DCMC Specific Antibiotic Selection and Dosing for Sepsis in the Acute Care Setting

Evidence Based Outcome Center

LEGAL DISCLAIMER: The information provided by Dell Children's Medical Center (DCMC), including but not limited to Clinical Pathways and Guidelines, protocols and outcome data, (collectively the "Information") is presented for the purpose of educating patients and providers on various medical treatment and management. The Information should not be relied upon as complete or accurate; nor should it be relied on to suggest a course of treatment for a particular patient. The Clinical Pathways and Guidelines are intended to assist physicians and other health care providers in clinical decision-making by describing a range of generally acceptable approaches for the diagnosis, management, or prevention of specific diseases or conditions. These guidelines should not be considered inclusive of all proper methods of care or exclusive of other methods of care reasonably directed at obtaining the same results. The ultimate judgment regarding care of a particular patient must be made by the physician in light of the individual circumstances presented by the patient. DCMC shall not be liable for direct, indirect, special, incidental or consequential damages related to the user's decision to use this information contained herein

Exclusion Criteria
1. Patients on the Neonatal Intensive Care Unit (NICU) service **2. Preterm infants (< 37 weeks)** **3. Patients with renal dysfunction** (Dose recommendations are for patients with <u>normal renal function</u>, please refer to Antibiotic Dosing IV/PO Guide for renal dose adjustments)

Sepsis Definitions
UNCOMPLICATED SEPSIS: Systemic inflammatory response (SIRS) + <u>without organ dysfunction</u> ***This may not warrant change in current antimicrobial therapy pending Sepsis huddle discussion*** **SEVERE SEPSIS:** SIRS+ <u>with end organ dysfunction</u> **OR** if determined by medical team after sepsis huddle

Empiric / Unknown Source & Conditions without DCMC Guideline				
	0 - 7 days	**8 - 21 days**	**22 - 60 days**	**3 mo - 17 yrs**
UNCOMPLICATED Sepsis	**Ampicillin** 50 mg/kg/DOSE (Max 2 g) IV or IM q8h + **Gentamicin** 4 mg/kg/DOSE (No max) IV or IM q24h +/- **Acyclovir** 20 mg/kg/DOSE (Max 1 g) IV q8h *(if clinical concerns of HSV)*	**Ceftriaxone**[a] 75 mg/kg/DOSE (Max 2 g) IV or IM q24h *or* **Cefepime** 50 mg/kg/DOSE (Max 2 g) IV or IM q12h *(when ceftriaxone contraindicated)* +/- **Acyclovir** 20 mg/kg/DOSE (Max 1 g) IV q8h *(if clinical concerns of HSV)*	**Ceftriaxone** 75 mg/kg/DOSE (Max 2 g) IV or IM q24h +/- **Acyclovir** 20 mg/kg/DOSE IV q8h *(if clinical concerns of HSV)*	**Ceftriaxone** 75 mg/kg/DOSE (Max 2 g) IV or IM q24h
SEVERE Sepsis	**Vancomycin** *(see neonatal vancomycin dosing table below)* + **Cefepime** 50 mg/kg/DOSE (Max 2 g) IV or IM q12h **+/-** **Acyclovir**[b] 20 mg/kg/DOSE (Max 1 g) IV q8h *(if clinical concerns of HSV)* **+/-** **Ampicillin** 50 mg/kg/DOSE (Max 2 g) IV or IM q8h	**Ceftriaxone**[a] 75 mg/kg/DOSE (Max 2 g) IV or IM q24h *or* **Cefepime** 50 mg/kg/DOSE (Max 2 g) IV or IM q12h *(when ceftriaxone contraindicated)* **+/-** **Vancomycin** *(see vancomycin dosing table below)* **+/-** **Acyclovir**[b] 20 mg/kg/DOSE (Max 1 g) IV q8h *(if clinical concerns of HSV)*	**Ceftriaxone** 75 mg/kg/DOSE (Max 2 g) IV or IM q24h **+/-** **Vancomycin** *(see neonatal vancomycin dosing table below)* **+/-** **Acyclovir**[b] 20 mg/kg/DOSE (Max 1 g) IV q8h *(if clinical concerns of HSV)*	**Ceftriaxone** 75 mg/kg/DOSE (Max 2 g) IV or IM q24h + **Vancomycin** 20 mg/kg/DOSE (Max 1 g) IV q6h

