Sepsis Communication
Objectives

- Review Essential facts of sepsis, its effects and understand the need for speed.
- Learn how to recognize sepsis as early as possible
- Various treatment modalities
- 3 and 6 hour bundles
- Importance of communication to assist with this.
What is sepsis?

• A: An infection in the blood
• B: A contagious disease
• C: Your body’s toxic reaction to an infection
• D: Something to scare your patient’s with.
Hippocrates claimed that sepsis (σήψις) was the process by which flesh rots, swamps generate foul airs, and wounds fester.

- Blood Poisoning
- Germ theory - microbes and toxins
- Body’s response, including pro and anti-inflammatory response
Select mechanisms implicated in the pathogenesis of sepsis-induced organ and cellular dysfunction. The host response to sepsis involves multiple mechanisms that lead to decreased oxygen delivery (DO₂) at the tissue level. The duration, extent, and direction of these interactions are modified by the organ under threat, host factors (e.g., age, genetic characteristics, medications), and pathogen factors (e.g., microbial load and virulence). The inflammatory response is typically initiated by an interaction between pathogen-associated molecular patterns (PAMPs) expressed by pathogens and pattern recognition receptors expressed by innate immune cells on the cell surface (Toll-like receptors [TLRs] and C-type lectin receptors [CLRs]), in the endosome (TLRs), or in the cytoplasm (retinoic acid inducible gene 1–like receptors and nucleotide-binding oligomerization domain–like receptors [NLRs]). The resulting tissue damage and necrotic cell death lead to release of damage-associated molecular patterns (DAMPs) such as uric acid, high-mobility group protein B1, S100 proteins, and extracellular RNA, DNA, and histones. These molecules promote the activation of leukocytes, leading to greater endothelial dysfunction, expression of intercellular adhesion molecule (ICAM) and vascular cell adhesion molecule 1 (VCAM-1) on the activated endothelium, coagulation activation, and complement activation. This cascade is compounded by macrovascular changes such as vasodilation and hypotension, which are exacerbated by greater endothelial leak tissue edema, and relative intravascular hypovolemia. Subsequent alterations in cellular bioenergetics lead to greater glycolysis (e.g., lactate production), mitochondrial injury, release of reactive oxygen species, and greater organ dysfunction.
Sepsis Definition

• It is a potentially life threatening organ dysfunction caused by the body’s response to infection.

• Four independent variables linked by a causal pathway

• Infection > Dysregulated host response > organ dysfunction > threat to life.
Incidence

• Estimates range from 1-2% of all hospitalizations
• Annually 500,000- 2 million cases in U.S.A.
• Severe sepsis is recorded in >2% of patients admitted to the hospital.
• Of these patients, half are treated in the intensive care unit (ICU), representing 10% of all ICU admissions.
• Since 2013 most expensive condition treated, about 24 billion dollars at that time.
Common Sources of Infection

- Implantable devices
- Open Wounds
- Immuno-compromised
- Chemo/radiation
- Recent home antibiotic therapy
- Lines
- Airway
- Drains
Q: What is the most common cause of sepsis?

- A: Urinary Tract Infection
- B: Pneumonia
- C: Intra Abdominal Infection - Enteral causes
- D: Meningitis
- E: Other

[Diagram showing various types of infections and sepsis-related causes]
Presentations

- Pneumonia is the most common cause, accounting for about half of all cases
- Next most common are intraabdominal
- Followed by urinary tract infections.
- Blood cultures are typically positive in only one third of cases, and in up to a third of cases, cultures from all sites are negative
QUIZ

Which of the following is not a sign of sepsis?

- A: Fever
- B: Rapid breathing
- C: Slow heart Rate
- D: Confusion
Sepsis - Diagnosis

• No GOLD standard

• Formerly based on SIRS criteria (systemic inflammatory response syndrome)

• More than 2/3 patients meet these criteria during the hospital stay

• ≥2 of the following:
  1. temperature >38°C or <36°C
  2. heart rate >90 per min
  3. Respiratory rate >20 per min or PaCO₂ <32 mm Hg
  4. WBC >12,000 or <4000 or >10% bands
Due to the non-specificity of the SIRS criteria, SOFA was introduced.

