culture & Gram Stain)	CSF Lumbar Puncture, Stat collect, T;N
☐	Glucose Level CSF	Cerebrospinal Fluid, Stat collect, T;N
☐	Protein Level CSF	Puncture, Stat collect, T;N
	Recommended in Summer and Fall months	
☐	Enterovirus PCR	Cerebrospinal Fluid, Stat collect, T;N
Continuous Medications/Fluids		
☐	sodium chloride 0.9% (NS fluid bolus)	STAT, 20 mL/kg, IV, IV Soln, 1 time only Infuse over 20 minutes
☐	IV placement	
☐	IV + PO	
☐	Saline lock	
Medications		
	Suspected bacterial meningitis OR CSF results not available	
☐	ampicillin	75 mg/kg, IV, 1 time only
☐	cefTAZidime	50 mg/kg, IV, 1 time only
	UTI	
☐	cefTRIAXone	50 mg/kg, IV, 1 time only Max dose: 2000 mg
	No focus identified (low concern for bacterial meningitis)	
☐	cefTRIAXone	50 mg/kg, IV, 1 time only Max dose: 2000 mg
	Empiric HSV	
☐	acyclovir	20 mg/kg, IV, 1 time only
Topical Analgesics		
☐	lidocaine topical (AneCream 4% topical cream)	
☐	lidocaine/sodium bicarbonate (buffered lidocaine 0.9% in J-Tip)	

