Status **Active** PolicyStat ID **11820021**

Last Approved	8/8/2022
Effective	8/8/2022
Next Review	8/7/2025

Owner	Jean Kokochak: Mgr-System Clinical Program
Area	Patient Care Services
Applicability	Henry Ford Health System-wide
Document Types	Policy and Procedure

Tier 1: Code Sepsis

Applicability

Henry Ford Health

Scope

This policy applies to all clinicians (physicians, advanced practice providers, graduate medical education trainees), registered nurses (RN's) and pharmacists at the Henry Ford Health hospitals or business units. This policy applies to the following areas of practice: emergency department; observation unit; general practice unit (GPU); any step down or intermediate care unit; intensive care unit (ICU); pre- and peri-procedural areas. This policy does not apply to obstetric patients, patients enrolled in hospice or patients identified as being at the end of their life or in whom comfort care orders have been placed.

Background

Henry Ford Health strives to deliver safe, efficient, equitable, effective, and timely delivery of high-quality patient-centered care in sepsis. The landmark trial for early goal directed therapy (EGDT) in severe sepsis and septic shock (Rivers et al, 2001), conducted at Henry Ford Hospital and published in 2001, serves as building block for treatment guidelines for the management of severe sepsis and septic shock. The National Quality Forum (NQF) measure #0500 – Severe sepsis and septic shock: management bundle, outlines a bundled approach for management of severe sepsis and septic shock for adult in-patients > 18 years with a diagnosis of severe sepsis or septic shock. The Centers for Medicare & Medicaid services (CMS) has adopted the NQF measure #0500 to the SEP-1 core measure. Compliance to the SEP-1 core measure is publicly reported and available on the hospital compare website. It impacts the timeliness quality indicator impacting CMS hospital star ratings.

Early recognition of severe sepsis and septic shock allows for early intervention and implementation of the management bundles. The 2021 surviving sepsis campaign guidelines highlight the importance of recognizing sepsis and septic shock as medical emergencies for which treatment should begin immediately.

Definitions

Systemic Inflammatory Response Syndrome (SIRS):

Criteria to define the clinical response to a nonspecific insult of either infectious or noninfectious origin, consisting of 2 or more of the following:

- Temperature >38.3°C (100.9°F) or < 36°C (96.8°F)
- Pulse > 90 beats/min
- Respiratory Rate >20 breaths/min
- White Blood Cell (WBC) Count < 4000 cells/ul or >12000 cells/ul or Bands > 10%

Sepsis: The systemic response to infection defined by the presence of 2 or more SIRS criteria in addition to a known or suspected source of infection

Severe Sepsis: Sepsis with end organ dysfunction (EOD or OD), as defined by the SEP-1 core measure and evidenced by one or more of the following:

- Lactic Acidosis (> 2 mmol/L)
- Systolic blood pressure (SBP) < 90 mmHg or SBP decrease > 40 mmHg from baseline or a mean arterial pressure (MAP) < 65 mmHg
- Acute respiratory failure requiring need for non invasive ventilation or intubation and mechanical ventilation
- Creatinine (CR) > 2 mg/dl, [end stage renal disease (ESRD) patients on dialysis are not included, chronic kidney disease (CKD) needs an increase from baseline CR ≥ 0.5mg/dl]
- Urine output < 0.5ml/kg/hr for 2 hours
- Bilirubin >2 mg/dl
- Platelet (PLT) Count < 100,000 cells/*ul*
- International normalized ratio (INR) > 1.5
- Partial thromboplastin time(PTT) > 60 sec (unless on blood thinner)

Septic Shock: Severe Sepsis with at least one of the following conditions:

- Persistent hypotension (systolic BP < 90 mmHg or mean arterial pressure < 65 mmHg) that does not respond to adequate fluid resuscitation
- Lactic acid ≥4 mmol/L

Best Practice Advisory: Best Practice Advisory (BPA) is a notification tool within the electronic health record that provides clinical decision support

