

BEGINNING MARCH 1ST 2006

Improving Outcomes in Patients with Severe Sepsis at Cooper: Introduction of the Surviving Sepsis Campaign (SSC) Sepsis Bundles



What is the Surviving Sepsis Campaign (SSC)?

•The Society of Critical Care Medicine, the European Society of Intensive Care Medicine and the International Sepsis Forum joined forces to develop a three-phase Surviving Sepsis Campaign.

•Phase I introduced the initiative at major international critical care conferences. Campaign leaders developed an action plan to reduce global mortality from severe sepsis by 25% by 2009.

•Phase II focused on creating guidelines for sepsis management.

•Phase III involves translating the guidelines into clinical practice.

•Campaign leaders have partnered with the Institute for Healthcare Improvement (IHI) to develop two sepsis bundles and to create a database-centered change measurement process.

•A "bundle" is a group of interventions related to a disease process. When executed together, the interventions produce better outcomes than when implemented individually.

•Cooper University Hospital is one of five hospitals internationally that contributed to the development of the bundles and database measurement tools.

•The goal now is to deliver the sepsis interventions every time a patient with severe sepsis is identified.

What do we need to accomplish in each severe sepsis patient?

SEVERE SEPSIS PROTOCOL CHECKLIST

Determine time of presentation
 • Time of presentation is equal to ED triage time or for non-ED admissions, documentation (date and time) supporting a diagnosis of severe sepsis in the progress notes

SEPSIS RESUSCITATION BUNDLE

The goal is to perform all indicated tasks 100% of the time within the first 6 hours of identification of severe sepsis.

The tasks are:

1. Measure serum lactate
2. Obtain blood cultures prior to antibiotic administration
3. Administer broad-spectrum antibiotic, *within 3 hrs of ED admission and within 1 hour of non-ED admission*
4. In the event of hypotension and/or a serum lactate > 4mmol/L
 - a. Deliver an initial minimum of 20 ml/kg of crystalloid or an equivalent
 - b. Apply vasopressors for hypotension not responding to initial fluid resuscitation to maintain mean arterial pressure (MAP) > 65 mm Hg
5. In the event of persistent hypotension despite fluid resuscitation (septic shock) and/or lactate > 4 mmol/L
 - a. Achieve a central venous pressure (CVP) of ≥ 8 mm Hg
 - b. Achieve a central venous oxygen saturation (ScvO₂) $\geq 70\%$ or mixed venous oxygen saturation (SvO₂) $\geq 65\%$

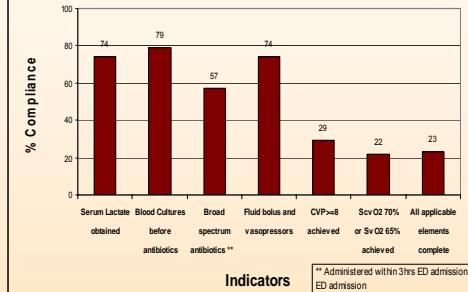
SEPSIS MANAGEMENT BUNDLE

Efforts to accomplish these goals should begin immediately, but these items may be completed within 24 hours of presentation for patients with severe sepsis or septic shock.

1. Administer low-dose steroids for septic shock in accordance with a standardized ICU policy. *If not administered, document why the patient did not qualify for low-dose steroids based upon the standardized protocol.*
2. Administer drotrecogin alfa (activated) in accordance with a standardized ICU policy. *If not administered, document why the patient did not qualify for drotrecogin alfa (activated).*
3. Maintain glucose control ≥ 70 , but < 150 mg/dl
4. Maintain a median inspiratory plateau pressure (IPP)* < 30 cm H₂O for mechanically ventilated patients

How are we currently performing with the sepsis bundles at Cooper?

6 Hour Severe Sepsis Resuscitation Bundle-Baseline Data



How do we identify a patient with severe sepsis?

Evaluation for Severe Sepsis Screening Tool

Instructions: Use this optional tool to screen patients for severe sepsis in the emergency department, on the wards, or in the ICU.

1. Is the patient's history suggestive of a new infection?

- | | | |
|---|---|---|
| <input type="checkbox"/> Pneumonia, empyema | <input type="checkbox"/> Bone/joint infection | <input type="checkbox"/> Implantable device infection |
| <input type="checkbox"/> Urinary tract infection | <input type="checkbox"/> Wound infection | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Acute abdominal infection | <input type="checkbox"/> Bloodstream catheter infection | |
| <input type="checkbox"/> Meningitis | <input type="checkbox"/> Endocarditis | |
| <input type="checkbox"/> Skin/soft tissue infection | | |
- Yes ___ No ___

2. Are any two of the following signs & symptoms of infection both present and new to the patient? Note: laboratory values may have been obtained for inpatients but may not be available for outpatients.

