Mercy General Hospital
Severe Sepsis and Septic Shock
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Complete all elements of the Sepsis Resuscitation bundle as indicated within 6 hours of identification of Severe Sepsis or Septic Shock

1. Measure Lactate
2. Draw Blood Cultures before Antibiotics
3. Give Broad Spectrum Antibiotics within 3 hours of identifying Sepsis if identified in ER and one hour if transfer to ICU from floor
4. Treat Hypotension (SBP less than 90 or MAP less than 65) and/or Lactate greater than 4mmol with initial fluid challenge 20mL-30mL/kg
   a. if unresponsive to fluid bolus add vasopressor
5. If patient remains hypotensive after fluid challenge, achieve CVP goal of at least 8mmHg
6. Measure ScVO2

Document Time Severe Sepsis or Septic Shock Identified: ___________ date ___________ time

Admit to ICU
Status: √ Inpatient ☐ Ambulatory ☐ Observation
Allergies:
Activity: Bed rest
Routine Vitals, Continuous Cardiac monitor with pulse oximetry
Diet:
STAT Lab if not already ordered (√) indicates automatically order these labs.
√ CBC with diff  √ CMP  √ Magnesium  √ ABG
√ PT/PTT  √ Blood Cultures x2  √ Lactic Acid (if not done on ABG)
☐ Troponin  ☐ D-Dimer  ☐ Urine Culture
☐ Sputum Culture  ☐ Type & Cross  ☐ CK w/MB
☐ Urine Antigens for Legionella and Pneumococcus

Initial Broad Spectrum Antibiotics: Give first dose as STAT, draw blood cultures prior to administering

☐ Unknown Source or IV drug abusers:
   ☐ Imipenem/cilastatin 500 mg IVPB Q6H AND
   ☐ Vancomycin 1 gram IV STAT and pharmacy to dose additional load and continuing doses

☐ Suspected Meningococcemia
   ☐ Ceftotaxime 2gm IVPB Q6H AND
   ☐ Vancomycin 1 gram IV x 1 and pharmacy to dose

☐ Suspected Urinary Source:
   ☐ Piperacillin/Tazobactam 3.375 grams IVPB Q6H OR
   ☐ Cefepime 1 grams IV Q8H OR
   ☐ Imipenem/cilastatin 500 mg IVPB Q6H

☐ Suspected Pneumonia:
   ☐ Levofoxacin 750 mg IVPB Q24H AND
   ☐ Vancomycin 1 gram IV STAT and pharmacy to dose additional load and continuing doses AND
   ☐ Cefepime 2 grams IV Q8H for Pseudomonal risk OR
   ☐ Cefotaxime 1gm IVPB Q8H for patients without comorbidities/pseudomonal risk

☐ Suspected Skin/Soft Tissue:  
   ☐ Vancomycin 1 gram IV STAT and pharmacy to dose additional load and continuing doses AND
   ☐ Piperacillin/tazobactam 3.375 grams IVPB Q6H

☐ Suspected GI/Biliary Source:
   ☐ Imipenem/cilastatin 500 mg IVPB Q6H AND
   ☐ Vancomycin 1 gram IV STAT and pharmacy to dose additional load and continuing doses

☐ Neutropenic:
   ☐ Cefepime 2 grams IV Q8H OR
   ☐ Imipenem/cilastatin 500 mg IVPB Q6H AND
   ☐ Vancomycin 1 gram IV STAT and pharmacy to dose additional load and continuing doses

☐ Other:
_________________________________________________________________
_________________________________________________________________

FOR SEPTIC SHOCK ONLY USE: ☐ Linezolid 600 mg IVPB Q12H (with pulmonary source) instead of Vancomycin OR
☐ Daptomycin 6 mg per kg IVPB Q24H (no suspected pulmonary source) instead of Vancomycin

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DATE: ________
TIME: ________
**Initial fluid bolus – IV NS at 20 mL/kg = ____________ mL Time:______________**