- **Sequential Organ Failure Assessment**

- The score is calculated at admission and every 24 hours until discharge, using the worst parameters measured during the prior 24 hours. —LOOK FOR A CHANGE
## Sequential Organ Failure Assessment (SOFA) Score

<table>
<thead>
<tr>
<th>System</th>
<th>Criteria</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Respiratory</strong></td>
<td>PaO₂/FiO₂ (partial pressure of oxygen over fraction of inspired oxygen)</td>
<td>≥400 mmHg (53.3 kPa)</td>
<td>&lt;400 mmHg (53.3 kPa)</td>
<td>&lt;300 mmHg (40 kPa)</td>
<td>&lt;200 mmHg (26.7 kPa)</td>
<td>&lt;100 mmHg (13.3 kPa)</td>
</tr>
<tr>
<td></td>
<td>with respiratory support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Coagulation</strong></td>
<td>Platelets</td>
<td>≥150 x10⁹/µL</td>
<td>&lt;150 x10⁹/µL</td>
<td>&lt;100 x10⁹/µL</td>
<td>&lt;50 x10⁹/µL</td>
<td>&lt;20 x10⁹/µL</td>
</tr>
<tr>
<td><strong>Liver</strong></td>
<td>Bilirubin</td>
<td>&lt;1.2 mg/dL (20 µmol/L)</td>
<td>1.2-1.9 mg/dL (20-32 µmol/L)</td>
<td>2.5-5.9 mg/dL (33-101 µmol/L)</td>
<td>6.1-11.9 mg/dL (102-204 µmol/L)</td>
<td>&gt;12 mg/dL (204 µmol/L)</td>
</tr>
<tr>
<td><strong>Cardiovascular</strong></td>
<td>Mean aterial pressure (MAP) or vasopressors requirement</td>
<td>MAP ≥70mmHg</td>
<td>MAP &lt;70mmHg</td>
<td>Dopamine &lt;5 µg/kg/min or dobutamine (any dose)*</td>
<td>Dopamine 5.1-15 µg/kg/min* or epinephrine ≤0.1 µg/kg/min or norepinephrine ≤0.1 µg/kg/min*</td>
<td>Dopamine &gt;15 µg/kg/min or epinephrine &gt;0.1 µg/kg/min or norepinephrine &gt;0.1 µg/kg/min*</td>
</tr>
<tr>
<td><strong>Neurologic</strong></td>
<td>Glasgow coma scale score</td>
<td>15</td>
<td>13-14</td>
<td>10-12</td>
<td>6-9</td>
<td>&lt;6</td>
</tr>
<tr>
<td><strong>Renal</strong></td>
<td>Creatinine (Cr) or urine output (UOP)</td>
<td>Cr &lt;1.2 mg/dL (110 µmol/L)</td>
<td>Cr 1.2-1.9 mg/dL (110-170 µmol/L)</td>
<td>Cr 2.0-3.4 mg/dL (171-299 µmol/L)</td>
<td>Cr 3.5-4.9 mg/dL (300-440 µmol/L) or UOP &lt;500 cc/day</td>
<td>Cr &gt;5 mg/dL (440 µmol/L) or UOP &lt;200 cc/day</td>
</tr>
</tbody>
</table>

*Doses given for at least 1 hour*
Drawbacks

- Validated for mortality
- Time consuming, lab tests oriented--- so quick
  Sequential Organ Failure Assessment developed qSOFA---

- Alteration in mental status (Glasgow Coma Score ≤13)
- Systolic blood pressure ≤100 mm Hg
- Respiratory rate ≥22/min
Septic Shock

- Subset of sepsis

- Persistent arterial hypotension (SBP, <90 mmHg; MAP <60 mmHg; or change in systolic by >40 mmHg from baseline)

- Vasopressor therapy needed to maintain mean arterial pressure at ≥65 mmHg and serum lactate >2.0 mmol/L despite adequate fluid resuscitation
What is the mortality rate for septic shock?

• A: 10%
• B: 20%
• C: 50%
• D: 80%
Sepsis Treatment

- Obtaining samples for culture, lactic acid—mainly for abdominal, urinary and soft-tissue infections and blood cultures

- Initiating empirical antimicrobial therapy—location of infection, onset, medical history

- Volume resuscitation – 30ml/kg initially

- Source control—significant improvement in mortality and morbidity
Early recognition and therapy is ideal - Includes labs, fluids, vasopressors.

