System Patient Care Services

POLICY TITLE: Sepsis	**SYSTEM POLICY AND PROCEDURE MANUAL**
POLICY #: PCS.1698	**CATEGORY:** Administration
System Approval Date: 2/23/2023 **Site Implementation Date:** 4/7/2023	**Effective Date:** NEW **Last Reviewed/Approved:** NEW
Prepared by: M. Isabel Friedman, DNP; Sepsis Collaborative Faculty	**Notations:** N/A

GENERAL STATEMENT of PURPOSE

The purpose of this document is to establish protocols that shall: (a) assist in rapid identification of patients with severe sepsis and septic shock; (b) specify an approach to stratifying patients into sepsis, severe sepsis and septic shock based on appropriate clinical and laboratory findings; (c) specify treatment approaches.

POLICY STATEMENT

It is the policy of Northwell Health to have in place evidence-based protocols for the early identification and treatment of patients with severe sepsis and septic shock as per Section 405.4 of Title 10 (Health) of the Official Compilation of Codes, Rules and Regulations of the State of New York.

SCOPE

This policy applies to all Northwell Health employees, as well as medical staff, volunteers, students, trainees, physician office staff, contractors, trustees and other persons performing work for or at Northwell Health; faculty and students of the Donald and Barbara Zucker School of Medicine at Hofstra/Northwell or the Hofstra Northwell School of Nursing and Physician Assistant Studies conducting research on behalf of the Zucker School of Medicine on or at any Northwell Health facility.

DEFINITIONS

For the purposes of hospital data collection:

Sepsis: a confirmed or suspected infection accompanied by two system inflammatory response syndrome (SIRS) criteria.

Severe Sepsis: sepsis complicated by organ dysfunction.
Septic Shock (Adults): sepsis-induced hypotension persisting despite adequate IV fluid resuscitation and/or evidence of tissue hypoperfusion.

Septic Shock (Pediatrics): sepsis and cardiovascular organ dysfunction.

Evidence-based Protocols: also referred synonymously as guidelines or algorithms.

PROCEDURE

1. The governing body at the hospital facilities shall require that sepsis patient care practices are implemented; hospital's compliance to these practices are monitored; and correction action to attain compliance are taken.

2. Northwell Health Sepsis Faculty will establish evidence-based protocols for the early treatment and recognition of patients with severe sepsis/septic shock that are based on generally accepted standards of care (NYS Regulation 405.4).

3. Adult ED, Inpatient, Obstetrical and Pediatric guidelines will be revised by subject matter experts and reviewed by the Sepsis faculty every two years, and whenever major evidence practices are implemented (See attachments A, B, & C). The updated protocols (guidelines/algorithms) will be disseminated by the Sepsis faculty to Hospital leadership (CEO, CMO, Nurse Executive).

4. The hospital medical staff shall ensure that professional staff with direct patient care responsibilities and staff with indirect patient care responsibilities, including but not limited to, laboratory and pharmacy staff are educated to implement the required sepsis protocols (NYS Regulation 405.4).

5. Hospitals shall also make available information technology resources to assist in the implementation of sepsis protocols. Northwell Health Sepsis Protocols must be available if requested by NYS DOH.

6. The medical staff at each facility is responsible for the collection, use and reporting of sepsis quality measures for recognition and treatment of severe sepsis for the purpose of quality improvement and submission to NYS.

7. Sepsis educational module titled, Taming Sepsis Education Program® (TSEP™) is available on iLearn for all staff levels. This module is revised and reviewed by the Sepsis Faculty a minimum for every two years.

REFERENCES to REGULATIONS and/or OTHER RELATED POLICIES

- Public Health Law, Sections 405.2 and 405.4 of Title 10 (Health) of the Official Compilation of Codes, Rules and Regulations of the State of New York.
- Revised Version 2019: https://www.health.ny.gov/regulations/public_health_law/section/405/#:~:text=Whom%20It%20Appliessection%20405.4%20of%20Title%2010%20(Health)%20of%20the%20Official%20Compilation,severe%20sepsis%20and%20septic%20shock.

- Lauralyn A. McIntyre, M.D., M.H.Sc., and John C. Marshall, M.D. https://www.nejm.org/doi/full/10.1056/NEJMe2206160?query=RP&cid=NEJM+Recently+Published%2C+June+17%2C+2022+DM1160225_NEJM_Non_Subscriber&bid=1030013724
- Intravenous Vitamin C in Adults with Sepsis in the Intensive Care Unit, F. Lamontagne, M.-H. Masse, J. Menard, S. Sprague, R. Pinto et al. New England Journal of Medicine (2022)

- Restriction of Intravenous Fluid in ICU Patients with Septic Shock, T.S. Meyhoff, P.B. Hjortrup, J. Wetterslev, P. Sivapalan, J.H. Laake, M (2022)
- Evans L, Rhodes A, Alhazzani W, et al. Surviving sepsis campaign: international guidelines for management of sepsis and septic shock 2021. Intensive Care Med, 2021; 47: 1181-247.

