Clinical Practice Guideline for Rapid Management of Sepsis AND Septic Shock in the Emergency Department

**Patient Presents to the ED with one of the following:**

**Sepsis/Compensated Septic Shock:**
- Clinical Signs/Symptoms present AND
- Physician concern for sepsis/compensated septic shock

**Hypotensive Shock:**
- Hypotension with known or suspected infection

**Clinical Signs/Symptoms**
- Abnormal Perfusion
  - Pulse: Decreased or weak (cold shock)
  - Bounding (warm shock)
- Capillary refill
  - >2 seconds (cold shock)
  - <1 second (warm shock)
- Skin: Mottled, cool extremities (cold shock), flushed, ruddy, erythroderma (warm shock)
- Mental Status Changes
  - Irritability
  - Lethargy
  - Confusion
  - Inappropriate crying or drowsiness
  - Poor interaction with parents
  - Diminished arousability
- Low OR High core temperature
- Hypotension
- Tachycardia
- Tachypnea

**Labs**
- Blood Cultures: Obtain maximum allowable amount, Policy 4.26
- CMP
- CBC with Diff
- CXR, CSF if indicated
- If concern or suspicion of UTI and/or no obvious source of infection, consider UA

**Additional Therapies**
- Fever Control
  - Consider foley catheter to monitor UOP
- Use Atropine/Ketamine PIV/IO/IM if needed for Central Vein or Airway Access; Avoid Etomidate
- Hypoglycemia
  - Dextrose 0.5 grams/kg = 5mL/kg of D10
- Hypocalcemia
  - Calcium gluconate 50mg/kg to max dose of 2000mg
  - Calcium chloride 20mg/kg to max dose of 1000 mg (Use only if CVL present)
- Neonate
  - Consider Fever Guideline 0-28 days
  - If suspect ductal dependent lesion, consider Prostaglandin 0.01-0.03mcg/kg/min
  - If delay in transfer to PICU and patient exhibits pressor refractory shock and/or risk for adrenal insufficiency, consider Hydrocortisone 2mg/kg, max 100mg IV x 1

**Admission Criteria to General Care**
- 540 mL/kg of fluid resuscitation
- Normal BP, Normal Mental Status, UOP present
- Improving Tachycardia
- Patient stable 1 hour after last intervention
- ED Attending to Admitting Attending discussion and agreement on admission

**Rapidly Infuse/ Push Fluid Resuscitation**
- NS or LR 20mL/kg
- Bolus

**Goal within 60 min:**
- Cap refill < 2 sec
- Restore & Maintain HR
- Normal BP
- Begin Antibiotics

**Additional therapy**
- Reassess every 15 minutes and/or after each bolus
- Repeat fluid boluses as needed up to 60mL/kg total; then consider adding pressors
- Notify PICU of admission if ≥40mL/kg

**Admit to Inpatient**

**Shock Reversed?**

**Begin Pressors & Continue IV Fluid Resuscitation**

**Epinephrine/Norepinephrine preferred; if not readily available, administer DOPamine**
- Epinephrine
  - Central Line or IO preferred, may use PIV if necessary
  - Start at 0.1 mcg/kg/min
  - Titrate 0.05-0.1 mcg/kg/min per MD order
  - Max dose 1 mcg/kg/min
- Norepinephrine
  - Start at 0.1 mcg/kg/min
  - Titrate 0.05-0.1 mcg/kg/min per MD order
  - Max dose 1 mcg/kg/min
  - Not preferred for cardiac dysfunction
- DOPamine
  - Start at 10 mcg/kg/min and titrate rapidly by 5 mcg/kg/min q5min to establish BP per MD order
  - Max dose 20 mcg/kg/min

**Transfer to PICU**
### ANTIBIOTIC ADMINISTRATION FOR SEPSIS

When infusing multiple antibiotics, administer in the following order:
- Use the antibiotics readily available in the pyxis first.
- Use the antibiotic with the shortest administration time before others.

#### Give ALL Medications in Group Unless otherwise specified

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose All x1 in ED</th>
<th>Max Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy Kids &gt;29 days of age</td>
<td>CefTRIAXone*</td>
<td>75mg/kg IV</td>
</tr>
<tr>
<td></td>
<td>Vancomycin</td>
<td>20mg/kg IV</td>
</tr>
<tr>
<td></td>
<td>Clindamycin</td>
<td>13mg/kg IV</td>
</tr>
<tr>
<td></td>
<td>Doxycycline</td>
<td>2.2mg/kg IV</td>
</tr>
<tr>
<td></td>
<td>Nafcillin</td>
<td>50mg/kg IV</td>
</tr>
<tr>
<td></td>
<td>MetroNIDAZOLE (Flagyl)</td>
<td>10mg/kg IV</td>
</tr>
<tr>
<td>If prior history of ESBL (Extended-Spectrum-Beta-Lactamase Resistant Organisms)</td>
<td>Meropenem</td>
<td>20mg/kg IV</td>
</tr>
<tr>
<td>Oncology, including BMT</td>
<td>Meropenem</td>
<td>20mg/kg IV</td>
</tr>
<tr>
<td></td>
<td>Vancomycin</td>
<td>20mg/kg IV</td>
</tr>
<tr>
<td>Significant Chronic Medical Conditions:</td>
<td>Cefepime</td>
<td>50mg/kg IV</td>
</tr>
<tr>
<td>- Sickle Cell Disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Immunocompromised (excluding Oncology)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Immunosuppressive Meds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Recent Hospitalization (&gt;4 days within 2 months)</td>
<td>Vancomycin</td>
<td>20mg/kg IV</td>
</tr>
<tr>
<td>- Central Line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neonate ≥2kg</td>
<td>Ampicillin</td>
<td>100mg/kg IV</td>
</tr>
<tr>
<td></td>
<td>CefTAZidime</td>
<td>50mg/kg IV</td>
</tr>
<tr>
<td></td>
<td>Acyclovir</td>
<td>20mg/kg IV</td>
</tr>
<tr>
<td></td>
<td>Vancomycin</td>
<td>20mg/kg IV</td>
</tr>
</tbody>
</table>

*If allergic to PCN or Cephalosporins use Meropenem at 20mg/kg; Max dose of 1000mg

---

* Developed through the efforts of Children’s Healthcare of Atlanta and physicians on Children’s medical staff in the interest of advancing pediatric healthcare. This is a general guideline and does not represent a professional care standard governing providers’ obligation to patients. Ultimately the patient's physician must determine the most appropriate care. © 2019 Children's Healthcare of Atlanta, Inc.*