For every 1 hour delay in antibiotics, ↑ in mortality by 3-7%.

If more than a 45 minute delay in obtaining culture, go ahead and transfuse antibiotics.

Delays are deadly
**Volume Resuscitation**

**Fluids, Fluids, Fluids**

- Crystalloids including 0.9% Normal saline, Ringer’s lactate, Hartmann’s solution and Plasma-Lyte

- Bolus 30ml/kg in first 3 hours

- Afterwards could include blood, blood products or colloids

- Aim for a MAP of 65mm of Hg, if not consider pressors
Pressor Agents

- Norepinephrine – best mortality (alpha plus beta adrenergic stimulation) - Levophed
- Phenylephrine – next choice – probably higher mortality (alpha) - Neosynephrine
- Vasopressin – works via different receptor and may lower heart rate – mortality data not available
- Dopamine – higher mortality, arrhythmias
- Epinephrine – when all else fails
Dobutamine

- Cardiogenic shock – low mixed venous oxygen that does not respond to fluids
Steroids

- No mortality benefit in routine use
- Reserved for patients not responding to pressors for the most part
- Adrenal insufficiency - individuals on routine corticosteroids.
Response to Treatment

30 minute re-evaluation.
- Mean arterial pressure
- Skin color and capillary refill
- Mental status
- Temperature
- Vitals, heart rate, respiratory rate
- What does an elevated lactic acid signify?
- Why measure mixed venous oxygen saturation – 65%
Center for Medicare & Medicaid Recommendations

• 3 and 6 hour bundles
• Result reports
• Improved Mortality
• Piedmont hospital cohorts
3 Hour Bundle

Looks at 4 things:

1. Cultures
2. Antibiotic deliverance (Right choice is key)
3. Lactic acid results and subsequent follow up \( \geq 4 \) critical, less than that not so – we act on 2 and above
4. Volume resuscitation 30 mls/ kg
6 Hour Bundle

- Follow up after 3 hours
- Document response to therapy;
  - i.e. improved lactate and BP
- Start vasopressors and insert central line
  - Document response to vasopressors

We fail in documentation and are slow in implementing
What can trigger a Sepsis Time Zero & subsequent need for completion of the 3hr Bundle?

- Check all that apply.
- A: Positive Sepsis Orange Alert
- B: Positive Sepsis Red Alert
- C: Placement of Order Set by provider
- D: When your shift starts
Sepsis Alerts - Nursing
Sepsis Screening: Step #1

- Identify patients who are showing signs of a NEW infection
- Identify patients who are showing signs of a current infection getting WORSE
Is my patient showing...

**Signs and/or Symptoms**

- Hypo—or Hyperthermia
- WBC <4000 or >12000
- Elevated Heart Rate
- Elevated Respiratory Rate
- Altered Mental Status

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Unexplained or Newly Developed:

- Cough
- Abdominal Pain
- Vomiting or Diarrhea
- Reddened or purulent wound or IV site
- Hot/red area of skin
- Pain on urination or cloudy/foul-smelling urine
- Body aches or general malaise
- Confusion, Memory Loss, Hallucinations

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...of **NEW** or **WORSENING**

**Present on admission**
- Spikes Fever

**Develops while hospitalized**
- ↑ White Blood Count

**New Antibiotic Order**
- ↑ Lactate

Sepsis is often associated with infections of the:
- ↓ Blood Pressure

- Lung
- UTI
- Skin
- Elevated MEWS

- Gut
- Bloodstream

- On Abx with no improvement

**Infection?**
Patients will be screened for infection in several ways

On admission...
- By using the Admissions Navigator
- On inpatient units, every shift
- By using the Daily Cares/Safety Flowsheet or the Screening Flowsheet

Infection Screening Question:
Is the patient showing signs and symptoms of a new or worsening infection?
Sepsis Screening: Step #2

Clinical indicators for potential infection include:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature:</td>
<td>Temperature: &lt; 96.8°F or &gt; 101°F</td>
</tr>
<tr>
<td>Heart Rate:</td>
<td>Heart Rate: &gt; 90 bpm</td>
</tr>
<tr>
<td>Respirations:</td>
<td>Respirations: &gt; 20 min</td>
</tr>
<tr>
<td>White Blood Cells:</td>
<td>White Blood Cells: &lt; 4,000 µL or &gt; 12,000 µL</td>
</tr>
<tr>
<td>Blood Glucose:</td>
<td>Blood Glucose: &gt; 140 mg/dL</td>
</tr>
<tr>
<td>Altered Mental Status:</td>
<td>Altered Mental Status: Present</td>
</tr>
</tbody>
</table>