29-60 days

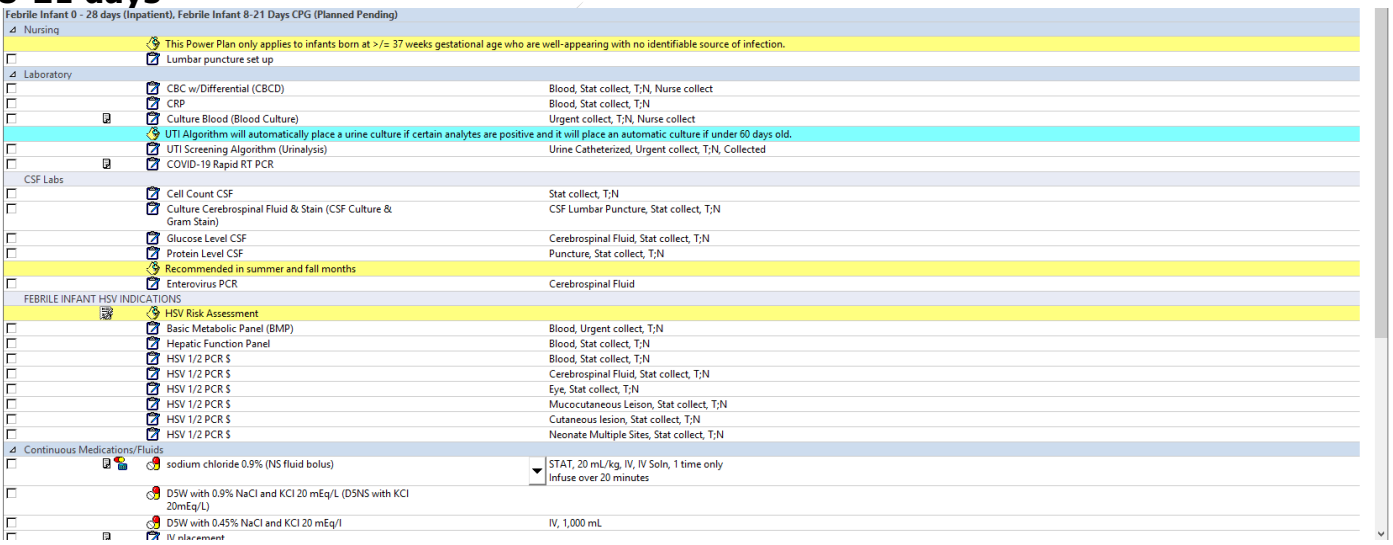
EDP Febrile Infant [redacted]s CPG, EDP Febrile Infant 29-60 days CPG (Initiated Pending)	
Nursing	
This Power Plan only applies to infants born at >/= 37 weeks gestational age who are well-appearing with no identifiable source of infection.	
The CMH Febrile Infant Clinical Practice Guideline algorithm should be used determine which patients require lumbar puncture, empiric antimicrobials, and/or hospital admission.	
☐ Lumbar puncture set up	
Laboratory	
☑ CBC w/Differential (CBCD)	Blood, Stat collect, T;N
☑ CRP	Blood, Stat collect, T;N
☑ Culture Blood (Blood Culture)	Stat collect, T;N, Nurse collect
UTI Algorithm will automatically place a urine culture if certain analytes are positive and it will place an automatic culture if under 60 days old.	
☑ UTI Screening Algorithm (Urinalysis)	Urine Catheterized, Stat collect, T;N
☐ RSV PCR	Nasopharyngeal Swab, Stat collect, T;N
☐ Flu A/B PCR	Nasopharyngeal Swab, Stat collect, T;N
☐ COVID-19 Rapid RT PCR	Nasopharyngeal Swab, Stat collect, T;N
☐ Respiratory Panel PCR $$	
FEBRILE INFANT HSV INDICATIONS	
HSV Risk Assessment	
☐ Basic Metabolic Panel (BMP)	Blood, Stat collect, T;N
☐ Hepatic Function Panel	Blood, Stat collect, T;N
☐ HSV 1/2 PCR $	Blood, Stat collect, T;N
☐ HSV 1/2 PCR $	Cerebrospinal Fluid, Stat collect, T;N
☐ HSV 1/2 PCR $	Eye, Stat collect, T;N
☐ HSV 1/2 PCR $	Mucocutaneous Leison, Stat collect, T;N
☐ HSV 1/2 PCR $	Cutaneous lesion, Stat collect, T;N
☐ HSV 1/2 PCR $	Neonate Multiple Sites, Stat collect, T;N
CSF Labs	
☐ Cell Count CSF	Stat collect, T;N
☐ Culture Cerebrospinal Fluid & Stain (CSF Culture & Gram Stain)	CSF Lumbar Puncture, Stat collect, T;N
☐ Glucose Level CSF	Cerebrospinal Fluid, Stat collect, T;N
☐ Protein Level CSF	Puncture, Stat collect, T;N
Recommended in Summer and Fall months	
☐ Enterovirus PCR	Cerebrospinal Fluid, Stat collect, T;N
Continuous Medications/Fluids	
☐ sodium chloride 0.9% (NS fluid bolus)	STAT, 20 mL/kg, IV, IV Soln, 1 time only Infuse over 20 minutes
☐ IV placement	
☐ IV + PO	
☐ Saline lock	
Medications	
Suspected bacterial meningitis	
☐ cefTRIAXone	50 mg/kg, IV, 1 time only Max dose: 2000 mg
☐ vancomycin	20 mg/kg, IV, 1 time only IV: This drug requires therapeutic monitoring, do NOT adjust to standard times.
UTI	
☐ cefTRIAXone	50 mg/kg, IV, 1 time only Max dose: 2000 mg
☐ cephalexin	30 mg/kg, PO, 1 time only
☐ cefixime	8 mg/kg, PO, 1 time only
No focus identified (low concern for bacterial meningitis)	
☐ cefTRIAXone	50 mg/kg, IV, 1 time only Max dose: 2000 mg
Empiric HSV	
☐ acyclovir	20 mg/kg, IV, 1 time only
Topical Analgesics	
☐ lidocaine topical (AneCream 4% topical cream)	
☐ lidocaine/sodium bicarbonate (buffered lidocaine 0.9% in J-Tip)	