CLINICAL REFERENCES/PROFESSIONAL SOCIETY GUIDELINES

N/A

ATTACHMENTS

- Northwell Health ED Sepsis/Severe Sepsis Management --
  Adult Emergency Department (ED) and Inpatient Algorithm (Guidelines) (2022)
- Sepsis Recognition in the Pediatric Patient (2022)
- Peripartum Sepsis Management (2022)

FORMS

N/A

APPROVAL:	
Northwell Health Policy Committee	1/24/2023
System PICG/Clinical Operations Committee	2/23/2023

Standardized Versioning History:
Approvals: * =Northwell Health Policy Committee; ** = PICG/Clinical Operations Committee; ⊠ = Provisional; ❖ = Expedited

Northwell Health
ED Sepsis/Severe Sepsis Management

04/02/2022

ARRIVAL AND EVALUATION

Patient with suspected significant infection (i.e. possible admission)

PLUS

POSSIBLE SEPSIS

SIRS Criteria: Two of the following:

- Temp ≥ 101 F or < 96.8 F
- Pulse > 90 bpm
- Resp Rate > 20/min
- WBC > 12K, < 4K or Bands > 10%

Probable Severe Sepsis

Two of the following:

- Temp ≥ 101 F or < 96.8 F **OR** Recent Fever, **OR** clinical suspicion of Infection.
- SBP < 90 **or ↓ in SBP > 40 mm Hg from baseline, or** MAP < 65
- Pulse ≥ 120 bpm
- Resp rate ≥ 24 / min
- New Unexplained Altered Mental Status

Clinician evaluates patient and suspects early sepsis; orders labs (must include lactate/ BCs* X 2)

SEPSIS

Code SEPSIS*

INTERVENTION

ACTIVATE "Code Sepsis*"

1. Activate "Code Sepsis*" in ED
2. Place 18 G (preferred) IV, consider 2nd IV Line
3. Draw Labs for Sepsis Panel in < 30 min.
4. Prepare for Fluid Bolus
5. Source Identification & Control as appropriate

1. Document Accurate Blood Culture and lactate draw times
2. Repeat Vital Signs in 30 minutes
3. Source Identification & Control as appropriate

Sepsis Resuscitation Elements

(Unless clinically contraindicated)

- Lactate ordered and resulted < 90 min
- BCs* X 2 ordered and drawn before Abx*
- Abx ≤ 3 hrs of Sepsis Identification
- IVF–consider crystalloids 1-2 Liters over 2hrs*
- Repeat lactate if initial lactate is > 2.0*
- Monitor, document VS ≤ q 60 min

Severe Sepsis Resuscitation Elements

- Lactate ordered and resulted < 90 min
- BCs* X 2 ordered and drawn before Abx
- Target Abx admin ≤ 60 min of Code Sepsis*
- Target IVF bolus admin ≤ 30 min of Code Sepsis*
- Consider crystalloids 500 mL boluses q 15 min to total 30mL/kG of actual body weight*
- If initial lactate > 2.0 repeat lactate*
- Monitor hemodynamic status

DURING ED COURSE

Severe Sepsis Dx Criteria met (Dx SS) if:

- Lactate > 2.0 OR
- SBP < 90, or ↓ in SBP > 40 mm Hg from baseline, OR MAP < 65
- Severe Sepsis VS criteria met OR
- New End Organ Dysfunction (SEE BOX)

YES → **Code SEPSIS***

NO → Continue monitoring VS, mental status, etc.

Path Complete

Document Primary Dx: Sepsis, Secondary Dx: Suspected Source

NEW (otherwise unexplained) End Organ Dysfunction

- Respiratory Failure (Mechanical ventilation/ BiPAP/CPAP/High flow O_2)
- Cr > 2.0 or increase of 0.5 from known baseline (ESRD N/A)
- Urine Output < 0.5 mL/kG/hr for > 2 hrs
- Bilirubin > 2.0 mg/dL
- Platelet Count < 100K
- INR > 1.5, PTT > 60 sec
- New onset Altered Mental Status
- Lactate > 2.0

Septic Shock: Lactate ≥ 4 or Persistent or New Onset Hypotension

NO → Monitor VS, mental status, etc

Path Complete

Document Primary Dx: Severe Sepsis Secondary Dx: Suspected Source

YES → **Septic Shock Bundle**

- Start Vasopressors Prefer Norepinephrine
- Administer crystalloid boluses based on clinical assessment
- Repeat/trend lactate*
- Clinical volume reassessment within 6 hrs*

Path Complete

Document Primary Dx: Septic Shock, Secondary Dx: Suspected Source

DISPOSITION

Consultation, disposition, and transfer of care can occur at any point in the above care map.
Hand off communication is critical and must include discussion of incomplete and complete elements.