Altered mental status will be assessed every shift by using the Neurological Section of the Assessment Flowsheet or the Screenings Flowsheet.
Clinical indicators for organ dysfunction include:

<table>
<thead>
<tr>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic Blood Pressure &lt; 90 mmHg</td>
</tr>
<tr>
<td>Mean Arterial Pressure &lt; 65 mmHg</td>
</tr>
<tr>
<td>SBP Δ more than 40 mmHg from baseline</td>
</tr>
<tr>
<td>Lactate &gt; 2 mmol/L</td>
</tr>
<tr>
<td>Creatinine &gt; 2.0 mg/dL</td>
</tr>
<tr>
<td>Bilirubin &gt; 2.0 mg/dL</td>
</tr>
<tr>
<td>INR &gt; 1.5</td>
</tr>
<tr>
<td>PTT &gt; 60 secs</td>
</tr>
<tr>
<td>Acute lung injury w/ P/F ratio &lt; 250 (in the absence of PNA)</td>
</tr>
<tr>
<td>Acute lung injury w/ P/F ratio &lt; 200 (in the presence of PNA)</td>
</tr>
</tbody>
</table>
Electronic Medical Record Combines Data Points to Generate an Alert
**SITUATION**
- **ORANGE ALERT**: Patient has screened positive for sepsis.
- **RED ALERT**: Patient has activated a **CODE SEPSIS**.

**BACKGROUND**
1. Primary reason for admission
2. Admission date

**ASSESSMENT**
Patient is exhibiting signs and symptoms of infection and/or organ dysfunction

**CONFIRMED OR SUSPECTED INFECTION**
**POSITIVE SEPSIS SCREEN**
**CODE SEPSIS**

**Criteria:** Patient has a suspected or confirmed infection.

**Clinical Suspicion for Infection:**
- Line, drain, airway, or implantable device
- Open wound
- Infection in abdomen, bloodstream, bone/joint, heart, lungs, skin/soft tissue, bladder, CNS
- Recent home antibiotics
- Immunocompromised and/or chemotherapy/radiation
- Unsuspected source

**Criteria:** Suspected/confirmed infection + ≥2 signs/symptoms of infection

**Signs/symptoms of infection:**
- RR > 20/min
- Temp < 36°C/96.8°F
- Temp > 38.3°C/101°F
- HR > 90 bpm
- WBC < 4,000 μL
- WBC > 12,000 μL
- Blood glucose > 140 mg/dL
- Altered Mental Status present

**Criteria:** Suspected/confirmed infection + ≥1 signs/symptoms of infection + ≥1 sign of organ dysfunction

**Signs and Symptoms of Organ Dysfunction:**
- Lactate > 2 mmol/L
- SBP < 90 mmHg
- MAP < 65 mmHg
- Cr > 2.0 mg/dL
- Bilirubin > 2.0 mg/dL
- PLT < 100,000 μL
- INR > 1.5
- aPTT > 60 secs
- Acute lung injury w/ P/F ratio < 250 (in the absence of PNA)
- Acute lung injury w/ P/F ratio < 200 (in the presence of PNA)
The **Positive Sepsis (Orange)** BPA will fire when:

**Infection Screening Positive**

≥2 Clinical Criteria of Infection

- Blood WBC < 4,000 µL or > 12,000 µL
- Glucose > 140 mg/dL
- Altered Mental Status
- Temp < 96.8°F or > 101°F
- HR > 90 bpm
- Resp > 20 min
Per the Sepsis Promise Package, who should be notified when a Positive Sepsis Screening (Orange) Alert fires?

- A: Charge Nurse
- B: Current Attending
- C: Code Sepsis Response Team
- D: Administrator on Call
- E: EMR will let them know
Positive Sepsis (Orange) Alerts

Notify Provider: Indicates that the immediate action following the appearance of the BPA was to call the attending provider noted on the patient's chart.

