SEVERE SEPSIS / SEPTIC SHOCK REFERENCE AND AUDIT TOOL – ST. JOSEPH HOSPITAL

INITIAL ASSESSMENT AND IDENTIFICATION

Re-Assess

NO

Known or suspected infection?

YES

YES

Does Patient have two or more of the following SIRS criteria?
(Check all that apply) If two or more checked and suspected/known infection present, then contact MD and/or MET TEAM.

- ☐ Temperature above 38°C (100.9°F) or less than 36°C (96/8°F)
- ☐ Heart Rate greater than 90
- ☐ Respiration rate greater than 20 or PaCo2 less than 32
- ☐ WBC greater than 12,000 or less than 4,000 or greater than 10% bands

Assessment by: _____ Title ____ Date / Time ____ / ____

MD and/or MET TEAM Contacted (Date / Time _____ / _____)

NO

Re-Assess

OBTAIN MD ORDER FOR:

- LABS / TESTS (if not already done)
- Treating Hypotension
  (See page 2 of order set)

Is SBP less than 90 and / or MAP less than 65 after NS boluses?

NO

Is Lactate level greater than 4 or Organ Dysfunction?

NO

SEPSIS

❖ EGDT not indicated
1. Initiate antibiotics
2. Re-Assess
3. Admit to
   - Medical
   - Telemetry
   - Critical Care

1st Blood Culture set drawn: **Date / Time** _____/____

1st Lactate level: _____ **Date / Time** _____/_____

1st Antibiotic administered_____

Date / Time _____/_____

YES

SEPTIC SHOCK

YES

SEVERE SEPSIS

EARLY GOAL DIRECTED THERAPY (EGDT)

- Initiate Severe Sepsis Order Set (See page 2 of order set)
- **ADMIT TO CRITICAL CARE : Date / Time _____ /_____**
- Obtain Universal Consent for Central Line placement, Arterial Line Placement, and consent for intubation
- Initiate Broad Spectrum Antibiotics (see back of page 2 for suggested regimens)
- Supplemental O_2 to maintain O_2 saturation greater than 92%

CVP (Step 1)

CVP greater than 15
SBP greater than 160

Consider nitroglycerin IV drip at 10-60 mCg/min until CVP less than 12 or SBP less than 140

CVP less than 8

- NS 500 mL IV bolus, repeat until CVP greater than 8
- If CVP less than 4, give Albumin 25% 100 mL IV over 20 minutes Q 2 HRS X 2 doses in addition to above
- If CVP greater than 8, continue IVF NS @ 150 mL/hr

MAP (Step 2)

MAP greater than 100

MAP less than 65

Start Vasopressors
Date / Time _____ /_____
(See page 2 of order set)

MAP 65-100

$ScvO_2$ / MvO_2 (Step 3)

$ScvO_2$ or MvO_2 greater than 70%

$ScvO_2$ or MvO_2 less than 70%

Hgb

Hgb less than 10

Transfuse pRBC to obtain Hgb greater than 10
(see page 2 of order set)

Hgb greater than 10

EARLY GOALS ACHIEVED

- Initiate Continuing Therapy Phase orders (see page 2 of order set)

- Start Dobutamine IV drip at 2 mCg/min (if HR less than 100 and SBP greater than 100)
- Intubation and Mechanical Ventilation

St. Joseph Hospital
ST. JOSEPH HEALTH SYSTEM

SEVERE SEPSIS / SEPTIC SHOCK REFERENCE AND AUDIT TOOL

PATIENT ID

6031-0003 (Audit Tool) (Rev. 2/09/09)