Northwell Health

04/02/2022

Inpatient Sepsis/Severe Sepsis Management

ARRIVAL AND EVALUATION

INTERVENTION

DISPOSITION

Patient with known or suspected infection

PLUS

SEPSIS

SIRS Criteria: two of the following:

- Temp > 101F or < 96.8 F
- Pulse > 90 bpm
- Resp Rate > 20/min
- WBC >12K, < 4K or Bands > 10%

Clinician evaluates patient and suspects early sepsis; orders labs (must include lactate/ BCs* X 2)

1. Document Accurate Blood Culture and Lactate draw times
2. Repeat Vital Signs in 30 minutes
3. Source Identification & Control as appropriate

Sepsis Resuscitation Elements

(Unless clinically contraindicated)

- Lactate ordered and resulted < 90 min
- BCs* X 2 ordered and drawn before Abx if not already drawn within past 48 hrs
- Initiate or confirm Abx ≤ 3 hrs
- IVF – consider crystalloids*

Severe Sepsis Dx Criteria met (Dx SS) if:

- SBP < 90, or ↓ in SBP > 40 mm Hg from baseline, OR MAP < 65
- New End Organ Dysfunction (SEE BOX)
- Lactate > 2.0

NO

Continue monitoring VS, mental status, etc.

Path Complete

Document Primary Dx: Sepsis, Secondary Dx: Suspected Source

YES

NEW (otherwise unexplained) End Organ Dysfunction

- Respiratory Failure - Mechanical ventilation/ BiPAP/CPAP/High flow O_2
- Cr > 2.0 or increase of 0.5 from known baseline (ESRD N/A)
- Urine Output < 0.5 mL/kG/hr for > 2 hrs
- Bilirubin > 2.0 mg/dL
- Platelet Count < 100K
- INR > 1.5, PTT > 60 sec
- New onset Altered Mental Status
- Lactate > 2.0

Probable Severe Sepsis

Two of the following:

- Temp > 101 F or < 96.8 F **OR** Recent Fever, **OR** clinical suspicion of Infection.
- SBP < 90 **or ↓ in SBP > 40 mm Hg from baseline, or** MAP < 65
- Pulse ≥ 120 bpm
- Resp rate ≥ 24 / min
- New Unexplained Altered Mental Status

SEVERE SEPSIS

(Initiate institutional response such as RRT, Code Sepsis* or Call LIP)

1. Place 18 G (preferred) IV, consider 2nd IV Line
2. Draw Labs for Sepsis Panel in < 30 min.
3. Prepare for Fluid Bolus
4. Source Identification & Control as appropriate

Severe Sepsis Resuscitation Elements

- Lactate ordered and resulted < 90 min
- BCs* X 2 ordered and drawn before Abx if not already drawn within past 48 hrs
- Initiate or confirm appropriate Abx ≤ 60 min
- Target IVF bolus started ≤ 30 min of Severe Sepsis recognition
- If initial lactate > 2.0 repeat lactate*
- Monitor hemodynamic status

Septic Shock: Lactate ≥ 4 or Persistent or New Onset Hypotension

NO

Monitor VS, mental status, etc

Path Complete

Document Primary Dx: Severe Sepsis Secondary Dx: Suspected Source

YES

Septic Shock Bundle

- Start Vasopressors Prefer Norepinephrine
- Administer crystalloid boluses based on clinical assessment 30mL/kG
- Repeat/trend lactate*
- Clinical volume re-assessment within 6 hrs*

Path Complete

Document Primary Dx: Septic Shock, Secondary Dx: Suspected Source

Consultation, disposition, and transfer of care can occur at any point in the above care map.

Hand off communication is critical and must include discussion of incomplete and complete elements.

Septic Shock Bundle

* **BC X2 is best practice to decrease false positives.** Do not delay ABX admin if there's a second culture delay. One culture is sufficient to meet the bundle element.

* **Initiate institutional response such as:** RRT, Code Sepsis*, Call LIP, or equivalent

* **IV Fluid Determination**

  If the physician/APN/PA documents the patient is obese, (BMI > 30), clinicians may use **Ideal Body Weight (IBW)** to determine the 30mL/kG crystalloid fluid volume.