Notify Attending with the following information:

S: Patient has screened positive for sepsis.
B: Primary reason for admission is--
A: Currently the patient is exhibiting signs and symptoms of infection which are--
R: Piedmont protocol recommends the Sepsis orderset and appropriate antibiotics be ordered.

For an additional resource contact the code sepsis team.

Code Sepsis Team Contact Information and SBAR Communication Tool

Acknowledge Reason

Notify Provider: Sepsis orderset is active
Enter comment: Select Other Option

Sepsis orderset is active

Accept
Dismiss
Positive Sepsis (Orange) Alerts

**POSITIVE SEPSIS SCREENING**

Notify Attending with the following information:

**S:** Patient has screened positive for sepsis.
**B:** Primary reason for admission is--
**A:** Currently the patient is exhibiting signs and symptoms of infection which are--
**R:** Piedmont protocol recommends the Sepsis order set and appropriate antibiotics be ordered.

For an additional resource contact the code sepsis team.

**Sepsis Order Set is Active:** Indicates that the patient has had the sepsis order set and three hour bundle elements initiated.
Positive Sepsis (Orange) Alerts

**POSITIVE SEPSIS SCREENING**

Notify Attending with the following information:

- **S**: Patient has screened positive for sepsis.
- **B**: Primary reason for admission is--
- **A**: Currently the patient is exhibiting signs and symptoms of infection which are--
- **R**: Piedmont protocol recommends the Sepsis orderset and appropriate antibiotics be ordered.

For an additional resource contact the code sepsis team.

**Code Sepsis Team Contact Information and SBAR Communication Tool**

**Dismiss**: Allows the nurse to briefly close the alert in order to gather necessary information for the SBAR...
Per the **Sepsis Promise Package**, who should be notified when a Code Sepsis (Red) Alert fires?

- A: Charge Nurse
- B: Current Attending
- C: Code Sepsis Response Team
- D: Administrator on Call
- E: Gift of Life Team
The **Code Sepsis (Red)** BPA will fire when:

**Infection Screening Positive**

- Blood WBC < 4,000 μL or > 12,000 μL
- Glucose > 140 mg/dL
- Altered Mental Status
- Temp < 96.8°F or > 101°F
- HR > 90 bpm
- Resp > 20 min

**≥2 Clinical Criteria of Infection**

- SBP < 90 mmHg
- MAP < 65 mmHg
- SBP Δ more than 40 from baseline
- Lactate > 2 mmol/L
- Creatinine > 2.0 mg/dL
- Bilirubin > 2.0 mg/dL
- INR > 1.5
- PTT > 60 secs
- Acute lung injury w/ P/F ratio < 250 (in the absence of PNA)
- Acute lung injury w/ P/F ratio < 200 (in the presence of PNA)

**≥1 Clinical Criteria of Organ Dysfunction**

### CODE SEPSIS

- **TIME ZERO BEGINS NOW**
- **ACTIVATE THE CODE SEPSIS TEAM**

*Notify the Code Sepsis Team with the following information:
- Primary reason for admission to—
- Currently, the patient is exhibiting signs and symptoms of infection which are—
- The Sepsis description and appropriate antibiotics should be activated*

*Code Sepsis Team Contact Information and SBAR Communication Tool*
Code Sepsis (Red) Alerts

**Notify Code Sepsis Team:** Indicates that the immediate action following the appearance of the BPA was to call the code sepsis team to initiate a rapid response.

**CODE SEPSIS**

**TIME ZERO BEGINS NOW**

**ACTIVATE THE CODE SEPSIS TEAM**

Notify the Code Sepsis Team with the following information:

- **S:** Patient has activated a CODE SEPSIS
- **B:** Primary reason for admission is--
- **A:** Currently the patient is exhibiting signs and symptoms of infection which are--
- **R:** The Sepsis orderset and appropriate antibiotics should be activated.

**Code Sepsis Team Contact Information and SBAR Communication Tool**

**Acknowledge Reason**

- Notify Code Sepsis Team
- Select Other Option
  - Select Other Option
  - Sepsis orderset is active

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Code Sepsis (Red) Alerts

CODE SEPSIS
TIME ZERO BEGINS NOW
ACTIVATE THE CODE SEPSIS TEAM

Notify the Code Sepsis Team with the following information:
S: Patient has activated a CODE SEPSIS
B: Primary reason for admission is--
A: Currently the patient is exhibiting signs and symptoms of infection which are--
R: The Sepsis orderset and appropriate antibiotics should be activated.