**If not responsive to initial fluid bolus and SBP less than 80 or MAP less than 65 - Administer VASOPRESSORS**
- Norepinephrine (Levophed) 4 mg in 250 mL D5W - start at rate of 2 mcg/min and titrate to keep SBP above 90mmHg or MAP greater than 65mmHg
- Dopamine - start at rate of 5 mcg/kg/min and titrate to keep SBP above 90mmHg or Map greater than 65mmHg.
- Vasopressin 60units / 250mL D5W 0.04 units/min if Levophed greater than 10mcg/min, do not titrate.
- Other: ______________________________________________________

**After Initial Fluid Bolus and patient still hypotensive, achieve CVP goal of 8 mmHg:**

Place Central Line (Recommend PreSep with Sc VO2 capability)
Portable CXR for central line placement
Monitor CVP, notify MD of initial reading and if less than 8 mmHg

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Rate/hour</th>
<th>MAP or CVP (mmHg)</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Saline</td>
<td>20mL/Kg every 30 mins</td>
<td>MAP &lt;65 or sBP &lt;90</td>
<td>Until CVP &gt; 10 for nonintubated patients, CVP &gt; 14 for intubated patients and off vasopressors. If MAP and CVP unstable after 4 liters of NS call MD</td>
</tr>
<tr>
<td>Normal Saline</td>
<td>250mL/hour</td>
<td></td>
<td>While on vasopressors</td>
</tr>
<tr>
<td>Normal Saline</td>
<td>150mL/hour</td>
<td>MAP &gt;65 or sBP &gt;15</td>
<td>No vasopressors</td>
</tr>
<tr>
<td>Normal Saline</td>
<td>60mL/hour</td>
<td>MAP &gt;65 or sBP &gt;18</td>
<td>No vasopressors</td>
</tr>
<tr>
<td>Normal Saline</td>
<td>15mL/hour</td>
<td>MAP &gt;65 or sBP &gt;22</td>
<td>No vasopressors</td>
</tr>
</tbody>
</table>

**Measure ScVO2**

<table>
<thead>
<tr>
<th>Goal 70%-80% with CVP 8-12 mmHg</th>
</tr>
</thead>
</table>

If Pre-Sep catheter placed:

Monitor ScVO2 hourly

For ScVO2 less than 70% and CVP is 8-12mmHg:
- Bolus 500mL NS every 30 min until CVP 13-16mmHg
- 250mg/250mL D5W start at 2.5 mcg/kg/min titrate to ScVO2 greater than 70%, keep MAP greater than 65 and HR less than 130.
- Type and Cross for 2 units PRBC, transfuse one unit if HGB less than 10.

Notify MD if ScVO2 if less than 65% or greater than 80%

If no continuous ScVO2:

Draw Mixed Venous ABG from distal port, use % saturation from venous gas

For ScVO2 less than 70% and CVP is 8-12mmHg:
- Bolus 500 mL NS every 30 min until CVP 13-16mmHg, repeat mixed venous ABG
- Dobutamine 250mg/250mL D5 W start at 2.5 mcg/kg/min titrate to ScVO2 greater than 70%, keep MAP greater than 65 and HR less than 130.
- Type and Cross for 2 units PRBC, transfuse one unit if HGB less than 10.
- Draw Mixed Venous Gas every 6 hours while on vasopressors

Notify MD if ScVO2 if less than 65% or greater than 80%

24 hour Management and On going Care

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DATE:
TIME:
**Persistent Hypotension**
- Random Serum Cortisol (draw prior to starting steroids)
- Hydrocortisone 50mg IV every 6 hours for 28 doses

**Blood Glucose**
Accucheks q 6 hours
Regular Insulin coverage MGH 2007 Sliding Scale (2 to 20 units regular insulin subcutaneously QAC pm and 6 to 12 units regular insulin subcutaneously QHS pm)

<table>
<thead>
<tr>
<th>Blood Glucose (mg/dL)</th>
<th>Units of insulin based on AC glucose</th>
<th>Units of insulin based on HS glucose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 80</td>
<td>Refer to Hypoglycemic Protocol</td>
<td></td>
</tr>
<tr>
<td>110-140</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>141-160</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>161-180</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>181-220</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>221-250</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>251-280</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>281-320</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>321-360</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>361-400</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Greater than 400</td>
<td>20 &amp; notify MD</td>
<td>12 &amp; notify MD</td>
</tr>
</tbody>
</table>