  If the clinician determines that 30mL/kG may be detrimental to the patient's condition and the patient will not be given 30mL/kG of fluid despite having at least one: Hypotension, Lactate >=4, Septic shock; documentation of the amount of fluid received is required as total fluid amount in mL or mL/kG

* **If Lactates are elevated and trending upward consider repeating again**

* **Focused Physical Exam documented by provider:**

  Clinical Volume Re-assessment within six hours of the presentation of septic shock must include any one of the following three:

  I. Clinical Documentation - Statement

  I have re-evaluated the patient's fluid status and reviewed vital signs. Clinical evaluation demonstrates an appropriate response to fluid resuscitation

  II. Document - Five out of eight of the following:

  - Vital signs
  - Cardiopulmonary exam
  - Peripheral pulses
  - Capillary refill
  - Skin examination
  - UO
  - Shock Index
  - Arterial O^2 saturation (Pulse Oximetry)

  III. Document - One of the following:

  - Central venous catheter insertion and measure CVP (documenting measurements)
  - Central Venous Oxygen Measurements
  - Bedside Ultrasound (echo)
  - Dynamic Assessment of Fluid Responsiveness
  - Passive Leg Raise Examination **or**
  - Fluid Challenge

Cohen Children's Medical Center
Northwell Health

Sepsis Recognition in the Pediatric Patient

PCEC Approval Date: 9/26/2019

Reapproval Date: 5/11/2022

MAGNET RECOGNIZED
AMERICAN NURSES CREDENTIALING CENTER

Temp < 36˚C
OR
Temp ≥ 38 ˚C AND abnormal HR (Refer to Table 1)
(Temp in hospital or reported at home)

Does the patient have any one of the following?

Signs of poor perfusion
- Prolonged cap refill
- Cool or mottled extremities
- Hypotension
- Altered mental status

Abnormal RR
(Refer to Table 1)
OR
Increased Oxygen Requirement

High risk group
- Malignancy
- BMT
- Organ transplant
- Indwelling line
- Technology dependent
- Immunodeficiency/ immunosuppression
- Severe neurodevelopmental delay

Sepsis huddle

Clinical Concern for Sepsis?

NO → **Continue management as dictated by diagnosis**
- Vitals Q1 hour x 2 hours
- Provider/RN re-assess within 60 min
- Order/Administer anti-pyretic if appropriate

YES → **Initiate sepsis management protocol**
(Proceed to Page 2)

Table 1

Age	Abnormal HR	Abnormal RR
0 - 12mo	<90 or >180	>60
>1yo - 2yo	>160	>40
>2yo - 6yo	>140	>40
>6yo - 12yo	>130	>30
>12yo - 18yo	>110	>20
> 18yo	>90	>20

Hypotension	
Age	**SBP**
≤ 10 yo	< 70 + (age X 2)
> 10 yo	< 90
Wide PP	SBP > 2 X DBP

Sepsis Management in the Pediatric Patient

0 Min

‡ Use ketamine IV/IO/IM, if needed for sedation

Establish IV/IO access, obtain labs *, initiate O_2 therapy if necessary, place on cardiac monitor ‡

*CBC with differential, CMP, venous comprehensive blood gas with lactate, blood culture, consider CXR, consider other appropriate cultures

5 Min

Initial resuscitation

Push boluses of 20 mL/kG isotonic saline or colloid up to & over 60 mL/kG until perfusion improves or unless rales or hepatomegaly develop.
Consider smaller boluses in Hematology/Oncology and Cardiac patients
Correct hypoglycemia and hypocalcemia.
Begin antibiotics
(Proceed to pages 3 - 5 for Antibiotics)
Consult PICU if patient given ≥ 60 mL/kG of IV fluid resuscitation

15 Min

Fluid refractory shock?

Begin peripheral IV/IO inotrope/vasopressor infusion

Titrate epinephrine 0.05 microgram/kg/min and upward for **Cold Shock.**
Titrate norepinephrine from 0.05 microgram/kg/min and upward for **Warm Shock.**
(Titrate dopamine if norepinephrine or epinephrine not available)

60 Min

Catecholamine-resistant shock?

If at concern for absolute adrenal insufficiency, consider hydrocortisone 50 mG/m² or 1mG/kG IV.
Goal is normal MAP and $ScvO_2$ > 70%

Normal blood pressure **Cold Shock** $ScvO_2$ < 70% on epinephrine?	Low blood pressure **Cold Shock** $ScvO_2$ < 70% on epinephrine?	Low blood pressure **Warm Shock** $ScvO_2$ < 70% on norepinephrine?
Consider milrinone if poor skin perfusion.	Add norepinephrine or vasopressin to attain normal diastolic blood pressure.	Add epinephrine or vasopressin to attain normal diastolic blood pressure.

Refractory shock?