Inpatient Order Set

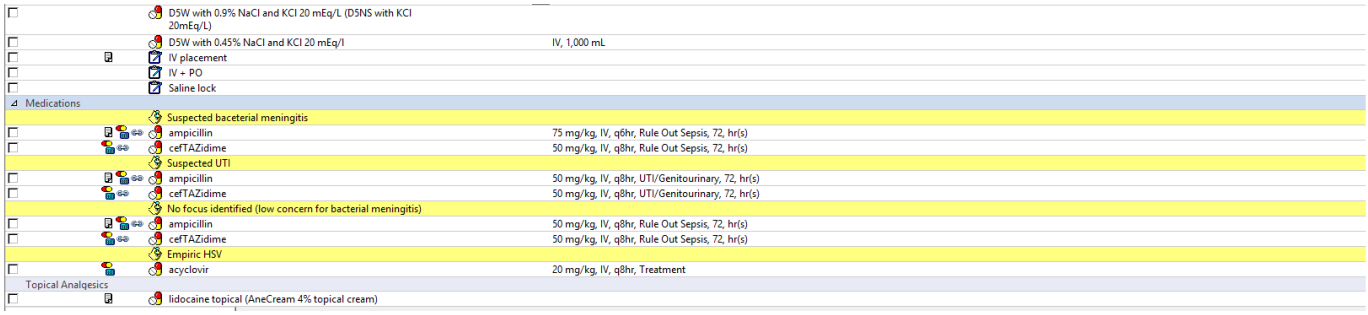


Febrile Infant 0 - 28 days (Inpatient), Febrile Infant 0-7 Days (Planned Pending)	
Nursing	
This Power Plan only applies to infants born at >/= 37 weeks gestational age who are well-appearing with no identifiable source of infection.	
The 2021 AAP Clinical Practice Guideline and CMH Clinical Practice Guideline do not include patients < 8 days of age.	
Lumbar puncture set up	
Laboratory	
Full Sepsis Evaluation-well appearing without identifiable source	
CBC w/Differential (CBCD)	Blood, Stat collect, T;N
CRP	Blood, Stat collect, T;N
Culture Blood (Blood Culture)	Urgent collect, T;N, Nurse collect
UTI Algorithm will automatically place a urine culture if certain analytes are positive and it will place an automatic culture if under 60 days old.	
UTI Screening Algorithm (Urinalysis)	Urine Catheterized, Stat collect, T;N, Collected
Blood glucose monitoring POC (Glucose monitoring POC)	
COVID-19 Rapid RT PCR	
CSF Labs	
Cell Count CSF	Stat collect, T;N
Culture Cerebrospinal Fluid & Stain (CSF Culture & Gram Stain)	CSF Lumbar Puncture
Glucose Level CSF	Cerebrospinal Fluid, Stat collect, T;N
Protein Level CSF	Puncture, Stat collect, T;N
Recommended in Summer and Fall months	
Enterovirus PCR	Cerebrospinal Fluid, Stat collect, T;N
FEBRILE INFANT HSV INDICATIONS	
HSV Risk Assessment	
Basic Metabolic Panel (BMP)	Blood, Urgent collect, T;N
Hepatic Function Panel	Blood, Stat collect, T;N
HSV 1/2 PCR $	Blood, Stat collect, T;N
HSV 1/2 PCR $	Cerebrospinal Fluid, Stat collect, T;N
HSV 1/2 PCR $	Eye, Stat collect, T;N
HSV 1/2 PCR $	Mucocutaneous Leison, Stat collect, T;N
HSV 1/2 PCR $	Cutaneous lesion, Stat collect, T;N
HSV 1/2 PCR $	Neonate Multiple Sites, Stat collect, T;N
Continuous Medications/Fluids	
sodium chloride 0.9% (NS fluid bolus)	STAT, 20 mL/kg, IV, IV Soln, 1 time only Infuse over 20 minutes
HSV 1/2 PCR $	Neonate Multiple Sites, Stat collect, T;N
Continuous Medications/Fluids	
sodium chloride 0.9% (NS fluid bolus)	STAT, 20 mL/kg, IV, IV Soln, 1 time only Infuse over 20 minutes
D5W with 0.9% NaCl and KCl 20 mEq/L (D5NS with KCl 20mEq/L)	
D5W with 0.45% NaCl and KCl 20 mEq/l	IV, 1,000 mL
IV placement	
IV + PO	
Saline lock	
Medications	
Choose ampicillin with either ceftazidime OR gent	
ampicillin	100 mg/kg, IV, q8hr, Rule Out Sepsis, 72, hr(s)
cefTAZidime	50 mg/kg, IV Push, q8hr, Rule Out Sepsis, 72, hr(s)
gentamicin	5 mg/kg, IV, q24hr, Rule Out Sepsis, 72, hr(s) For IV: This drug requires therapeutic monitoring, do NOT adjust to standard times.
acyclovir	20 mg/kg, IV, q8hr, Treatment
Topical Analgesics	
lidocaine topical (AneCream 4% topical cream)	
lidocaine/sodium bicarbonate (buffered lidocaine 0.9% in J-Tip)	