	Suggested *Initial* Empiric Anti-infective Therapy for Patients with a Diagnosis of Sepsis	
Source of Infection	**First-line**	**Second-line (PCN allergy)‡**
Unknown Origin	Meropenem 1gm IV Q 8 HRS + Vancomycin* 1 Gm IV X 1, then per Rx	Ciprofloxacin 400 mg IV Q 8 HRS + Vancomycin* 1 Gm IV X 1, then per Rx ± Tobramycin 5 mg/kg X 1, then per Rx
Community-acquired Pneumonia	Ceftriaxone 1 Gm IV Q 24 HRS + Azithromycin 500 mg IV Q 24 HRS **If an ICU patient:** Ceftriaxone 1 Gm IV Q 24 HRS + Azithromycin 500 mg IV Q 24 HRS ± Vancomycin† 1 Gm IV X 1, then per Rx	Levofloxacin 750 mg IV Q 24 HRS **If an ICU patient:** Levofloxacin 750 mg IV Q 24 HRS + Aztreonam 2 Gm IV Q 8 HRS ± Vancomycin† 1 Gm IV X 1, then per Rx
VAP / HCAP / Nosocomial Pneumonia	Cefepime 2 Gm IV Q 8 HRS + Tobramycin 7 mg/kg X 1, then per Rx + Vancomycin* 1 Gm IV X 1, then per Rx ± Azithromycin 500 mg IV Q 24 HRS	Aztreonam 2 Gm IV Q 8 HRS + Tobramycin 7 mg/kg X 1, then per Rx + Vancomycin* 1 Gm IV X 1, then per Rx ± Azithromycin 500 mg IV Q 24 HRS
Urosepsis	Ceftriaxone 1 Gm IV Q 24 HRS	Levofloxacin 500 mg IV Q 24 HRS
Intra-abdominal	Zosyn 3.375 Gm IV Q 6 HRS	Levofloxacin 750 mg IV Q 24 HRS + Metronidazole 500 mg IV Q 8 HRS
Soft-tissue	Zosyn 3.375 Gm IV Q 6 HRS + Vancomycin†* 1 Gm IV X 1, then per Rx	Levofloxacin 500 mg IV Q 24 HRS + Metronidazole 500 mg IV Q 8 HRS + Vancomycin†* 1 Gm IV X 1, then per Rx
Febrile Neutropenia	Cefepime 2 Gm IV Q 8 HRS ± Tobramycin 5 mg/kg X 1, then per Rx ± Vancomycin** 1 Gm IV X 1, then per Rx	Aztreonam 2 Gm IV Q 8 HRS ± Tobramycin 5 mg/kg X 1, then per Rx ± Vancomycin** 1 Gm IV X 1, then per Rx
Notes	**‡PCN allergy:** IgE mediated hypersensitivity (rash, hives, and laryngospasms) to PCN & cephalosporins ***Nosocomial MRSA Risk:** recent hospitalization, indwelling central line, history of MRSA infection/colonization, residence in a nursing home or transfer from another hospital, recent surgery, dialysis **†Community-associated MRSA Risk:** recent influenza illness, necrotizing pneumonia, leucopenia, and / or hemoptysis **** Line sepsis, known resistant organisms or unstable patients**	

Note: Antibiotic selection should be reviewed daily and targeted based on culture results.

Selected References:

1. American Thoracic Society. Guidelines for management of adults with hospital-acquired, ventilator-associated, and healthcare-associated pneumonia. Am J Resp Care Med 2005; 171:388-416.
2. American Thoracic Society / Infectious Diseases Society of America. American Thoracic Society / Infectious Diseases Society of America consensus on the management of community-acquired pneumonia in adults. Clin Infect Dis 2007; 44 Suppl 2: S27-72.
3. IDSA. Guidelines for the Selection of Anti-infective Agents for Complicated Intra-abdominal Infections. Clin Infect Dis 2003; 37:997–1005.
4. IDSA. Practice Guidelines for the Diagnosis and Management of Skin and Soft Tissue Infections. Clin Infect Dis 2005; 41:1373–406.
5. Infectious Diseases Society of America. Diagnosis and Treatment of Diabetic Foot Infections. Clin Infect Dis 2004; 39:885–910
6. Surviving sepsis campaign: International guidelines for management of severe sepsis and septic shock: 2008. Intensive Care Med 2008; 34:17-60.
7. National Comprehensive Cancer Network (NCCN) Guidelines (2008).

Worksheet for the consideration of Xigris® (activated drotrecogin alfa).