Consider ECMO

This document is intended as a general guideline. The healthcare professional must use the appropriate judgment dependent on the particular clinical situation

Cohen Children's Medical Center
Northwell Health

PCEC Approval
Date: 9/26/2019

Antibiotic Guideline for Sepsis in the Pediatric Patient

> 28 days of age

Patient presents to the Emergency Department with clinically suspected Sepsis

Healthcare associated infection risk factors*

- Residing in a healthcare facility
- Long-term devices such as a central line or tracheostomy
- Immunosuppressed

Patient has risk factors for healthcare associated infection?*

NO → **Ceftriaxone[1,2]**

Abdominal source suspected?

NO → **Add vancomycin if any of the following:**
1. Vasoactive support required
2. Meningitis is suspected
3. Resistant gram positive infection is suspected (Ex. MRSA SSTI)
4. Device related or line related infection

YES → **Add metronidazole**

YES → **Cefepime[1,2]**

Abdominal source suspected?

NO → **Cefepime[1,2]**

YES → **Piperacillin/ tazobactam[1,3]**

FOLLOW ALL PATHWAYS

Add amikacin (dose x 1) if urosepsis is suspected

Add clindamycin if toxin mediated infection is suspected

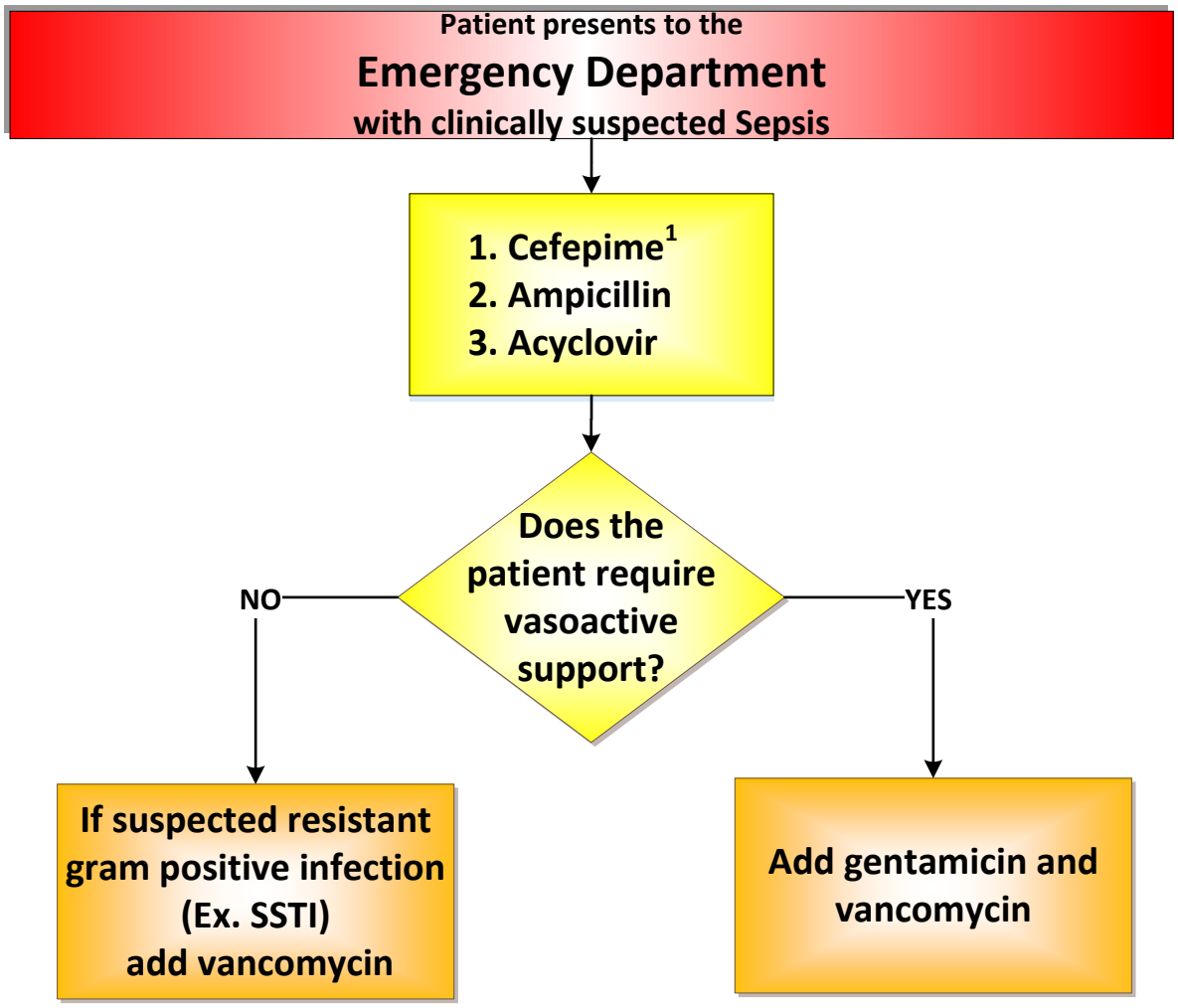
1. If patient has a history of a multidrug resistant gram negative organism(s), substitute meropenem. Check prior positive cultures and substitute coverage based on historic susceptibilities.
2. If history of a severe cephalosporin allergy (anaphylaxis, angioedema/wheezing, Stevens Johnson syndrome) replace with levofloxacin; if history of a non-severe cephalosporin allergy, replace with piperacillin/ tazobactam
3. If history of a penicillin allergy, replace with cefepime PLUS metronidazole or levofloxacin PLUS metronidazole