National Quality Forum (NQF) measure 0500: Severe sepsis/septic shock management bundle:

- Within **3 hours** of presentation of severe sepsis and/or septic shock:
    - Initial lactate level measurement

- Blood cultures drawn prior to antibiotic administration
- Intravenous broad spectrum or other antibiotic administered after blood cultures drawn.
- If initial hypotension or lactate ≥ 4.0 (mmol/L) --> Resuscitation with 30 mL/kg crystalloid fluids

- Within **6 hours** of presentation of severe sepsis and/or septic shock
  - Repeat lactate level measurement (ONLY if the initial lactate is elevated)
  - Reassess and document blood pressure after administration of the crystalloid fluids
    - Record two blood pressures within 1 hour
  - If hypotension persists after fluid administration:
    - Vasopressors are administered (norepinephrine preferred as first line agent) to maintain mean arterial pressure goal of ≥ 65 mmHg
    - Repeat volume status and tissue perfusion assessment is performed (sepsis reassessment)

Policy

The Henry Ford Health sepsis program requires each hospital/business unit to have a code sepsis process for adult patients ≥ 18 years of age identified with and/or recognized as being at risk for severe sepsis and/or septic shock. The code sepsis response team will at a minimum include the bedside nurse, treating clinician and patient.

Procedure

A. The treating clinician and/or RN recognizes the adult patient (≥ 18 years of age) who is at risk of severe sepsis/septic shock through any of the following:
   1. The treating clinician and/or RN recognizes the EOD defining severe sepsis
   2. The patient with suspected sepsis becomes hypotensive (systolic BP < 90 mmHg or mean arterial pressure < 65 mmHg)
   3. A severe sepsis or septic shock BPA is triggered in EPIC

B. Any member of the care team (treating clinician or RN) is empowered to activate a code sepsis at any time when there is concern for severe sepsis/septic shock (the process of activation will be determined by each hospital/business unit)

C. The treating clinician and bedside RN collaborate to communicate concerns and suspicions regarding severe sepsis or septic shock. It is the clinician's responsibility to determine and document in the electronic health record if severe sepsis/septic shock is ruled out.

D. It is the responsibility of the RN to document sepsis care in the electronic health record

Code Sepsis Huddle

An interdisciplinary clinical team serving as the code sepsis response team meets to discuss the case and address the following:

Emergency Department code sepsis huddle (see Appendix A)

A. Is severe sepsis/septic shock contributing to the present clinical state?

B. If severe sepsis/septic shock is present, address the following:

1. What is the source of infection?
2. Have blood cultures been obtained? Do other cultures need to be obtained to help identify the source?
3. Which antibiotics will be ordered? Collaborate with local pharmacist and reference Tier 1: Suggested Empiric Antibiotic Therapy when needed.
4. Has a lactate been ordered/obtained? If the initial lactate is > 2.0, at what time will it be repeated?
5. Does the patient require a bolus of crystalloid fluid because of hypotension (systolic BP < 90mmHg or mean arterial pressure (MAP) < 65 mmHg) or initial lactate ≥ 4.0
6. At this point, what level of care is anticipated (example: GPU or ICU)?

C. The code sepsis response team will identify a time in the next 3 hours (not to exceed 6 hours) to re-huddle for a reassessment. The reassessment will include an evaluation of the following:

1. If the initial lactate was elevated (> 2.0) was a repeat lactate ordered?
2. If a crystalloid fluid bolus was ordered, was the blood pressure recorded 2 times within the hour after completion of the bolus?
3. If the mean arterial pressure remains < 65 mmHg after the initial crystalloid fluid, has a vasopressor been initiated to maintain the mean arterial pressure at ≥ 65 mmHg?
4. It is the responsibility of the treating clinician to complete the sepsis reassessment note

Inpatient unit code sepsis huddle (see Appendix B)

