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Evidence-Based Care Algorithm for the Management of Septic Shock

Screen positive (ED)

Watcher/SA concern for septic shock (inpatient)

Frontline provider concern for septic shock

Signs of altered perfusion

0-10 min

Evaluation

- ☐ Place on monitors
- ☐ Clinician assessment focused on **perfusion**
- ☐ **Initial huddle: discuss whether there are signs of shock, initiation of sepsis pathway, plan for reassessment (and set MRT criteria for floor patients)**

Probable septic shock?

No → Usual care/ reassessment

Unsure → Modified pathway (ED)

Yes

Recommended antibiotics

Rapid fluid administration / contraindications

Recommended labs/imaging

MRT considerations

0-20 min

Initial diagnosis and management – Septic shock order set

- ☐ Establish IV access
- ☐ Administer O2 to improve 02 carrying capacity
- ☐ Place patient on monitors: vitals at least q15 minutes including BP
- ☐ Administer **20 ml/kg NS via rapid infuser or push/pull unless contraindicated**
- ☐ All patients: CBC, blood culture, blood gas, lactic acid, BMP
- ☐ Order **antibiotics** (see recommended antibiotic list)
- ☐ **Recommended additional labs and imaging** (guided by clinical situation/population)
- ☐ Clinician reassessment/discussion of next steps within 15 min of intervention

Ongoing signs of shock?

No → Usual care/ reassessment and **disposition**

Yes

MAP for age

Stress dose steroid recommendations

Disposition considerations

20-60 min

Ongoing resuscitation – Septic shock order set

- ☐ **Need for ongoing resuscitation should be driven by perfusion or BP /MAP concerns**
- ☐ **2nd and 3rd boluses given rapidly,** with reassessment in between to determine how many boluses are needed and how patient is responding
- ☐ If patient not responding to 1st and 2nd bolus at all, consider other causes of tachycardia/shock
- ☐ Investigate/treat potential sources of infection (including surgical source control)
- ☐ **Stress dose hydrocortisone in at risk populations**
- ☐ Address electrolyte deficiencies (Na+, glucose, Ca++)
- ☐ Clinician reassessment and discussion of next steps within 15 minutes of each intervention
- ☐ **Recommended additional labs and imaging** (guided by clinical situation/population)
- ☐ Plan for **disposition**

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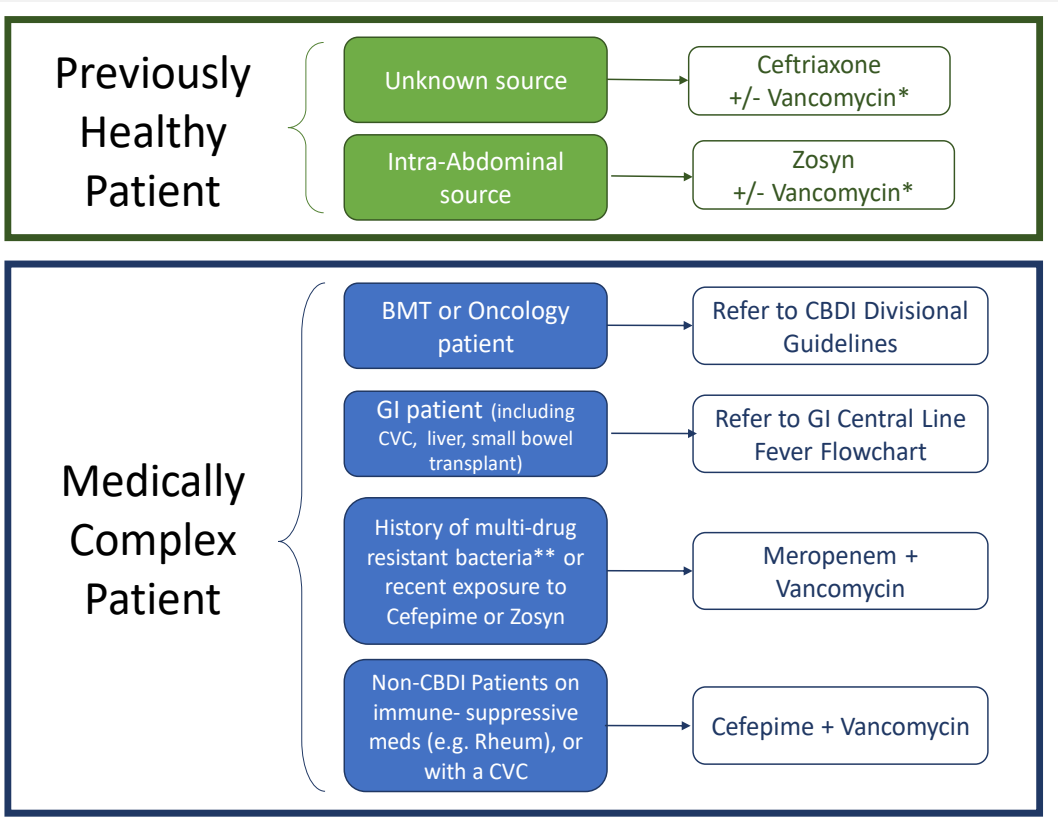
Initial Empiric Antibiotics for Severe Sepsis / Septic Shock



- Vancomycin indicated for any child with **risk factors for MRSA or highly-resistant S. pneumoniae**
  - Risk factors for MRSA: Bone/joint/deep tissue infection; history or family history of MRSA infection or recurrent boils
  - Risk factors for highly-resistant S. pneumoniae: recent B-lactam exposure, daycare attendance, non-vaccinated
  - When vancomycin is ordered, it should be administered after the antibiotic listed above it

Recommended Labs / Imaging in Severe Sepsis / Septic Shock

Initial Care - First Hour(s)

All patients – CBC, blood culture, lactic acid, blood gas, BMP

Select patients based on clinician suspicion/underlying conditions: UA/Urine culture, LFTs, HCG, CXR, CSF/viral/wound/trach studies as needed

Advanced/ICU Care

Procalcitonin is helpful to trend when deciding whether to continue antibiotics

PT/PTT, DIC panel, type if signs of coagulopathy

ESR/CRP for suspicion of osteomyelitis

Advanced imaging as needed to identify source

Rapid Bolus Administration / Contraindications

Initial Care - First Hour(s)

Boluses should be 20 ml / KG NS via push pull or rapid infuser; adjust volume for patients with contraindications

Patients who may need smaller boluses include: neonates < 1 month, those with signs of heart failure, and sickle cell patients with risk of cardiomyopathy; cardiology patients should have an echo after the 2nd bolus

Some patients need pressors after only 40 ml/KG fluids; consider earlier if signs of overload including rales, hepatomegaly or increasing respiratory distress with fluid administration

MRT and Disposition Considerations

At all team discussions, discuss criteria for calling MRT, and call MRT is needed

Recommend calling MRT if patient has abnormal perfusion after 60 ml / kg fluid resuscitation (can also call earlier)

Stress Dose Hydrocortisone Recommendations

If risk for adrenal insufficiency:

Catecholamine resistant shock
Chronic steroid use
Home stress dose steroid use
Known adrenal hyperplasia

Signs of Altered Perfusion

These may be subtle in early, compensated shock:

Delayed (>2 sec) capillary refill
Cool, pale skin
Altered mental status – sleepy, drowsy, fussy, irritable
Weaker peripheral pulses
In warm shock: flash capillary refill, bounding pulses