Cohen Children's Medical Center
Northwell Health

PCEC Approval
Date: 9/26/2019

Antibiotic Guideline for Sepsis in the Pediatric Patient

≤ 28 days of age

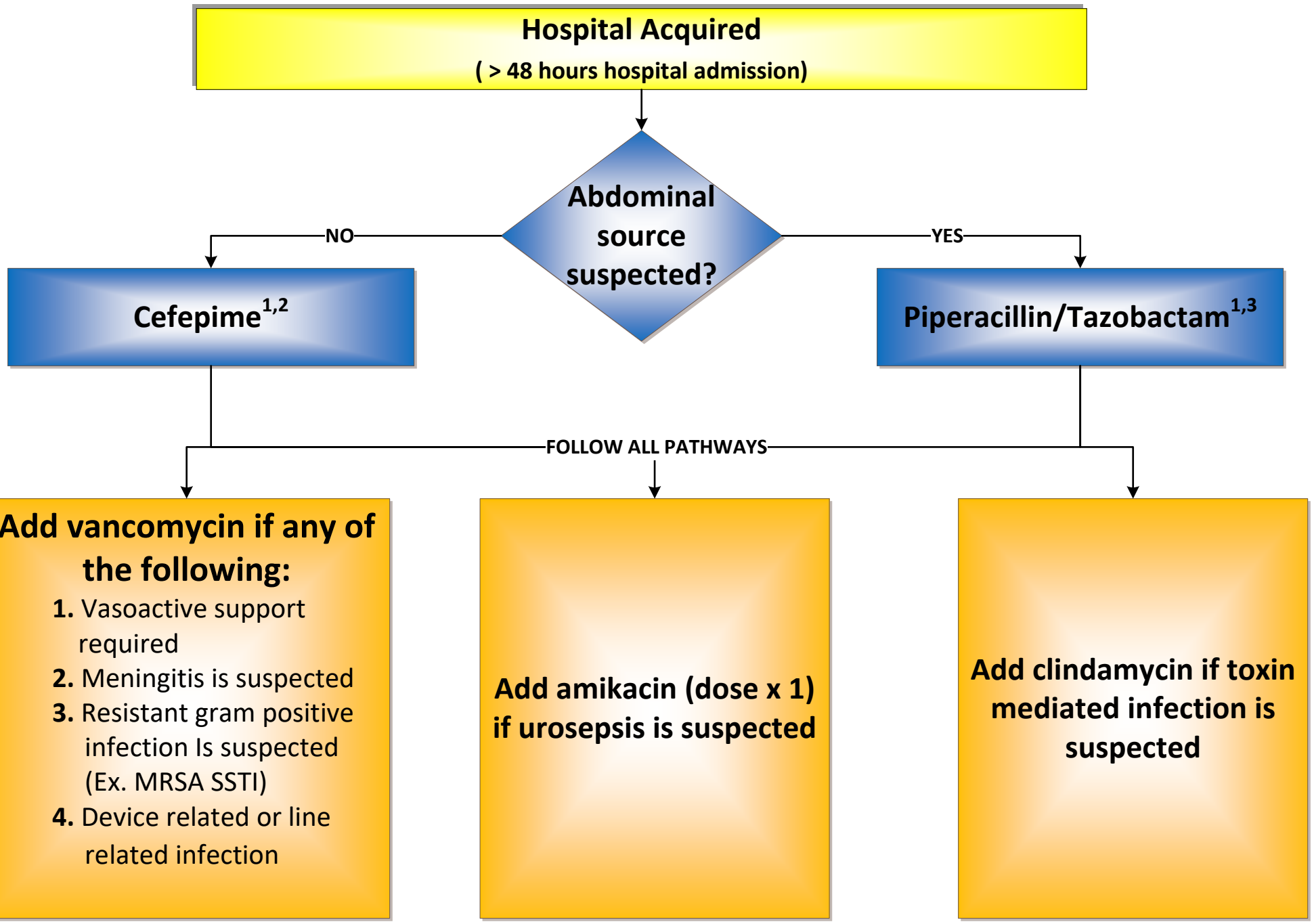


1. If patient has a history of a multidrug resistant gram negative organism(s), substitute meropenem. Check prior positive cultures and substitute coverage based on historic susceptibilities.