[a]Ceftriaxone is contraindicated in patients with a total bilirubin > 10 mg/dL, receiving or expected to receive IV calcium or with risk factors for hyperbilirubinemia (ABO incompatibility, HDN, lethargy, temperature instability, sepsis, acidosis, albumin < 3 g/dL, dehydration, weight loss, poor feeding, irritability, jaundice)
[b] In patients with a total body weight (TBW) > 120% their ideal body weight (IBW), utilize IBW for dosing

Neonatal Vancomycin Dosing		
Dose: 15 mg/kg/DOSE		
PMA (weeks)	**PNA (days)**	**Interval (hrs)**
37 - 44 weeks	0-7	12
	> 7	8
≥ **45**	ALL	6

INDICATION: Meningitis		
	29 - 60 Days	**3 mo - 17 yrs**
BOTH **UNCOMPLICATED or** **SEVERE Sepsis**	**Ceftriaxone** 50 mg/kg/DOSE (Max 2 g) IV **q12h** + **Vancomycin** 15 mg/kg/DOSE (Max 1 g) IV q6h +/- **Acyclovir** 20 mg/kg/DOSE IV q8h *(if clinical concerns of HSV)*	**Ceftriaxone** 50 mg/kg/DOSE (Max 2 g) IV **q12h** + **Vancomycin** 20 mg/kg/DOSE (Max 1 g) IV q6h

INDICATION: Acute Appendicitis, Localized Peritonitis	
	4 yrs - 17 yrs
UNCOMPLICATED Sepsis NOTE: for further details refer to Appendicitis EBOC guideline	**Ceftriaxone** 50 mg/kg/DOSE (Max 2 g) IV q24h + **Metronidazole** 30 mg/kg/DOSE (Max 500 mg) IV q24h
SEVERE Sepsis	**Ceftriaxone** 75 mg/kg/DOSE (Max 2 g) IV q24h + **Metronidazole** 30 mg/kg/DOSE (Max 500 mg) IV q24h *(Other antibiotics or antifungals determined individually)*

INDICATION: Pneumonia	
	3 mo - 17 yrs
Uncomplicated, Community Acquired Pneumonia	
UNCOMPLICATED Sepsis NOTE: for further details refer to Community Acquired Pneumonia EBOC guideline	**Ampicillin** 50 mg/kg/DOSE (Max 2 g) IV q6h
SEVERE Sepsis	**Ceftriaxone** 75 mg/kg/DOSE (Max 2 g) IV q24h + **Vancomycin** 20 mg/kg/DOSE (Max 1 g) IV q6h *(Other antimicrobials may be determined individually after Sepsis huddle)*
Complicated, Community Acquired Pneumonia	
UNCOMPLICATED Sepsis NOTE: for further details refer to Complicated Pneumonia EBOC guideline	**Ceftriaxone** 75 mg/kg/DOSE (Max 2 g) IV q24h + **Clindamycin** 13 mg/kg/DOSE (Max 600 mg) IV q8h
SEVERE Sepsis	**Ceftriaxone** 75 mg/kg/DOSE (Max 2 g) IV q24h + **Vancomycin** 20 mg/kg/DOSE (Max 1 g) IV q6h *(Other antimicrobials may be determined individually after Sepsis huddle)*

