

# Sepsis Bundle Project (SEP)

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# Objectives

1. To identify the symptom of severe sepsis and septic shock syndrome.
2. To list the bundle recommendations for treating severe sepsis which are to be initiated within 3 hours or presentation.



# Background Information

- Patients with a diagnosis of severe sepsis or septic shock suffer from a high rate of organ failure which often leads to death. Multiple studies have demonstrated that following the guidelines identified in the *Surviving Sepsis Campaign* improves patient chance of recovery.
- A 2011 study by Coba et al. demonstrated a 14 % reduction in mortality when the compliance with the bundle occurs.
- Encouraged by the decrease in organ failure, mortality, length of stay and cost of care, CMS has included the sepsis bundle into its CQI program.
- Note: Changes for 2019 are in **Yellow**.

# Presentation Time

- For the severe sepsis project, determining presentation time is either the triage time for patients entering through the ED or the date and time that there is documentation in the progress notes that support the diagnosis of severe sepsis.

# Severe Sepsis Symptoms

- Let's review the symptoms that lead to the diagnosis of severe sepsis.

Sepsis	Severe sepsis = all signs of sepsis + at least one of the following
Body Temp. above 101F ( 38.3C) or below 96.8F (36C) Heart rate > 90 beats per minute Respiratory rate >20 breaths per minute Probable or confirmed infection	Significantly decreased urine output (<0.5 mL/kg/h) Abnormal heart pumping function Difficulty breathing Decrease in platelet count Abrupt change in mental status Abdominal pain





# Septic Shock Symptoms

- The diagnosis of septic shock is made when a patient has the symptoms of severe sepsis plus extreme hypotension that does not respond to fluid replacement.
- Other symptoms may include reddish patches in the skin or adult respiratory distress syndrome which may lead to ventilatory failure.

# The Sepsis Bundle

- Timeliness of the interventions is key to improving patient outcomes:
- Within three hours of presentation of severe sepsis.
  1. An initial lactate level measurement must be obtained.
  2. Blood cultures drawn prior to antibiotic administration.
  3. Broad spectrum or other antibiotics must be administered

AND received within six hours of presentation of severe sepsis  
if initial lactate is elevated repeat lactate measure within six hours.



## Next steps:

4. If initial hypotension is present (date and time of the hypotension must be documented), resuscitation with 30ml/kg crystalloid fluids should be started.
- Within six hours of presentation for patients with severe sepsis should have a repeat lactate level measurement done if the initial lactate measurement was elevated ( $> 2\text{mmol/L}$ ).



# Patients with Septic Shock

- Along with the bundle elements listed for severe sepsis, patient with a diagnosis of septic shock have additional needs.
- Within three hours of presentation start resuscitation with 30ml/kg crystalloid fluids.

# Septic Shock cont.



- Within six hours of presentation, if hypotension (systolic blood pressure (SBP) < 90 mmHg or mean arterial pressure (MAP) < 65 mmHg) or initial lactate is  $\geq 4$  mmol/L persist after fluid administration, vasopressors are administered.



# Septic Shock- Vasopressor Administration

- The table below lists the **Vasopressors approved for Septic Shock**

• Generic name	Brand name
• Norepinephrine	Levophed
• Epinephrine	Adrenalin
• Phenylephrine	Neosynephrine Vazculep
• Dopamine	Dopamine
• Vasopressin	Vasopressin
• <b>Angiotensin II</b>	<b>Giapreza</b>

- Specifications Manual for National Hospital Inpatient Quality Measures Discharges 07-01-19 (3Q19) through 12-31-19 (4Q19)