Cohen Children's Medical Center
Northwell Health

PCEC Approval
Date: 9/26/2019

Antibiotic Guideline for Sepsis in the Pediatric Patient



1. If patient has a history of a multidrug resistant gram negative organism(s), substitute meropenem. Check prior positive cultures and substitute coverage based on historic susceptibilities.
2. If history of a severe cephalosporin allergy (anaphylaxis, angioedema/wheezing, Stevens Johnsons) replace with meropenem; if history of a non-severe cephalosporin allergy, replace with piperacillin/tazobactam
3. If history of a penicillin allergy, replace with cefepime PLUS metronidazole or meropenem

Peripartum Sepsis Management Guidelines

1. **Suspicion of Sepsis:** Sepsis is suspected if the patient has two or more of the clinical criteria (see Appendix A). Once the signs and symptoms meeting suspected sepsis criteria, the clinical team members including the OB attending, Safety Officer, Senior Resident, Nurse Leader and Anesthesiologist (if available) or other site specific resources are to be notified.

2. **Workup and Monitoring:** A lab workup as described in Appendix A. A physical assessment should include an assessment of vital signs (blood pressure, heart rate, respiration rate, and oxygen saturation), mental status and urine output.

3. **Diagnosis of Sepsis:** Upon the diagnosis of sepsis (see appendix A for criteria), a critical care consult, or site specific resources is mandatory and the OB attending, Safety Officer and MFM physician or other site specific resources are to be notified.

4. **Interventions:** See Appendix A for recommended interventions. Frequency of interventions and reassessment should be clarified and included in provider orders.

5. **Reassessment:** The attending should evaluate the patient at the bedside and document all findings in the electronic medical record. The patient should be re-evaluated at a minimum of 1-2 hours (based on severity of illness). *If the condition remains the same or worsens, a repeat Critical Care or site specific resource consult should be obtained and transfer to higher level of care should be considered.* For deterioration of any other end organ function upon re-evaluation, call for site specific resources, Medicine or ID consult.

Suspect Sepsis

Two of the following:
- Temperature > 100.4F (38C) or < 96.8 F (36C)
- Pulse > 110 bpm
- Respiratory Rate > 24/min
- WBC <4000, >15,000
- Bands > 10%

Heightened suspicion in the presence of:
- Long labor
- Cerclage
- PROM or prolonged ROM
- Fetal Tachycardia
- Chills
- Signs of respiratory or urinary infection

**Sepsis may occur in the absence of these factors*

Notifications:
Private MD,
Midwife,
Safety Officer,
Senior Resident,
Nursing Leader,
Anesthesiologist
Other site specific providers

Workup / Assessment

Physical Assessment	Labs
Vital Signs (BP, HR, RR)	Blood Culture (x2) and relevant cultures (e.g. placenta)
O2 Saturation	Relevant imaging studies
Mental Status	CBC with platelets
Urine output	Coagulation Profile (PT, PTT, INR)
	CMP (Lactate, Creatinine, Bilirubin)

Notifications:
Private MD
Midwife,
Safety Officer,
Maternal-Fetal Med,
Other site specific providers

DIAGNOSIS OF SEPSIS:

Any one of the below:		Any two of the below	
Respiratory*	Respirations >30/min, O2 Saturation <90% PaO2/FiO2 < 300		
Cardio-Vascular*	Systolic BP <85 or ↓ in SBP > 40 mm Hg from baseline Mean Arterial Pressure (MAP) <65	Pulse >130	WBC >25,000
Renal	Creatinine >0.9 Urine output <30 mL/hr x 2 hrs.	Temperature >38.9	Bands >10%
Hepatic	Bilirubin >1.2		
Coagulation	Platelets <100,000, Abnormal PT, INR> 1.5 PTT > 60 secs		
CNS*	Altered Mental Status (New Onset)		
Metabolic*	Lactate >2 not in labor (severe sepsis)		
SEPTIC SHOCK*	Persistent hypotension requiring pressors to maintain MAP > 65 AND/OR Lactate > 4		

***Critical Care Consult or as appropriate per institution**
Consider transfer to a higher level of care if at a level I or II facility

Interventions

- IV hydration, 18G Angio, 30mL/Kg over 3 hours for hypotension or evidence of hypoperfusion (elevated lactate)
  - Use caution in pre-eclampsia or cardiac disease
  - Provider must document bolus based on actual body weight (ABW)
- Broad Spectrum antibiotics within one hour of diagnosis (after cultures are drawn)
  - refer to antibiotic list
- Identify and remove source of infection, as soon as possible
- Provider to specify frequency of *vital signs, mental status checks and repeat lab testing based* on clinical status and included in provider orders