INDICATION: Febrile Neutropenia (FN)	
	29 days - 17 yrs
UNCOMPLICATED Sepsis NOTE: for further details refer to Febrile Neutropenia EBOC guideline	**Cefepime** 50 mg/kg/DOSE (Max 2 g) IV q8h
	Addition of vancomycin is not recommended for febrile neutropenia unless the patient is hemodynamically unstable or blood culture becomes positive for gram positive-organism. If started empirically, vancomycin should be discontinued in the absence of resistant gram-positive organism growth on culture
SEVERE Sepsis	**Cefepime** 50 mg/kg/DOSE (Max 2 g) IV q8h + **Vancomycin** 20 mg/kg/DOSE (Max 1 g) IV q6h *(Other antimicrobials may be determined individually after Sepsis huddle)*
	In patients with hemodynamic instability the addition of vancomycin for gram positive organism coverage and tobramycin for gram negative organism coverage is recommended

INDICATION: Orbital Cellulitis	
	6 mo - 17 yrs
UNCOMPLICATED Sepsis NOTE: for further details refer to Orbital Cellulitis EBOC guideline	**Ceftriaxone** 75 mg/kg/DOSE (Max 2 g) IV q24h + **Clindamycin** 13 mg/kg/DOSE (Max 600 mg) IV q8h
SEVERE Sepsis	**Ceftriaxone** 50 mg/kg/DOSE (Max 2 g) IV q12h + **Metronidazole** 10 mg/kg/DOSE (Max 500 mg) IV q8h + **Vancomycin** 20 mg/kg/DOSE (Max 1 g) IV q6h *(Other antimicrobials may be determined individually after Sepsis huddle)*

INDICATION: Skin & Soft Tissue Infection	
	2 mo - 17 yrs
UNCOMPLICATED Sepsis NOTE: for further details refer to Skin & Soft Tissue Infection EBOC guideline	**NON-PURULENT** Cefazolin 33 mg/kg/DOSE (Max 1 g) IV q8h **PURULENT** Clindamycin 13 mg/kg/DOSE (Max 600 mg) IV q8h
SEVERE Sepsis	**Cefazolin** 50 mg/kg/DOSE (Max 1 g) IV q8h + **Vancomycin** 20 mg/kg/DOSE (Max 1 g) IV q6h ***+/- Ceftriaxone 75 mg/kg IV q24h if GN suspected*** *(Other antimicrobials may be determined individually after Sepsis huddle)*

INDICATION: Urinary Tract Infection	
	2 mo - 17 yrs
UNCOMPLICATED Sepsis NOTE: for further details refer to UTI EBOC guideline	**Cefazolin** ***Without Bacteremia***: 17 mg/kg/DOSE (Max 2 g) IV q8h ***With Bacteremia***: 33 mg/kg/DOSE (Max 2 g) IV q8h
SEVERE Sepsis	**Ceftriaxone** 50 mg/kg/DOSE (Max 2 g) IV or IM q24h **Consider cefepime if known to be colonized with Pseudomonas aeruginosa** *(Other antimicrobials may be determined individually after Sepsis huddle)*

INDICATION: Osteomyelitis (Bone/Joint Infection)		
	6 mo - 3 yrs	4 yrs - 17 yrs
UNCOMPLICATED Sepsis NOTE: for further details refer to Osteomyelitis EBOC guideline	**Ceftriaxone** 100 mg/kg/DOSE (Max 2 g) IV q24h + **Clindamycin** 10 mg/kg/DOSE (Max 600 mg) IV q6h	**Cefazolin** 50 mg/kg/DOSE (Max 2 g) IV q8h + **Clindamycin** 10 mg/kg/DOSE (Max 600 mg) IV q6h
SEVERE Sepsis	**Cefepime** 50 mg/kg/DOSE (Max 2 g) IV q8h + **Vancomycin** 20 mg/kg/DOSE (Max 1 g) IV q6h +/- **Oxacillin** 50 mg/kg/DOSE (Max 2 g) IV q6h *(Other antimicrobials may be determined individually after Sepsis huddle)*	