

- I. Title: Septic Shock - Child**
- II. Target Audience:** EM1 Residents
- III. Learning Objectives or Assessment Objectives**
 - A. Primary
 - 1. Clinical identification of the shock state
 - 2. ED management of septic shock
 - B. Secondary
 - 1. Differentiate different etiologies of shock
 - 2. Bacterial pathogens by age group
 - 3. Review spectrum of sepsis (SIRS to MODS)
 - C. Critical actions checklist (see attached form for details):
 - 1. IV, O2, monitor
 - 2. Aggressive IVF
 - 3. Septic work-up
 - 4. Empiric antibiotics
 - 5. Pressor support (upper level trainees)
- IV. Environment**
 - A. Lab Set Up – ED room
 - B. Manikin Set Up
 - 1. PediaSim
 - 2. Bubble wrap over left lateral lung
 - C. Props – none
 - D. Distractors – none
 - E. Equipment – Std peds resuscitation
- V. Actors**
 - A. Roles –
 - 1. Parent – provides most of history
 - 2. Patient –
- VI. Case Narrative**
 - A. Scenario Background Given to Participants (see Stimuli)
 - CC: Decreased activity
 - HPI: “Cold” for a week – worse over last 2 days
 - PMH: IMM UTD. No hospitalizations
 - Meds: None
 - Family History: None
 - Social History: attends school. No smoking in house
 - B. Scenario Conditions Initially
 - Patient initial exam:

- ✓ Hypotensive
- ✓ Tachycardic
- ✓ Hypoxic
- ✓ Unilateral decreased sounds, rales
- Patient pathophysiology
 - ✓ Untreated pneumonia progressing to septic shock (distributive)

C. Scenario Branch Points

- Persistent hypotension unless 80mL/kg IVF given
- Hypovolemic PEA arrest if persistently underresuscitated

VIII. Instructors Notes

A. Tips to keep scenario flowing:

- Prompt as needed for fluids, aBx, ICU admit

B. Tips for Actors: None

C. Stimuli available:

- EKG: Sinus Tach
- CXR: infiltrate LUL/LLL
- CBC: Leukocytosis with bandemia
- CMP: Anion-gap acidosis (lactate)
- ABG: Primary metabolic acidosis with respiratory alkalosis

D. Scenario programming

1. Optimal management path (see evaluation checklist)
2. Potential complications:
 - a. Allergic reaction to ABx (for higher level trainees)
3. Potential errors path(s)
 - a. Inadequate fluid resuscitation
 - b. Inadequate antibiotic coverage
 - c. Prompt from RN - "he still looks sick", or "is there anything else we can do?"
4. Program debugging
 - a. Use shunt fraction to manipulate SaO₂
 - b. Use crystalloid infusion/loss to manipulate BP

IX. Debriefing Plan

A. Method for debriefing

- Videotape of case for later review with preceptor
- Group debriefing of critical actions, play of the case (ideal vs. actual)

B. Actual debriefing materials:

- Resident checklist - review with individual and group
- CPEM article on Peds Septic Shock

C. Rules for the debriefing:

- Debriefing after clinical conclusion of case
- Ask participant for self-evaluation first
- Solicit group assessment
- Video provided to participant later for review with preceptor
- D. Facilitated discussion of clinical case (questions below)
 - Review vital signs in pediatric age groups
 - What are the different etiologies of shock?
 - How do the bacterial pathogens change based on age group, immunization status?
 - What are the different stages in the progression of sepsis?
 - a. SIRS (2/4 abnl vitals, WBC)
 - b. Sepsis (SIRS + documented infection)
 - c. Severe Sepsis (Sepsis + hypotension or organ dysfcn)
 - d. Septic Shock (Persistent hypotension after IVF, plus hypoperfusion abnormalities)
 - e. MODS

X. Pilot Testing and Revisions

- A. Numbers of participants: 2-3 (1 primary, 2 support)
- B. Evaluation forms - for and by participants

XI. Authors and their affiliations

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XII. Resources and References

Saladino, R. Management of Septic Shock in the Pediatric Emergency Department in 2004. *Clin Ped Emerg Med* 2004; 5:20-27