- | | | |
|--|---|--|
| <input type="checkbox"/> Hyperthermia > 38.3 °C (101.0 °F) | <input type="checkbox"/> Tachypnea > 20 bpm | <input type="checkbox"/> Leukopenia (WBC count < 4000 μ L ⁻¹) |
| <input type="checkbox"/> Hypothermia < 36 °C (96.8 °F) | <input type="checkbox"/> Acutely altered mental status | <input type="checkbox"/> Hyperglycemia (plasma glucose > 120 mg/dL) in the absence of diabetes |
| <input type="checkbox"/> Tachycardia > 90 bpm | <input type="checkbox"/> Leukocytosis (WBC count > 12,000 μ L ⁻¹) | |
- Yes ___ No ___

If the answer is yes to both question 1 and 2, suspicion of infection is present:

- ✓ Obtain: lactic acid, blood cultures, CBC with differential, basic chemistry labs, bilirubin
- ✓ At the physician's discretion obtain: UA, chest x-ray, amylase, lipase, ABG, CRP, CT scan.

3. Are any of the following organ dysfunction criteria present at a site remote from the site of the infection that are not considered to be chronic conditions? Note: the remote site stipulation is waived in the case of bilateral pulmonary infiltrates.

- | | |
|--|--|
| <input type="checkbox"/> SBP < 90 mmHg or MAP < 65 mmHg | <input type="checkbox"/> ScvO ₂ decrease > 40 mmHg from baseline |
| <input type="checkbox"/> Bilateral pulmonary infiltrates with a new (or increased) oxygen requirement to maintain SpO ₂ > 90% | <input type="checkbox"/> Bilateral pulmonary infiltrates with PaO ₂ /FiO ₂ ratio < 300 |
| <input type="checkbox"/> Creatinine > 2.0 mg/dl (175.3 μ mol/L) or Urine Output < 0.5 ml/kg/hour for > 2 hours | <input type="checkbox"/> Bilirubin > 2 mg/dl (34.2 μ mol/L) |
| <input type="checkbox"/> Platelet count < 100,000 | <input type="checkbox"/> Coagulopathy (INR > 1.5 or aPTT > 40 secs) |
| <input type="checkbox"/> Lactate > 2 mmol/L (18.0 mg/dl) | |
- Yes ___ No ___

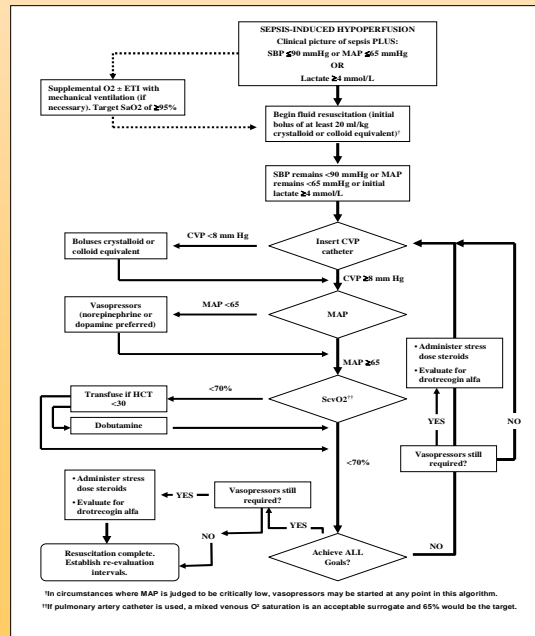
If suspicion of infection is present AND organ dysfunction is present, the patient meets the criteria for SEVERE SEPSIS and should be entered into the severe sepsis protocol.

Adapted from the ©2005 Surviving Sepsis Campaign and the Institute for Healthcare Improvement

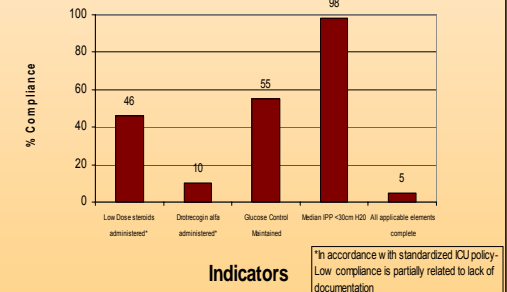
For questions or concerns please contact the critical care fellow on call.

Place patient label here. _____
 Signature _____
 Date: ___/___/___ Time of recognition: ___:___ (24 hr clock)

What will help us accomplish the goals?



24 Hour Severe Sepsis Management Bundle-Baseline Data



How will we know if we are improving?

•Results like the graphs shown above will be posted quarterly

•Generating data will help us understand how to improve processes and will provide evidence of our improvement efforts