

SEVERE SEPSIS CLINICAL PATHWAY

Room # _____ Admission Date: _____ Time: _____

Please complete the following:

- **Severe sepsis or septic shock* diagnosis:** Date: _____ Time: _____
- Patient transferred from (ER, unit or hospital): _____
- Patient was identified as having severe sepsis or septic shock: ED Floor ICU Admission During ICU Stay
- Decision to move to comfort care in first 24 hours after diagnosis Yes No
- Discharge: Date: _____ Time: _____
- Discharge status: Alive Expired

***Septic Shock defined as:**
SBP less than 90mmHg or 40mmHg decrease from baseline or MAP less than 65mmHg after 20ml/kg fluid bolus over 20 min
***Severe sepsis defined as:**
Lactate > or = 4mmol/L

Sepsis Daily Goals	Date: _____ _____ to _____ 0-1 Hours	Date: _____ _____ to _____ 1-6 Hours	Date: _____ _____ to _____ 1-6 Hours*	Date: _____ _____ to _____ 7-72 Hours
<p>1. Goals of therapy to achieve increased O2 delivery: MAP greater than 65mmHg SBP > or = 90 mmHg PICK ONE: (please circle) NON-INVASIVE REPEAT Lactate decreased by > or = 10% (Clearance) INVASIVE SvO2 Saturation > or = 70% CVP 8-12mmHg On ventilator 12-15 mmHg</p> <p>2. Blood Glucose 100-140 mg/dl</p> <p>3. Urine output > or = to 0.5 ml/kg/hour</p> <p>4. In patients with acute lung injury or ARDS: Yes No Patient on mechanical ventilator _____ PaO2 / FiO2 ratio Yes No Is tidal volume 6ml/kg of ideal body weight in first 24 hours? Yes No Are the static or plateau inspiratory pressures less than 30cmH2O in first 24 Hours?</p>	<p>Does the patient have any three of the following? (please circle)</p> <ul style="list-style-type: none"> • Suspected Infection • Temp > 100.4F (38 C) or < 96.5 (36 C) or rigors • HR > 90 • RR > 20 • Any alteration of mental status • O2 Sat < 90% • SBP < 90 mmHg • MAP <65 mmHg <p>•Yes •No</p> <p>If Yes clicked: Go to Sepsis Panel Orders.</p> <p>Sepsis Panel Orders (all boxes should be checked by default)</p> <ul style="list-style-type: none"> • Notify MD to initiate order for sepsis panel • CBC • Metabolic Panel • Lactate (venous or arterial) • Draw and Hold PT/PTT • Draw and Hold Blood Cultures • Record Vital Signs Q1 hour plus temperature <p>Is the patient's SBP < 90 or MAP < 65</p> <p>•Yes •No</p> <p>If Yes circle: Present case immediately to physician. CONSIDER ACTIVATING 8SHOK BEEPER (ED) OR BEEPER 86332 ICU TRIAGE</p>	<p>(please circle) Yes No Was initial lactate greater than 4mmol/L? _____ @ _____ Value and Time of 1st Lactate</p> <p>Yes No Has the Lactate decreased by > or = 10% (Clearance), If not why? _____</p> <p>Yes No Was patient hypotensive after initial fluid bolus?</p> <p>Yes No CVP placed If no, why? _____</p> <p>_____ Time CVP placed (record first CVP reading prior to x-ray confirmation)</p> <p>Yes No Was an IVC US done to assess for volume status? If yes, was there >30% respiratory variation? YES No Were pressors (dopamine, NE, phenylephrine, EPI) started? Yes No Were inotropes started (DBA, Milrinone)?</p> <p>Record the FIRST TIME the following is achieved:</p> <p>_____ MAP greater than or equal to 65 mmHg</p> <p>_____ SCV02 greater than 70%: mixed venous greater than or equal to 65% _____ Time 2nd Lactate decreased > or = 10% from 1st Lactate</p>	<p>Refer to Severe Sepsis Resuscitation Algorithm on next page</p> <p>DISPOSITION:</p> <ul style="list-style-type: none"> • Patients should get ICU consultation. If not an ICU candidate, should go to appropriately monitored Bed. • Periodically recheck patient Q 1 hr (icu) or Q 6 hrs (on floor) for MAP >= 65, SBP >= 90 good mental status, and good urine output • Consider trending lactate Q 2-4 hours. If it starts rising again, restart protocol • Consider or SvO2 sat every 2-4 hours and if <70% , restart invasive protocol 	<p>(Please check all that apply)</p> <p>_____ Confirm Infectious Source</p> <p>_____ Re-assess need for broad spectrum antibiotics based on Culture reports.</p> <p>Yes No Was the organism that was identified sensitive To the initial antibiotic?</p> <p>_____ Discontinue Vancomycin if Appropriate</p> <p>_____ D/C or taper steroids if vasopressors off</p> <p>_____ Re-evaluate need for invasive lines and tubes</p> <p>_____ Consider Nutrition Therapy</p> <p>_____ If on ventilator the pt. have the vent bundle ordered: <input type="checkbox"/> HOB 30-45% <input type="checkbox"/> Oral Care 6 x/day <input type="checkbox"/> GI ulcer prophylaxis <input type="checkbox"/> DVT prophylaxis <input type="checkbox"/> Daily sedation vacation/reduction and assessment of readiness for extubation.</p>

