Sepsis - CMS Sep-1 Measure

Healthcare organizations around the country are seeking ways to improve care of the patient with Sepsis. Saint Luke’s Health System (SLHS) is no different and Saint Luke’s Care (SLC) has been at the heart of assisting in this effort.

The Centers for Medicare and Medicaid Services (CMS) recently instituted a new measure specific to Severe Sepsis and Septic Shock due to high mortality rates within these populations. Below is a briefing of the CMS Sep-1: Early Management of Severe Sepsis / Septic Shock measure that launched on October 1, 2015. This is a pass/fail measure so one item missed, will result in missing the entire measure.

Severe Sepsis (S2)
Interventions within 3 hours of presentation
- Lactate
- Blood cultures X 2 prior to broad spectrum antibiotics
- IV broad spectrum antibiotics according to guidelines
  - Monotherapy or combination therapy
Interventions within 6 hours of presentation
- Repeat Lactate, if value > 2
  - Lactate cascade will automatically order this until normalized

Septic Shock (S3)
Interventions within 3 hours of presentation
- All Severe Sepsis interventions AND
- Fluid resuscitation: 30ml/kg of NS or LR, if hypotension (SBP < 90)
  - Acceptable to have already started or completed prior to diagnosis
Interventions within 6 hours of presentation
- Vasopressors for hypotension not responding to initial fluid resuscitation
  - Any 2 BP readings of SBP<90, MAP<65 or decrease in SBP>40 points in the 1 hour after fluid resuscitation completed
- If Septic Shock present and hypotension persists or initial Lactate ≥ 4, then check volume status and perform tissue perfusion assessment (see Physician note)

Physician Note
- Must complete a focused exam including all of the following:
  - Vital signs, cardiopulmonary, cap refill, peripheral pulse or skin exams OR
- Any 2 of the following 4:
  - CVP, SV02, bedside cardiovascular ultrasound, or passive leg raise/ fluid challenge

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Saint Luke’s Health System Sepsis Mortality Rates

Our health system should continuously strive to improve Sepsis Mortality Rates. Current data shows that results are better, but can still be made improved upon with further dedicated efforts.

### Saint Luke’s Health System - Board of Directors’ Sepsis Measure

Saint Luke’s Health System Board of Directors (BOD) began utilizing UHC Sepsis mortality data as a measure of interest in 2015. The BOD has targeted Sepsis mortality as a board measure again in 2016.
Sepsis mortality can be greatly impacted by addressing 4 key elements:

- **Recognition**
- Diagnosis - Stratification
- Treatment
- Monitoring

Recognition within SLHS will now be completed through updated EPIC Best Practice Advisories (BPAs) delivered to nursing staff. Providers will NO LONGER receive Sepsis BPAs. These tiered BPAs - Yellow and Red assist by continuously screening patient vital signs, lab, and MAP entries. When criteria are met, the patient is identified as a potential Sepsis patient upon which time providers will be notified and should consider if there is a known or suspected infection.

### Sepsis BPA YELLOW Criteria

**YELLOW BPA** – potential Sepsis (S1)

- Temp < 96.8 (36C) or > 101 (38.3C)
- Heart Rate > 90
- Respiratory Rate > 20
- WBC ≥ 12 OR < 4 OR Left Shift Present (Bands >14)

**AND**

- Age 13+ years
- Sepsis BPA – RED has NOT fired (if Red already fired, Yellow will not)
- Comfort Measures order has NOT been placed on the patient

**The BPA will fire if:**

Temp + HR, RR, or WBC AND the last 3 are true **OR**

WBC + HR, RR, or Temp AND the last 3 are true

### Sepsis BPA RED Criteria

**RED BPA** – potential Severe Sepsis (S2) or Septic Shock (S3)

- YELLOW BPA CRITERIA AND one of the following
  - SBP < 90
  - Lactate > 2
  - MAP < 65

**AND**

- Age 13+ years
- Also Comfort Measures order has NOT been placed on the patient

**The BPA will fire if:**

Temp + HR, RR, or WBC AND SBP, Lac, or MAP AND the last 2 are true **OR**

WBC + HR, RR, or Temp AND SBP, Lac, or MAP AND the last 2 are true
Sepsis - DIAGNOSIS & STRATIFICATION

A nursing staff member has notified a Provider that a Sepsis BPA has fired. The next step is for the Provider to diagnosis or stratify Sepsis. If the patient has a known or suspected infection with a BPA, then the patient officially is a septic patient and determining the level of Sepsis is critical to beginning treatment.
Lastly in the care of the patient with Sepsis is treatment and monitoring.

**Sepsis (S1)**
- Broad spectrum antibiotics
- Fluid bolus
- Labs (Lactate, Blood Cultures X 2 prior to antibiotics)

**Severe Sepsis (S2)**
- Sepsis elements **AND**
- 30 ml/kg fluids, if SBP < 90
- Labs (repeat > 2 Lactates until normalized - automated cascade)

**Septic Shock (S3)**
- Sepsis elements **AND**
- Severe Sepsis elements **AND**
- Vasopressors
- CVC access
- ICU Transfer
- Physician focused exam
  - Vital signs, cardiopulmonary, cap refill, peripheral pulse, or skin assessments OR
  - Any 2 of the following: CVP, SvO2, bedside cardiovascular ultrasound, or passive leg raise/fluid challenge

Follow-up and monitoring should include similar imaging, labs, or exams located on page 4. Likewise a Sepsis Panel has been created for convenience to include the items listed at the bottom right. The panel can be located by typing “Sepsis” into the manage orders’ search field within the Orders Activity.
Sepsis - LACTATE Reminders

This is a reminder that SLHS now recognizes Lactates as critical values when \( \geq 4 \) and also automatically cascades \( > 2 \) Lactates until normalized.

The new CMS SEP-1 measure includes repeat testing for elevated lactate levels within 6 hours of presentation. In an effort to assist with this measure and alleviate the need for providers to place additional orders, SLHS laboratories began cascading elevated lactates Thursday, October 22, 2015.

Venous or arterial lactates with results greater than 2, will automatically generate a repeat lactate to be collected 3 hours after the initial draw. Labels will print in the laboratory and be either drawn by laboratory phlebotomy or reprinted to the appropriate units for collection. Lactates will continue to cascade until normalization occurs. If providers desire to cancel the cascaded lactate orders, they will need to contact the laboratory as the functionality of the cascade cannot be placed in EPIC at this time. Future improvements will continue to be pursued.