**Acute Sepsis (Uploaded on 9/24/2023)**

**Empiric Antibiotic Guidelines for Sepsis in Infants and Children >30 Days**

**(See neonatal sepsis powerplan for patients 0-30 days)**

**Sepsis**

The diagnosis of sepsis is a clinical one; definitions of sepsis and SIRS can be found at the end of this document, however, for the purposes of determination of empiric antibiotic choice, anyone whom the attending of record deems to be septic should receive antibiotics according to this guideline. This will avoid under-treatment; initial empiric regimens can always be scaled back and should be reassessed on a continuous basis as the patient’s clinical status changes.

Workup for suspected sepsis

This workup should include, but would not be limited to:

* CBC with diff
* Basic metabolic panel
* LFT’s
* PT/PTT/INR
* Procalcitonin
* ABG/lactate
* Blood culture x 2 (see below)
* Sputum sent for RVP

The PICU team should, if relevant, try to review past year (or less if not all available) of microbiology records for cultures to guide empiric therapy.

Blood Culture Quantity Guidance

|  |  |
| --- | --- |
| Weight range (kg) | Recommended blood volume/culture\* |
| <2 | 1.0 |
| 2 to <4 | 1.5 |
| 4 to <7 | 3 |
| 7 to <10 | 4 |
| 10 to <16 | 6 |
| 16 to <20 | 8 |
| 20 to <26 | 10 |
| 26 to <40 | 15 |
| 40 to <60 | 20 |
| ≥60 | 20 |

Antibiotic Therapy Guidance

Empiric antibiotic therapy would be guided by a number of factors as below:

1. Risk factors for an MDRO

1. Receipt of broad-spectrum antibiotics within the preceding 90 days
2. Current hospitalization of ≥ 5 days
3. High frequency of antibiotic resistance in the patient’s community or in the specific hospital unit
4. Patients at increased risk for healthcare-associated infections
   1. Patients who reside in a chronic care facility
   2. hospitalization for ≥2 days during the preceding 90 days
   3. chronic dialysis within 30 days
   4. home/residential facility wound care
   5. severe chronic illness with poor functional status as defined by activities of daily living score
   6. close contact with MDR pathogen

2. Presence of absence of an immunocompromised state including, but not limited to:

1. HIV
2. Oncologic process on marrow-suppressive chemotherapy
3. Organ transplant recipient
4. Autoimmune disease on high-dose prednisone or equivalent
5. Primary immunodeficiency

3. Suspicion of an intraabdominal source for the infection, including but not limited to:

1. Perforated viscus
2. Appendicitis
3. C diff
4. Abdominal abscess

4. Suspicion for Toxic-Shock Syndrome (TSS—see below)

Antibiotic Therapies

**Previously healthy children with no risk factors for MDRO**

1. Ceftriaxone 75-100 mg/kg/day divided q12h (higher dose if suspected meningitis)
2. +/- Vancomycin 15 mg/kg/dose q6h if gram-positive infection is possible

**Immunocompromised children**

1. Cefepime 50 mg/kg IV q8h
2. Vancomycin 15 mg/kg/dose q6h

**Suspicion of intra-abdominal source**

1. Piperacillin-tazobactam 100 mg/kg/dose q6h
2. +/- Vancomycin 15 mg/kg/dose q6h if concern for MRSA

**Suspicion for TSS**

1. Vancomycin 15 mg/kg/dose q6h
2. Clindamycin 40 mg/kg/day divided q8h
3. +/- Ceftriaxone 75-100 mg/kg/day divided q12h

Definitions (most recent pediatric definitions used by CMS, NY State)

1. SIRS—2 or more of:
   * Temperature >38.5C or <36C
   * Heart rate >90/min for adults or elevated outside of normal range for age in children
   * Respiratory rate >20/min for adults or elevated outside of normal range for age in children; OR need for mechanical ventilation
   * Abnormally elevated or depressed WBC count OR >10% bands
2. Sepsis
   * SIRS, AND
   * Suspected or present source of infection
3. Severe Sepsis
   * Sepsis, AND dysfunction in 1 or more of the following organ systems as defined below:
   * Cardiovascular dysfunction:
     + Decrease in BP (hypotension) <5th percentile for age or systolic BP <2 SD below normal for age OR
     + Need for vasoactive drug to maintain BP in normal range (dopamine ≥ 5 µg/kg/min or dobutamine, epinephrine, or norepinephrine at any dose) OR
     + Two of the following:
       1. Unexplained metabolic acidosis: base deficit >5.0 mEq/L
       2. Increased arterial lactate > 2 times upper limit of normal
       3. Oliguria: urine output <0.5 mL/kg/hr
       4. Prolonged capillary refill: >5 secs
       5. Core to peripheral temperature gap >3°C
   * Respiratory
     + PaO2/FIO2 < 300¹ in absence of cyanotic heart disease or preexisting lung disease OR
     + PaCO2 >65 torr or >20 mmHg over baseline PaCO2 OR
     + Proven need for >50% FIO2 to maintain saturation ≥92% OR
     + Need for nonelective invasive or noninvasive mechanical ventilation

(¹ This meets definition of Acute Lung Injury (ALI). ARDS is the same except PaO2/FiO2 < 200)

* + Neurologic
    - Glasgow Coma Score <11 OR
    - Acute change in mental status with a decrease in Glasgow Coma Score ≥3 points from abnormal baseline
  + Hematologic
    - Platelet count <80,000/mm³ or a decline of 50% in platelet count from highest value recorded over the past 3 days (for chronic hematology/oncology patients) OR
    - International normalized ratio > 2
  + Renal
    - Serum creatinine ≥2 times upper limit of normal for age OR
    - 2-fold increase in baseline creatinine
  + Hepatic
    - Total bilirubin ≥ 4 mg/dL (not applicable for newborn) OR
    - ALT 2 times upper limit of normal for age BP

1. Septic Shock
   * Sepsis AND
   * Cardiovascular dysfunction as defined above despite administration of isotonic intravenous fluid bolus ≥40 mL/kg in 1 hr