If blood glucose greater than 160 for two consecutive readings check start Regular Insulin IV drip (100 units per 100 mL NS) at Stress Level per protocol and check blood glucose levels hourly

**Respiratory:**
VENT SETTINGS: Mode ______ FiO2 _______ Vt _______ Rate _______ PEEP _______ PS _______
Follow ARDS Net Protocol

<table>
<thead>
<tr>
<th>FiO2</th>
<th>0.3</th>
<th>0.4</th>
<th>0.4</th>
<th>0.5</th>
<th>0.5</th>
<th>0.6</th>
<th>0.7</th>
<th>0.7</th>
<th>0.8</th>
<th>0.9</th>
<th>0.9</th>
<th>1.0</th>
<th>1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEEP</td>
<td>5</td>
<td>5</td>
<td>8</td>
<td>8</td>
<td>10</td>
<td>10</td>
<td>12</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>16</td>
<td>18</td>
</tr>
</tbody>
</table>

**Respiratory Care Protocol**
ABG pm dyspnea
- O2 to keep O2 saturation greater than ________%
- Albuterol 2.5 mg with Atrovent 0.5mg nebulizer every 4 hours while awake and pm dyspnea
- Other_________________________________________________
- Other_________________________________________________
**Mercy General Hospital**  
**Severe Sepsis and Septic Shock**  
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### Additional Medications

**Sedation if intubated:**
- Propofol 1000mg/100 mL, start at 5 mcg/kg/min IV titrate to Ramsey 3
- Midazolam (Versed) 100 mg/100mL, start at 1 mg/hr titrate to Ramsey 3
- Fentanyl 1mg/100mL normal saline, start at 25 mcg/hour for pain while intubated, titrate to pain goal <3.

**Other:**
- Pantoprazole (Protonix) 40 mg IV daily
- Sodium Bicarbonate 100 mL q 4 hours IVP prn pH < 7.15, Repeat ABG in 30 min.
- Acetaminophen (Tylenol) 650mg PO, NG or PR every 4 hours prn for temp greater than 101°F. Give PO if possible
- Morphine Sulfate 2mg IV every hour prn mild pain (1-3)
- Morphine Sulfate 4 mg IV every hour prn moderate pain (4-6)
- Hydromorphone (Dilaudid) 0.5 mg IV every hour prn severe pain (7-10)
- Ondansetron (Zofran) 4 mg IV every 6 hours prn nausea
- Routine Bowel Care
  - Colace 100mg PO daily
  - MOM 30mL PO prn no bowel movement in 72 hours
  - Dulcolax Suppository PR prn x1 no results from MOM
  - Fleets Enema PR prn x1 no results from Dulcolax Suppository
- Replace K to 4.0 using potassium replacement protocol
- Replace Mg to 2.0 using magnesium replacement protocol
- Nitroglycerin 1/150 sublingual prn for chest pain, may repeat x 2 (do not administer any nitrates to patient with diagnosis of Aortic Stenosis without MD order)

**Misc Labs and Additional Orders**

**Complete Apache tool**

**PCXR daily while intubated and prn for chest tube placement, central line placement, endotracheal tube placement, and tracheostomy**

**EKG in AM and prn for rhythm disturbances or chest pain**

**Place NG to low wall intermittent suction**

**Arterial Line placement**

**May be placed by RN/RT per protocol (radial only)**

**DVT prophylaxis:**

- Sequential Compression Devices Bilateral Lower Extremities
- Heparin 5000 units subcutaneous every 8 hours
- Heparin 5000 units subcutaneous every 12 hours

**Other _________________________________**

**LABS**

**Repeat labs 6 hours after first set:**
- CBC with Diff
- Chem 7
- Serum Lactic Acid

**CBC, Chem 7 daily while in ICU**

**CBC prn suspected bleeding**

**Renal Panel prn for electrolyte disturbances**

**Other: ______________________________________________________**

**Other: ______________________________________________________**

**Other: ______________________________________________________**

**Other: ______________________________________________________**

**PHYSICIAN SIGN HERE**

**DATE:**

**TIME:**