A. Is severe sepsis/septic shock contributing to the present clinical state?

B. If severe sepsis/septic shock is present, address the following:

1. What is the source of infection?
2. Have blood cultures been obtained within the last 24 hours? Do other cultures need to be obtained to help identify the source?
3. Was a broad spectrum or other antibiotic administered within the last 24 hours? (Collaborate with local pharmacist and reference Tier 1: Suggested Empiric Antibiotic Therapy when needed
    a. If yes, should the same antibiotics be continued or is there a need to escalate to broader coverage?
    b. If no, which antibiotics will be ordered?
4. Has a lactate been ordered/obtained? If the initial lactate is > 2.0, at what time will it be repeated?
5. Does the patient require a bolus of crystalloid fluids because of hypotension (systolic BP < 90mmHg or mean arterial pressure (MAP) < 65 mmHg) or initial lactate ≥ 4.0?

6. Does there need to be an escalation of care (example from observation status to inpatient or from GPU to ICU) or can the patient remain at the current level of care?

C. The code sepsis response team will determine a time in the next 3 hours (not to exceed 6 hours) to re-huddle for a reassessment. The reassessment will include an evaluation of the following:
    1. If the initial lactate was elevated (> 2.0) was a repeat lactate ordered?
    2. If a crystalloid fluid bolus was ordered was the blood pressure recorded 2 times within the hour after completion of the bolus?
    3. If the mean arterial pressure remains < 65 mmHg after the initial crystalloid fluid, has a vasopressor been initiated to maintain the mean arterial pressure at ≥ 65 mmHg?
    4. Does there need to be an escalation of care (example from observation status to inpatient or from GPU to ICU) or can the patient remain at the current level of care?
    5. It is the responsibility of the treating clinician to complete the sepsis reassessment note.

Transitions of care

A. It is the responsibility of the treating clinician to coordinate transitions of care and communicate a hand-off to the receiving team if a transfer is occurring

B. It is the responsibility of the bedside RN to ensure a nursing hand-off is given for the code sepsis process and its status (ex. in-progress, completed) for any transitions of care.

C. It is the responsibility of the bedside RN to ensure a hand-off is provided to the receiving RN during transfers of care

Related Documents

Tier 1: Inpatient nurse driven sepsis protocol

Tier 1: Suggested Empiric Antibiotic Therapy

Related EHR Impact

HFHS IP NURSE DRIVEN SUSPECTED SEPSIS AND SEPSIS ORDERS

HFHS IP/ED SEPSIS IVF BOLUS

HFHS IP/ED SEVERE SEPSIS AND SEPTIC SHOCK

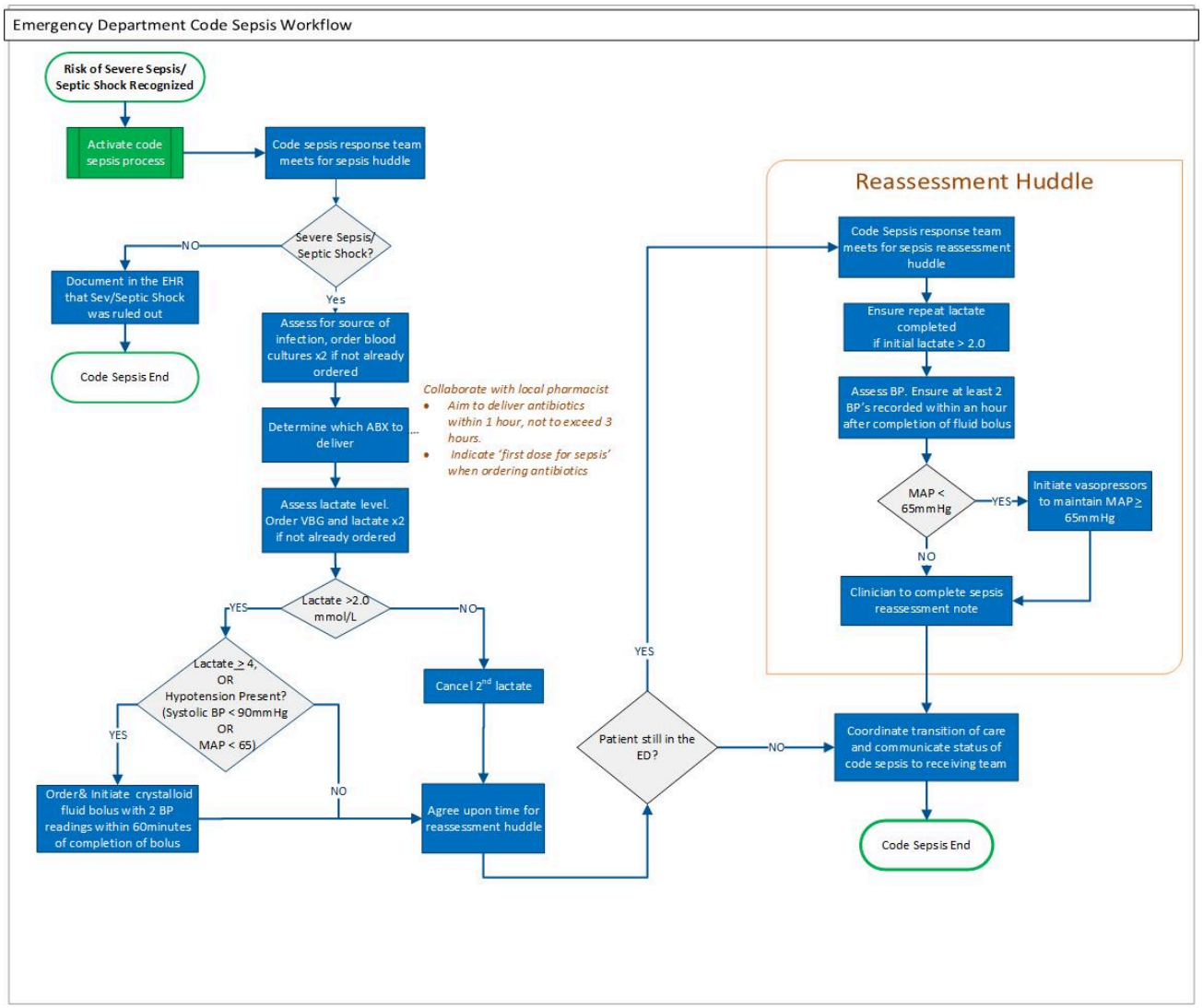
References/ External Regulations

1. Rivers E, Nguyen B, Havstad S, et al. Early Goal-Directed Therapy Collaborative Group. Early goal-directed therapy in the treatment of severe sepsis and septic shock. N Engl J Med. 2001 Nov 8;345(19):1368-77.
2. National Quality Forum. Composite measure 0500: Severe sepsis and septic shock management bundle. December 1st, 2021. https://www.qualityforum.org/QPS/0500. Accessed December 27, 2021.
3. Evans L, Rhodes A, Alhazzani W, et al. Surviving Sepsis Campaign: International Guidelines for

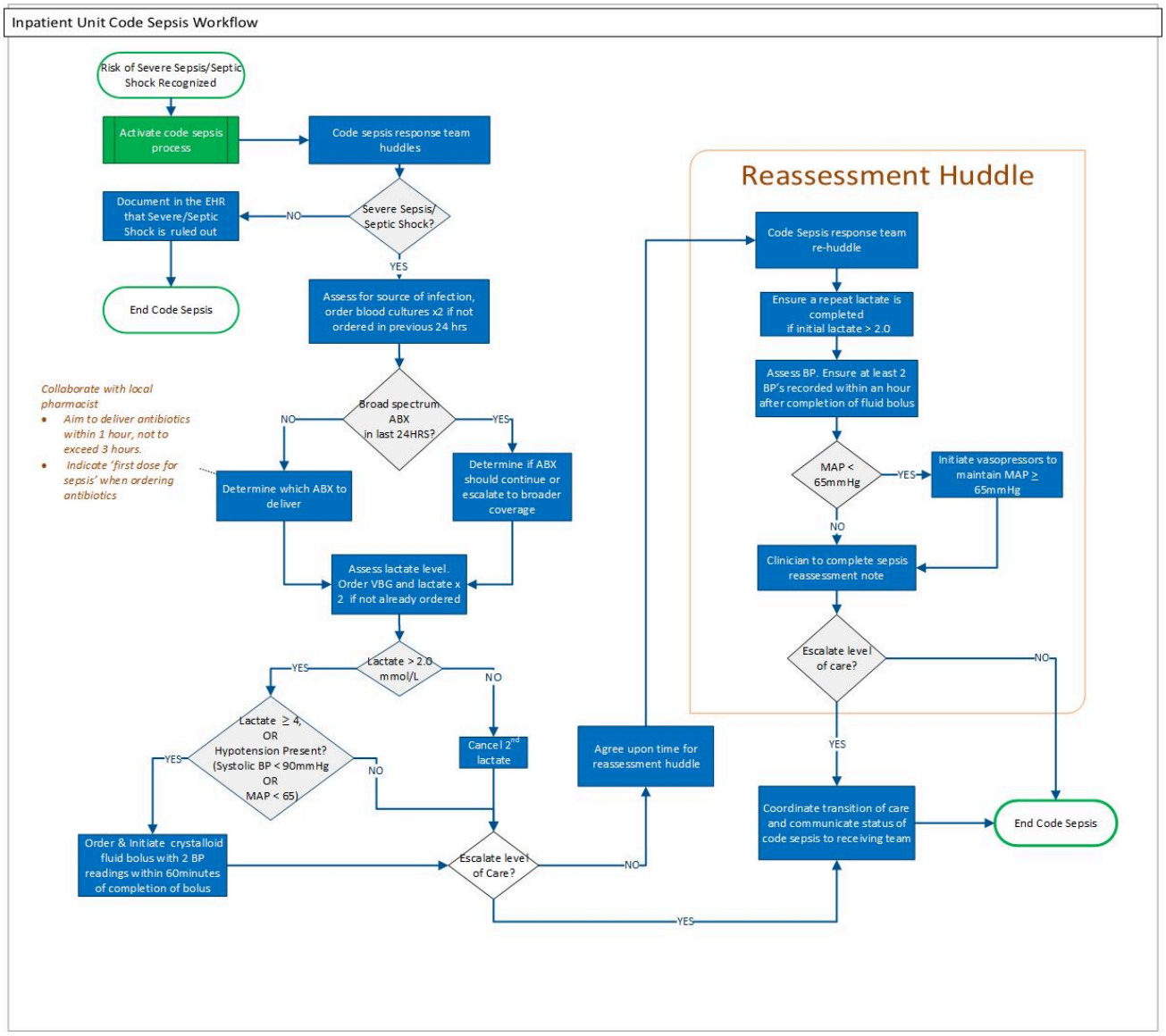
Management of Sepsis and Septic Shock 2021. Crit Care Med. 2021 Nov 1;49(11):e1063-e1143. doi: 10.1097/CCM.0000000000005337. PMID: 34605781.

Appendicies

Appendix A: Emergency Department Code Sepsis Work Flow



Appendix B: Inpatient Unit Code Sepsis Work Flow



All Revision Dates

8/8/2022

Approval Signatures

Step Description	Approver	Date
Chair, System Clinical Effectiveness Council	Adnan Munkarah: EVP & Chief Clinical Officer [KP]	8/8/2022

Pharmacy Review	Rox Gatia: VP-Pharmacy Shared Svcs	6/6/2022
System Policy Management Office	System Policy Management Offic	6/6/2022
EHR Impact	Lori Doyle: IT Architect - Epic	6/6/2022
Document Owner	Jean Kokochak: Mgr-System Clinical Program	5/31/2022

Standards

No standards are associated with this document