Reassessment

- Bedside evaluation and documentation by the provider, repeat Lactate
- Re-evaluate in 1-2 hours after intervention: For any suspected evidence of organ or other damage such as respiratory, cardiovascular, CNS, metabolic abnormalities, - *and/or if the condition remains the same or worsens, repeat Critical Care consult, or as appropriate per institution and consider transfer to higher level of care*

Common Antibiotic Regimens for Maternal Sepsis by Suspected Etiology			
Suspected Source	Initial Antibiotic Selection	Alternative Antibiotic Selection	Penicillin-Allergic Antibiotic Selection
Chorioamnionitis	Ampicillin 2 g IV every 6 h Plus Gentamicin 1.5 mg/kg IV, then 1 mg/kg IV every 8 h Plus Clindamycin 900 mg IV every 8 h or metronidazole (if cesarean delivery is anticipated)	Vancomycin 15 mg/kg IV, then dose by pharmacy Plus Piperacillin tazobactam 4.5 g IV every 6 h	Vancomycin 15 mg/kg IV, then dose by Pharmacy Plus Meropenem 500 mg IV every 6 h
Endometritis, Endomyometritis	Gentamicin 1.5 mg/kg IV, then 1 mg/kg IV every 8 h Plus Clindamycin 900 mg IV every 8 h or metronidazole (if cesarean delivery is performed) 6ampicillin 2 g, then 1 g every 8 h	Ceftriaxone 1–2 g IV daily Plus Metronidazole 500 mg IV every 8 h	Gentamicin 1.5 mg/kg IV, then 1 mg/kg IV every 8 h Plus Clindamycin 900 mg IV every 8 h or metronidazole (if cesarean delivery is performed) 6vancomycin 15 mg/kg IV, then dose by pharmacy
UTI such as pyelonephritis or renal abscess	Ampicillin 2 g IV every 6 h Plus Gentamicin 1.5 mg/kg IV, then 1 mg/kg IV every 8 h	Ceftriaxone 1–2 g IV daily or piperacillin tazobactam 4.5 g IV every 6 h6gentamicin 1.5 mg/kg IV, then 1 mg/kg IV every 8 h	Mild allergy: Carbapenem 1 g once a day IV or IM (use with caution) Severe allergy: Consult with ID specialist
Pneumonia (Community acquired)	Ceftriaxone 1–2 g IV daily or ampicillin sulbactam 1–2 g IV every 6 h Plus	Cefotaxime, ceftriaxone, ertapenem, or ampicillin Plus Clarithromycin or erythromycin	Mild allergy: Ceftriaxone 1–2 g IV single daily dose Plus

	Azithromycin 500 mg IV or orally single daily dose		Azithromycin 500 mg IV or orally single daily dose Severe allergy: Consult with ID specialist
Hospital-acquired pneumonia	Ceftriaxone 1–2 g IV single daily dose or ampicillin sulbactam 1–2 g IV every 6 h or ertapenem 1 g IV once daily	Meropenem 500 mg IV every 6 h	Consult with ID specialist
Hospital-acquired pneumonia (high-risk, double cover for pseudomonas and MRSA)	Piperacillin-tazobactam 4.5 g IV every 6 h Plus Vancomycin 15 mg/kg IV, then dose by pharmacy	Ceftriaxone 1–2 g IV daily Plus Azithromycin 500 mg IV or orally single daily dose	Consult with ID specialist
Intra-abdominal abscess, abdominal infections	Single agent: Piperacillin tazobactam 4.5 g IV every 6 h Combined agents: ceftriaxone plus metronidazole or clindamycin	Carbapenem 1 g IV or IM single daily dose	Carbapenem 1 g IV or IM single daily dose
Appendicitis	Cefoxitin 2 g IV every 6–8 h Plus Clindamycin 900 mg IV every 8 h	Cefoxitin 2 g IV every 6–8 h Plus Metronidazole 500 mg IV every 8 h	Carbapenem 1 g IV or IM single daily dose

Skin and soft tissue (e.g., necrotizing fasciitis)	Vancomycin 15 mg/kg IV, then dose by pharmacy Plus Piperacillin tazobactam 4.5 g IV every 6 h If group A streptococcus (or Clostridium perfringens): Penicillin G 2 to 3 million units/d IM or IV given in divided doses every 4–6 h Plus Clindamycin 900 mg IV every 8 h or vancomycin 15 mg/kg IV, then dose by pharmacy	Cefotaxime 2 g IV every 6 h Plus Metronidazole 500 mg IV every 6 h	Gentamicin 1.5 mg/kg IV, then 1 mg/kg IV every 8 h Plus Metronidazole 500 mg IV every 6h