(Please complete Drotrecogin Alfa (activated) order form if therapy is to be initiated)

Patients should meet all of the following criteria to receive drotrecogin alfa:

- Patient has met criteria for **diagnosis of sepsis** and is currently enrolled in the severe sepsis pathway.
- Evidence of at least one of the following signs of organ dysfunction *due to sepsis* must be **present, with a duration of less than 24 hours**.
- *Cardiovascular* - An arterial systolic blood pressure less than 90 mm Hg or a mean arterial pressure (MAP) less than 70 mm Hg for at least one hour despite adequate fluid resuscitation, adequate intravascular volume status, or the use of vasopressors to maintain BP
- *Renal* - Urine output less than 0.5ml/kg hour for one hour, despite adequate fluid resuscitation
- *Respiratory* - PaO_2/FiO_2 less than 250 (if the pt. has pneumonia, the pt. must have a PaO_2/FiO_2 less than 200)
- *Hematology* - Platelet count of less than 80,000/mm^3 of a 50% decrease in the platelet count from the highest value recorded over the last 3 days
- *Metabolic Acidosis* - pH less than 7.30 or base deficit greater than 5.0 mEq/L or a plasma lactate level greater than 1.5 times the upper limit of normal
- *Other evidence of organ dysfunction*:

  _____

  _____
- APACHE SCORE greater than or equal to 25

Recommended contraindications for the use of Xigris® (activated drotrecogin alpha) include:

- Trauma patients with increased risk of life-threatening bleeding
- Active internal bleeding
- Recent (within 3 months) hemorrhagic stroke
- Recent (within 2 months) intracranial or intraspinal surgery, or severe head trauma
- Presence of epidural catheter
- Intracranial neoplasm or mass lesion or evidence of cerebral herniation
- Less than 12 hours post surgery requiring general or spinal anesthesia or potential need for surgery during infusion.

AGE (YEARS)		HEART RATE	
≤ 44	0	≥ 180	4
45-54	2	140-179	3
55-64	3	110-139	2
65-74	5	70-109	0
≥ 75	6	55-69	2
		40-54	3
		< 40	4
TEMPERATURE (RECTAL)		**MAP (**prior to vasoactive therapy)	
≥ 41	4	≥ 160	4
39-40.9	3	130-159	3
38.5-38.9	1	110-129	2
36-38.4	0	70-109	0
34-35.9	1	50-69	2
32-33.9	2	< 50	4
30-31.9	3		
< 30	4		
HEMATOCRIT (%)		**WBC**	
≥ 60	4	≥ 40	4
50-50.9	2	20-39.9	2
46-49.9	1	15-19.9	1
30-45.9	0	3-14.9	0
20-29.9	2	1-2.9	2
≤ 20	4	< 1	4
RESPIRATORY RATE		**ARTERIAL pH**	
≥ 50	4	≥ 7.7	4
35-49	3	7.6-7.69	3
25-34	1	7.5-7.59	1
12-24	0	7.33-7.49	0
10-11	1	7.25-7.32	2
6-9	2	7.15-7.24	3
≤ 5	4	< 7.15	4
SERUM CREATININE		**SERUM POTASSIUM**	
≥ 3.5	4	≥ 7	4
2-3.4	3	6-6.9	3
1.5-1.9	2	5.5-5.9	1
0.6-1.4	0	3.5-5.4	0
< 0.6	2	3-3.4	1
		2.5-2.9	2
		< 2.5	4
SERUM SODIUM		**CHRONIC HEALTH POINTS**	
≥ 180	4	Patients with history of severe organ system insufficiency or immunocompromised *AND*:	
160-179	3		
155-159	2		
150-154	1	-Non-operative or emergency postoperative = 5	
130-149	0		
120-129	2	or	
111-119	3		
< 111	4	-Elective postoperative = 2	

OXYGENATION	
$FiO_2 \geq 0.5$ record $AaDO_2 \geq 500$	4
$FiO_2 \geq 0.5$ record $AaDO_2$ 350-499	3
$FiO_2 \geq 0.5$ record $AaDO_2$ 200-349	2
$FiO_2 > 0.5$ $AaDO_2 < 200$ or FiO2 < 0.5 $PaO_2 > 70$	0
$FiO_2 < 0.5$ record PaO_2 61-70	1
$FiO_2 < 0.5$ record PaO_2 55-60	1
$FiO_2 < 0.5$ record $PaO_2 < 55$	1

APACHE SCORE: