**Change in Sepsis Diagnostic Criteria**

Sepsis/Septic Shock diagnostic criteria has been updated. The critical care folks have developed new criteria for diagnosing sepsis and septic shock. This is called Sepsis-3.

It was determined by the critical care specialists who work in Intensive Care Units (ICU) that Sepsis-2 criteria was not adequate and developed Sepsis-3 criteria. However all medical societies do not agree that the new criteria are more accurate in determining the presence of sepsis.

The goal of these tools is to provide early diagnosis and treatment for sepsis. Early treatment decreases the organ damage and death rate from sepsis and septic shock.

Our job is to take a look at the criteria and decide what part or parts apply to the field assessment of a patient who may have sepsis so we can initiate appropriate out-of-hospital treatment.

The Sepsis-2 criteria are what we currently use to assess for infection in patients.

SIRS stand for Systemic Immune Response Syndrome. Recall that a syndrome is a set of signs and/or symptoms that point to a particular disease process.

***Sepsis-2 Criteria***

**SIRS Criteria** (≥ 2 meets SIRS definition)

Temp >38°C (100.4°F) or < 36°C (96.8°F)

Heart Rate > 90

Respiratory Rate > 20 or PaCO2 < 32 mm Hg

WBC > 12,000/mm>3, < 4,000/mm>3, or > 10% bands

**Sepsis Criteria** (SIRS + Source of Infection)

Suspected or Present Source of Infection

**Severe Sepsis Criteria** (Organ Dysfunction, Hypotension, or Hypoperfusion)

Lactic Acidosis, SBP <90 or SBP Drop ≥ 40 mm Hg of normal

**Septic Shock** Criteria

Severe Sepsis with Hypotension, despite adequate fluid resuscitation

**Multiple Organ Dysfunction Syndrome** Criteria

Evidence of ≥ 2 Organs Failing

***Sepsis-3 Criteria***

In the new criteria there is only sepsis and septic shock. Severe sepsis has been dropped.

**Keep in mind the patient you are assessing may have physiologic alterations in their baseline physical exam and laboratory data. For example, the dementia patient may have a GCS less than 15 at baseline or the dialysis patient who always has an elevated serum creatinine.**

The qSOFA score is an initial, rapid assessment for possible sepsis.

**qSOFA score: *Quick* Sequential Organ Failure Assessment score**

1. Respiratory rate 22 per minute or higher

2. Altered mental status defined as GCS less than 15

3. Systolic blood pressure 100mmHG or lower

A patient has a positive qSOFA score if there is a ***suspected infection*** and at least **2** of the above criteria.

Suspected infection criteria is outlined in the current BHC Sepsis Protocol (attached) under “**Identify infection or potential infection**”

**SOFA score: Sequential Organ Failure Assessment score**

The **SOFA score** requires laboratory data and/or measurement of organ function via urine output, MAP and/or oxygen demand.

A patient has a positive SOFA score (**has sepsis**) if there is a ***suspected infection*** and at least **2** of the criteria below.

1. Decrease in PaO2/FiO2 ratio

2. Decrease number of platelets

3. Elevated bilirubin

4. Decreased MAP

5. Decreased GCS

6. Increased creatinine

7. Decreased urine output

**Sepsis treatment is fluid resuscitation if the MAP is low and appropriate antibiotics ASAP.**

**If the patient’s MAP remains less than 60-65 mm/Hg despite adequate fluid resuscitation (see BHC protocol: 500 to 2000 ml if no S/S fluid overload) then patient has septic shock and will require vasopressors.**

It does not appear the new guidelines will change what we do in the field. We have discussed obtaining lactate levels in the field to help with earlier treatment in our receiving facilities; however this remains a work in progress.

There is some controversy about the new criteria. The Sepsis-3 criteria may not be any more accurate or helpful than the Sepsis-2 criteria. For a good discussion on this topic go to <http://emcrit.org/pulmcrit/problems-sepsis-3-definition/> .

We will discuss this at QI this month so please review the attached protocol and note any suggested changes for discussion.

**BHC Prehospital Sepsis Protocol**

**Purpose**: To initiate early treatment for the patient with severe sepsis or septic shock.

**Process**: Identify the presence of infection or the increased potential for infection in your patient; identify the presence or absence of a systemic inflammatory response and any signs or symptoms of inadequate perfusion.

**1. Identify infection or potential for infection**

* Fever, chills
* Cough
* Painful urination
* Abdominal pain or distension
* Neck stiffness, petechiae
* Urinary catheters, central lines
* Chemotherapy in the prior 6 weeks
* Organ transplant

**2. Identify presence of a systemic inflammatory response (any 2 of the following)**

* Temperature > 38o C (100.4oF) ***or*** < 36oC (96oF)
* Respiratory Rate > 20 ***or*** capnography < 32mmHg
* Heart rate > 90 beats per minute

**3. If a systemic inflammatory response is present, look for signs of inadequate perfusion and obtain a finger stick glucose and lactate if available**

**4. Identify signs of inadequate perfusion**

* Skin cool or mottled
* Central capillary refill > 2 seconds
* Systolic BP < 90 mmHg or MAP < 60mmHg
* Absent or barely palpable radial pulses
* Recent change in mental status: confusion, restlessness, anxiousness
* Elevated lactate

**5. Initiate treatment if the patient demonstrates a systemic inflammatory response plus *any* sign of inadequate perfusion**

* Supplemental oxygen to maintain O2 saturation above 94%
* 2 intravenous lines (18 gauge or larger)
* 500ml bolus of Normal Saline; reassess patient and repeat bolus therapy until the signs of inadequate perfusion improve ***or*** a total of 2000ml are administered ***or*** signs of fluid overload appear (change in baseline lung exam with new crackles or increase in crackles when present on initial exam such as if the patient has pneumonia).