Code Sepsis Team Contact Information and SBAR Communication Tool

Sepsis Order Set is Active: Indicates that the patient has had the sepsis order set and three hour bundle elements initiated.
Code Sepsis (Red) Alerts

!! Alert:

CODE SEPSIS
TIME ZERO BEGINS NOW
ACTIVATE THE CODE SEPSIS TEAM

Notify the Code Sepsis Team with the following information:
S: Patient has activated a CODE SEPSIS
B: Primary reason for admission is--
A: Currently the patient is exhibiting signs and symptoms of infection which are--
R: The Sepsis orderset and appropriate antibiotics should be activated.

Code Sepsis Team Contact Information and SBAR Communication Tool

Dismiss: Allows the nurse to briefly close the alert in order to gather necessary information for the SBAR
# Sepsis 3 Hour Bundle Completion Tracker

Use this tracker when a Code Sepsis Red Alert Fires or the Sepsis order set is placed. Time Zero is defined as the earliest of these two happening.

**TIME ZERO Source:**
- Code Sepsis Red Alert Fired
- Sepsis Order Set Placed

**TIME ZERO:** ________  **3 HOUR GOAL:** ________

<table>
<thead>
<tr>
<th>Time Completed</th>
<th>Element</th>
<th>Key Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lactic Acid Drawn</td>
<td>Compliance = Lactic Acid collected within 2 hours prior to or 3 hours after Time Zero</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• includes POC Lactate</td>
</tr>
<tr>
<td></td>
<td>Blood Cultures Drawn</td>
<td>Compliance = two blood cultures required, at least one collected before administering antibiotics and both within 48 hours prior to or 3 hours after Time Zero</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If there is a delay of more than 45 min from Time Zero in obtaining blood cultures, administer antibiotics first and continue to attempt blood cultures</td>
</tr>
<tr>
<td></td>
<td>Antibiotic Administration</td>
<td>Compliance = IV and IM antibiotics started within 2 hours prior to or 3 hours after Time Zero</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If a mono-therapy antibiotic is being used (ex., Zosyn), the antibiotic will be compliant as long as it’s administered within the time frame</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If two antibiotics are being used (ex., Vancomycin and Zosyn), both need to be started within the time frame to be compliant.</td>
</tr>
<tr>
<td></td>
<td>Fluid Administration Completed</td>
<td>Compliance = calculated fluid target (30 mL/kg) completely infused within 2 hours prior to or 3 hours after Time Zero</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Fluids can be any crystalloid fluid, not just normal saline</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• To receive credit for Fluid Administration, all 3 elements must be present:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Target volume of crystalloid fluids were ordered (verified by order on MAR)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Fluids were started and completely infused (verified by administration/scan time and stop time on MAR)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Target volume was documented (verified by total volume infused on Intake/Output flowsheet)</td>
</tr>
</tbody>
</table>

All Four Elements Completed at: ________

Add relevant notes to the back side of this page.

<table>
<thead>
<tr>
<th>RN</th>
<th>STAT/RN</th>
<th>MD</th>
<th>Revised: 4/12/19 Version 8</th>
</tr>
</thead>
</table>

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Take Away

- Use the nursing tools in Epic to communicate with the physicians. Ideally verbal/page.

- Assess the patient for response to treatment and notify the physician if there is one or not.

- Respond to Red Alerts – make sure the physician/resident addresses the issue triggering the alert.

The End
Questions/Comments
References & Acknowledgements

- Dr. Vijay Rathinam – Director of Hospital Medicine
- Dr. Hugh Jenkins – Sepsis Taskforce
- NEJM - Severe Sepsis and Septic Shock
  Derek C. Angus, M.D., M.P.H., and Tom van der Poll, M.D., Ph.D. 2013
- Harrison’s Principles of Internal Medicine - Sepsis and Septic Shock
  Christopher W. Seymour; Derek C. Angus
- Surviving Sepsis campaign – International Guidelines for Management of Sepsis and Septic Shock 2016- Critical Care Medicine: March 2017
- JAMA- The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3)- Mervyn Singer, MD, FRCP, Clifford S. Deutschman, MD, MS - 2016