# Septic Shock cont.

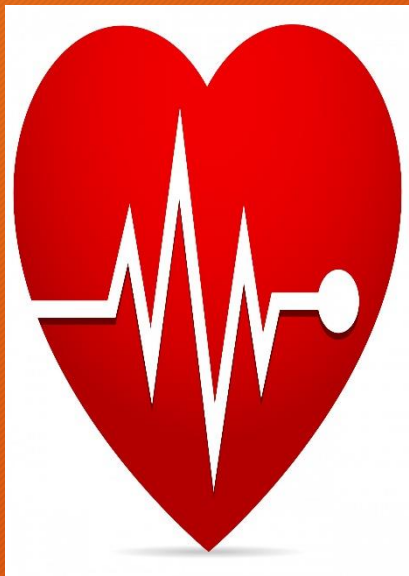
- If hypotension after fluid administration or initial lactate  $>4\text{mmol/L}$  persist after 6 hours. Repeat volume status and tissue perfusion assessment\* consisting of either a focused physical exam including:

1. Vital signs
2. Cardiopulmonary exam
3. Capillary refill evaluation
4. Peripheral pulse evaluation
5. Skin examination

<b>BP</b>	<b>90/65</b>
<b>Pulse</b>	<b>60/min</b>
<b>SpO<sub>2</sub></b>	<b>99% on air</b>
<b>Temp</b>	<b>36<sup>3</sup>C</b>

\*Date and time of the repeat volume status and tissue perfusion must be documented.

OR



# Septic Shock cont.

- Two of the following:



1. Central venous pressure measurement
2. Central venous oxygen measurement
3. Bedside cardiovascular ultrasound
4. Passive leg raise or fluid challenge



Semi-recumbent position



Passive leg raising



# Administrative Contraindication to Care.

- If the patient or surrogate decision-maker declines consent for blood draw, fluid administration or antibiotic administration prior to or within 6 hours following presentation of severe sepsis or septic shock this must be documented by the physician or physician extender.



# Patients excluded from this measure

- Patients under the age of 18.
- Patients who have received IV antibiotics for more than 24 hours prior to presentation of severe sepsis.
- Patients with a directive for comfort care or Palliative Care within six hours of presentation for severe sepsis.
- Patients with a directive for comfort care or Palliative Care within six hours of presentation of septic shock.
- Patients transferred in from another acute care facility.
- Patients with severe sepsis who expire within 3 hours of presentation.
- Patients with septic shock who expire within six hours of presentation.
- Patients with severe sepsis who are discharged within 6 hours of presentation.
- Patients with septic shock who are discharged within 6 hours of presentation.
- Patients enrolled in a clinical trial for sepsis, severe sepsis or septic shock treatment or intervention.

# Test Your Knowledge

1. For patients with severe sepsis which of these treatments should be started within 3 hours of presentation?
  - A. An initial lactate level measurement must be obtained
  - B. Blood cultures drawn prior to antibiotic administration.
  - C. Broad spectrum or other antibiotics must be administered.
  - D. All of the above



# Test Your Knowledge

2. Along with the bundle elements listed for severe sepsis, patient with a diagnosis of septic shock must have resuscitation with 30ml/kg crystalloid fluids started within 3 hours of presentation.
- A. True
  - B. False



# Test Your Knowledge

3. If severe hypotension does not respond within 6 hours to fluid administration \_\_\_\_\_ should be administered.
- A. Different antibiotics
  - B. Vasopressors

# Test Your Knowledge

4. Patients with a directive for Comfort Care or Palliative Care within \_\_\_\_\_ hours of presentation of severe sepsis or septic shock are excluded from the Sepsis bundle.
- A. 2
  - B. 6
  - C. 10



# Test Your Knowledge

5. It is necessary to document the date and time that initial hypotension is identified in the EHR.
- A. True
  - B. False

# References

- Coba V et al. Resuscitation bundle compliance in severe sepsis and septic shock: Improves survival, is better late than never. J Intensive Care Med, 2011, 26: 304-313

Surviving Sepsis Campaign.2012. Society of Critical Care Medicine.  
Retrieved from <http://www.survivingsepsis.org/Guidelines/Pages/default.aspx>



The End