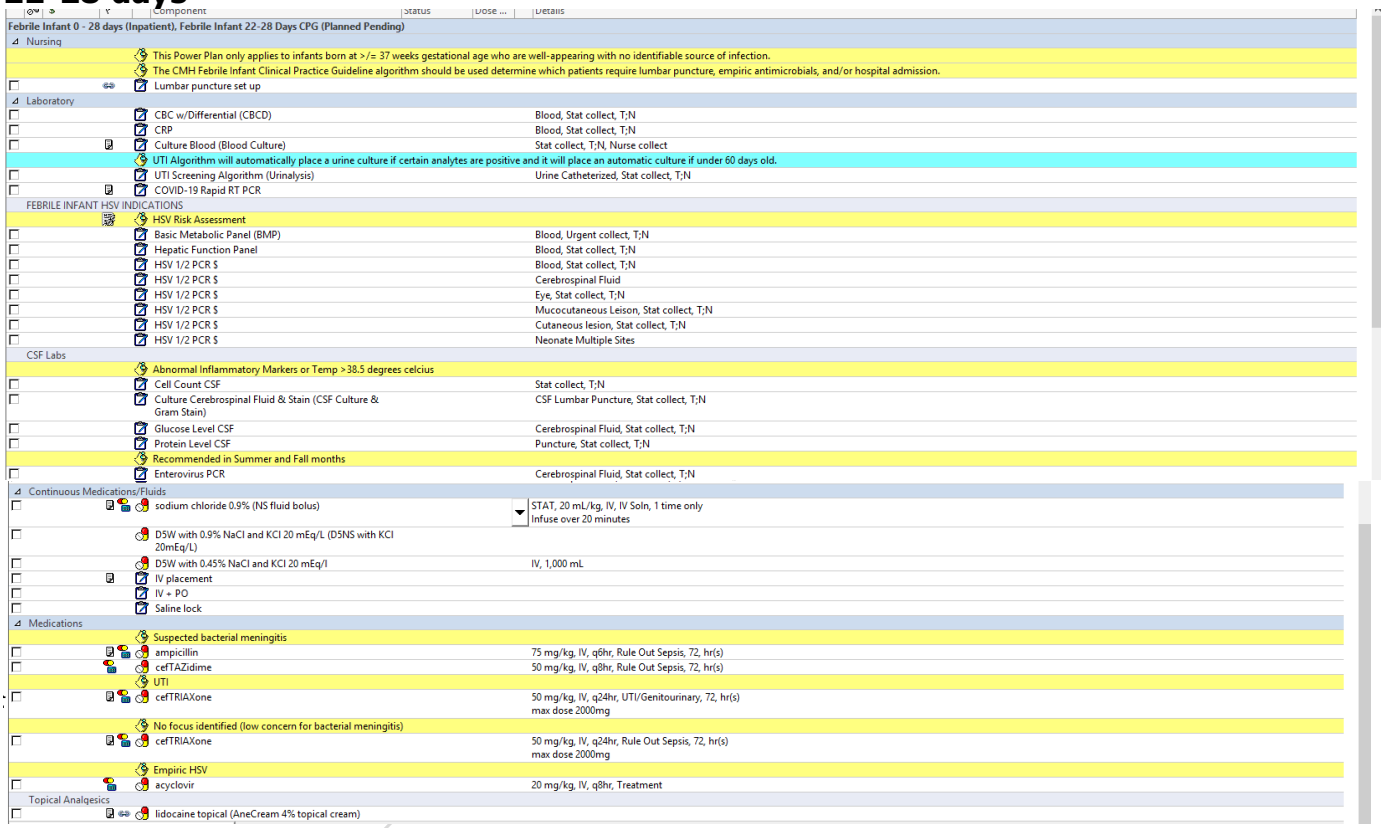
8-21 days



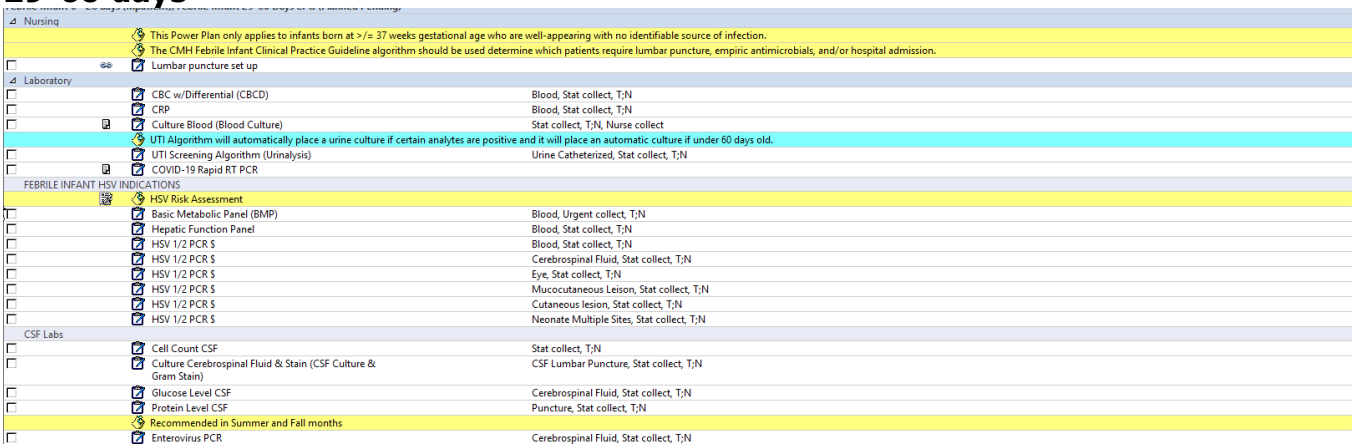
Febrile Infant 0 - 28 days (Inpatient), Febrile Infant 8-21 Days CPG (Planned Pending)	
Nursing	
This Power Plan only applies to infants born at >/= 37 weeks gestational age who are well-appearing with no identifiable source of infection.	
Lumbar puncture set up	
Laboratory	
CBC w/Differential (CBCD)	Blood, Stat collect, T;N, Nurse collect
CRP	Blood, Stat collect, T;N
Culture Blood (Blood Culture)	Urgent collect, T;N, Nurse collect
UTI Algorithm will automatically place a urine culture if certain analytes are positive and it will place an automatic culture if under 60 days old.	
UTI Screening Algorithm (Urinalysis)	Urine Catheterized, Urgent collect, T;N, Collected
COVID-19 Rapid RT PCR	
CSF Labs	
Cell Count CSF	Stat collect, T;N
Culture Cerebrospinal Fluid & Stain (CSF Culture & Gram Stain)	CSF Lumbar Puncture, Stat collect, T;N
Glucose Level CSF	Cerebrospinal Fluid, Stat collect, T;N
Protein Level CSF	Puncture, Stat collect, T;N
Recommended in summer and fall months	
Enterovirus PCR	Cerebrospinal Fluid
FEBRILE INFANT HSV INDICATIONS	
HSV Risk Assessment	
Basic Metabolic Panel (BMP)	Blood, Urgent collect, T;N
Hepatic Function Panel	Blood, Stat collect, T;N
HSV 1/2 PCR $	Blood, Stat collect, T;N
HSV 1/2 PCR $	Cerebrospinal Fluid, Stat collect, T;N
HSV 1/2 PCR $	Eye, Stat collect, T;N
HSV 1/2 PCR $	Mucocutaneous Leison, Stat collect, T;N
HSV 1/2 PCR $	Cutaneous lesion, Stat collect, T;N
HSV 1/2 PCR $	Neonate Multiple Sites, Stat collect, T;N
Continuous Medications/Fluids	
sodium chloride 0.9% (NS fluid bolus)	STAT, 20 mL/kg, IV, IV Soln, 1 time only Infuse over 20 minutes
D5W with 0.9% NaCl and KCl 20 mEq/L (D5NS with KCl 20mEq/L)	
D5W with 0.45% NaCl and KCl 20 mEq/l	IV, 1,000 mL
IV placement	

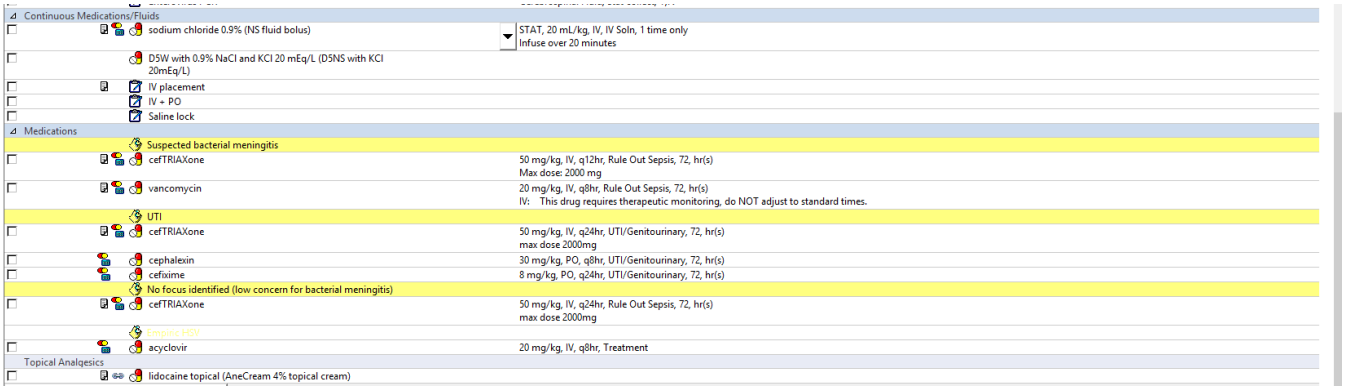


22-28 days



29-60 days





Continuous Medications/Fluids		
	sodium chloride 0.9% (NS fluid bolus)	STAT, 20 mL/kg, IV, IV Soln, 1 time only Infuse over 20 minutes
	D5W with 0.9% NaCl and KCl 20 mEq/L (D5NS with KCl 20mEq/L)	
	IV placement	
	IV + PO	
	Saline lock	
Medications		
	Suspected bacterial meningitis	
	ceftRIAXone	50 mg/kg, IV, q12hr, Rule Out Sepsis, 72, hr(s) Max dose: 2000 mg
	vancomycin	20 mg/kg, IV, q8hr, Rule Out Sepsis, 72, hr(s) IV: This drug requires therapeutic monitoring, do NOT adjust to standard times.
	UTI	
	ceftRIAXone	50 mg/kg, IV, q24hr, UTI/Genitourinary, 72, hr(s) max dose 2000mg
	cephalexin	30 mg/kg, PO, q8hr, UTI/Genitourinary, 72, hr(s)
	cefixime	8 mg/kg, PO, q24hr, UTI/Genitourinary, 72, hr(s)
	No focus identified (low concern for bacterial meningitis)	
	ceftRIAXone	50 mg/kg, IV, q24hr, Rule Out Sepsis, 72, hr(s) max dose 2000mg
	Empiric HSV	
	acyclovir	20 mg/kg, IV, q8hr, Treatment
Topical Analgesics		
	lidocaine topical (AneCream 4% topical cream)	