Please complete the following:

- **Severe sepsis or septic shock* diagnosis:** Date: _____ Time: _____
- Patient transferred from (ER, unit or hospital): _____
- Patient was identified as having severe sepsis or septic shock: ED Floor ICU Admission During ICU Stay
- Decision to move to comfort care in first 24 hours after diagnosis Yes No
- Discharge: Date: _____ Time: _____
- Discharge status: Alive Expired

***Septic Shock defined as:**
SBP less than 90mmHg or 40mmHg decrease from baseline or MAP less than 65mmHg after 20ml/kg fluid bolus over 20 min
***Severe sepsis defined as:**
Lactate > or = 4mmol/L

Sepsis Daily Goals	Date: _____ _____ to _____ 1-6 Hours
<p>1. Goals of therapy to achieve increased O2 delivery: MAP greater than 65mmHg SBP > or = 90 mmHg NON-INVASIVE REPEAT Lactate decreased by > or = 10% (Clearance) INVASIVE SvO2 Saturation > or = 70% CVP 8-12mmHg On ventilator 12-15 mmHg</p> <p>2. Blood Glucose 100-140 mg/dl</p> <p>3. Urine output > or = to 0.5 ml/kg/hour</p> <p>4. In patients with acute lung injury or ARDS:</p> <p>Yes No Patient on Mechanical ventilator</p> <p>_____ PaO2 / FiO2 ratio</p> <p>Yes No Is tidal volume 6ml/kg of ideal body Weight in first 24 hours?</p> <p>Yes No Are the static or plateau inspiratory pressures less than 30cmH2O in first 24 Hours?</p>	<p>INITIAL RESUSCITATION</p> <ul style="list-style-type: none"> • Administer 20-30 ml/kg isotonic crystalloid bolus over 20 minutes • Send cultures of all likely sources of infection • Think of source control (Infected catheter? Operative intervention for infection? Drainable pus?) • Administer empiric antibiotics to cover all likely sources of infection (refer to NYP guidelines from 2010*) <p>SpO2 If patient's O2 saturation is < 90% on high fiO2 supplemental oxygen (non-rebreathe mask), consider intubation.</p> <p>FLUIDS Consider</p> <ul style="list-style-type: none"> • Dynamic IVC Ultrasound-Keep giving 500-1000 ml boluses of isotonic crystalloid until there is < 30% change in IVC size with inspiration. • Empiric Fluid Loading-Patients with severe sepsis/septic shock may require at least 6 liters of fluid during their acute resuscitation (first 6 hrs. of care). <p>RE-CHECKING MAP and SBP</p> <ul style="list-style-type: none"> • If MAP is < 65 or SBP <90 after "adequate" fluid loading: <ul style="list-style-type: none"> - Consider placing a full sterile central line in the IJ or SC vein (femoral site only if neck line not feasible); - Start vasopressors (Levophed, Vasopressin, Dopamine in that order); titrate to a MAP >= 65 or SBP >= 90 <p>TISSUE OXYGENATION</p> <ul style="list-style-type: none"> • Send repeat lactate • If lactate has cleared by >= 10 %, go to disposition • If lactate is rising or has cleared by < 10%, consider: <p>If Hb < 7: transfuse 1 unit of PRBC or Additional Fluids: if patient had empiric fluid loading, give an additional liter of crystalloid or Inotropes: especially if heart appears hypo dynamic on echo. If calcium is low, replete that first. If not, administer Dobutamine 5-20 mcg/kg/min. or If Hb <9 : consider transfusion. If the pt. is elderly patients or has coronary artery disease</p> <ul style="list-style-type: none"> • Send repeat lactate, if it still has not cleared by >=10%, continue with the above, trending lactates every 1-2 hours until these two goals are met or switch to invasive strategy. <p>If using the invasive strategy: Aim for CVP 8-12mmHg, On ventilator 12-15 mmHg, MAP greater than 65mmHg SBP > or = 90 mmHg and OU >0.5 ml/kg/hr If the SvO2 Saturation < 70% consider:</p> <p>If Hb < 7: transfuse 1 unit of PRBC or Additional Fluids: if patient had empiric fluid loading, give an additional liter of crystalloid or Inotropes: especially if heart appears hypodynamic on echo. If calcium is low, replete that first. If not, administer dobutamine 5-20 mcg/kg/min. or If Hb <9: consider transfusion. If the pt. is elderly patients or has coronary artery disease Repeat SvO2 sat as needed to goal of >or = to 70%</p>

REFERENCES:

1. "Duration of Hypotension before initiation of Effective Antimicrobial Therapy is the Critical Determinant of Survival Human Septic Shock",
Anand Kumar MD, Daniel Roberts MD, Kenneth Wood MD, Bruce Light MD, Joseph Parrillo MD, Satendra Sharma MD, Robert Suppes MD, Daniel Feinstein MD,
Sergio Zanotti MD, Leo Tribeg MD, David Gurka MD, Aseem Kumar PHD, Mary Cheong, Msc.
Critical Care Med, 2006, Vol.34, no.6.
2. "Lactate Clearance vs Central Venous Oxygen Saturation as Goals of Early Sepsis Therapy"
Alan Jones, Nathan Shapiro, Stephen Trzeciak, et al.
Jama.2010; 739-746.
3. "Early Goal Directed Therapy in the Treatment of Severe Sepsis and Septic Shock"
Emanuel Rivers MD, MPH, Bryant Nugent MD, Suzanne Havshad MA, Julie Bessler BS, Alexandria Muzzin BS, Bernard Knoblich MD.
The New England Journal of medicine: Vol 345, no 19, November 8, 2001.
4. "Surviving Sepsis Campaign: International Guidelines for management of Severe Sepsis and Septic Shock: 2008."
R. Philip Dellinger MD, Mitchell Levey MD, Jean Carlet MD, Julian Brown MD, Margaret M. Parker MD, Roman Jaeschke MD, Konrad Reinhart MD, Derek C. Angus MD, MPH, et al.
Critical Care Med 2008 Vol.36 No.1, p 296-328.
5. The Epidemiology of Sepsis in the United States from 1979 – 2000. Greg S. Martin MD, David M Marino MD, Stephanie Eaton MD, and Marc Moss MD.
The New England Journal of Medicine 2003, 348: 1546-54.